

**The Middle Fork of the American River Restoration Project  
Tahoe National Forest**

**Proposal to the  
Collaborative Forest Landscape Restoration Program**

**February 17, 2011**

## Executive Summary

Dominant forest type(s): Mixed Conifer, Red Fir, White Fir, Hardwood

Total acreage of the landscape: 125,800 Total acreage to receive treatment: 23,500

Total number of NEPA ready acres: 2,500 Total number of acres in NEPA process: 8,800

Description of the most significant restoration needs and actions on the landscape:

1. Reestablish natural fire regimes and reduce the risk of uncharacteristic wildfire through thinning, prescribed fire, mastication and other fuels reduction treatments targeting WUI and SPLAT areas; 2. Improve water quality and aquatic habitat through road decommissioning and maintenance, fuels treatments, sediment reduction, culvert replacement, and riparian species reestablishment; 3. Improve wildlife species habitat by increasing diversity in vegetation species, stand structures and stand patches, and reducing noxious weeds.

Description of the highest priority desired outcomes of the project at the end of the 10 year period:

The overall goal of this project is a measurable shift toward restoring ecological conditions on this landscape in a collaborative, science based manner while reducing wildfire management costs. Additional goals are to provide local economic benefit, improve our existing partnerships and develop new public and private partnerships.

Description of the most significant utilization opportunities linked to this project

High tree density and heavy biomass accumulations provide tremendous opportunity to supply sawtimber to mills and woody biomass to cogeneration power facilities. We estimate a supply of 7.5 to 8.5 million board feet of sawtimber and 20 to 50 green tons of woody biomass per year from this 10 year project.

Name of the National Forest, collaborative groups, and other major partner categories involved in project development: The Tahoe National Forest has partnered with the Sierra Adaptive Management Project ( a collaborative of Federal and State Agencies, University of California, Environmental Groups and Forest Industry), Placer County Water Agency, Placer County, Upper American River Foundation, Trout Unlimited, American River Watershed Group, Foresthill Fire Safe Council and the Placer County Fire Alliance in developing this project and establishing adaptive management strategies.

Describe the community benefit including number and types of jobs created.

The current employment rate in Placer County, CA is approximately 11.2 percent. Local communities to this project area with strong employment ties to the forestry sector are Foresthill, unemployment rate of 16 percent, and Auburn, unemployment rate of 10 percent. The TREAT tool estimated an annual total of 23.4 direct jobs and 23.2 indirect and induced jobs to be created through this project. These will extend through the life of the project. We estimate that 90 percent of these jobs will be full time, year around and 10 percent will be seasonal.

Total dollar amount requested in FY11: \$885,900

Total dollar amount requested for life of project: \$10,026,800

Total dollar amount provided as Forest Service match in FY11: \$200,000

Total dollar amount provided as Forest Service match for life of project: \$4,970,000

Total dollar amount provided in Partnership Match in FY11: \$200,000

Total dollar amount provided in Partnership Match for life of project: \$2,000,000

Total in-kind amount provided in Partnership Match in FY11: \$500,000

Total in-kind amount provided in Partnership Match for life of project: \$3,500,000

Time frame for the project (from start to finish) June 2011 through October 2020

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## Ecological, Social and Economic Context

The American River Ranger District (ARRD) of the Tahoe National Forest has identified a landscape restoration area where there are significant opportunities and needs to reestablish natural fire regimes and improved ecological function through multiple landscape ecological restoration projects. The Middle Fork of the American River Restoration Project area is located within the 1.2 million acre American River basin. Within this basin there are 125,800 acres spanning the Upper Middle Fork and the North Fork of the Middle Fork American River watersheds. This area encompasses the traditional lands of the federally recognized United Auburn Indian Community as well as the Todds Valley Miwok Maidu Foundation. Land ownership within the proposal area is primarily blocked federal ownership with some private in-holdings and urban interface areas. Approximately 106,200 acres is NFS lands and 19,600 acres are privately owned lands. The watershed contributes to the municipal and industrial water supply to the greater Sacramento area, provides habitat for threatened, endangered and sensitive species, and is a host for many other valuable ecological and cultural resources.

Five forest types are found within the area. Most of the area contains mixed-conifer (51%) and white fir (22%), but there is also red fir (13%) in the higher elevation portions of the watershed and a mixture of hardwoods (11%) and mixed hardwood/conifer (3%) spread throughout the lower elevations. Generally, the mixed-conifer areas exist below 5,000 feet elevation and include ponderosa pine, incense cedar, white fir, Douglas fir, black oak and live oak. Sugar pine is prevalent and black oak occurs scattered or in large patches. The mixed-conifer areas also contain hardwood-conifer forests that are dominated with oaks and scattered co-dominant conifers. Approximately 3,000 acres of even-aged, single-species ponderosa pine plantations established after the 1960 Volcano fire occur on what would naturally be mixed-conifer sites.

Under pre-settlement conditions, much of these forests were dominated by fire adapted/resistant species such as pine, but now they have an unnaturally high component of fir and small diameter trees and brush. Study of USGS survey data from the early 1900's indicate the proportion of true fir basal area has increased 10 to 20 percent, while the proportion of yellow and sugar pines have decreased by a similar amount across the Sierra Nevada (McKelvey and Johnston 1992). The trend towards more shade-tolerant species is ongoing.

Fire exclusion, excessive livestock grazing, impacts from previous stand replacing wildfire, unmitigated placer mining, road construction and historic logging practices such as selective logging of large pines, have impacted terrestrial and aquatic ecosystem function. This has resulted in altered fire regimes, heavy fuel loadings, and changed terrestrial and aquatic habitat composition and structure.

Fire regime and condition class mapping shows that 90 percent of this watershed has a severe or moderate departure from historic fire return intervals. As a result, the number, size, and intensity of wildfires have increased above their historical range and pose a threat to the landscape and human developments. The current wildfire conditions for the restoration project area are best described as severely departed from historic mean fire regimes, return intervals, and condition classes. Historically, most of the watershed had a mean historic fire return interval (FRI) of 10-15 years in lower elevations, and 32-50 years within the upper elevations. The Tahoe National

Forest Historic Reference Condition Mapping shows a majority of the watershed is greater than 67 percent departed (less fire frequency and greater fire severity) from the historic mean FRI. Desired wildfire conditions would resemble those found historically within the watershed. Based on fire history studies, the watershed had a fire regime of frequent mostly low intensity fires, with occasional patches of moderate to high intensity fires (Safford 2007).

The proposed treatments will target approximately 40 percent of the watershed for maximum effect and as much as possible be strategically placed across the watershed. After restoration, wildfires within the watershed should produce lower fire intensities and rates of spread under higher fire danger conditions. This will allow more flexibility in fire management tactics, strategies, and objectives. Special emphasis will be placed on treating and protecting designated wildland urban interface (WUI) areas within the project, ridge tops and areas where departure from the historic mean fire return interval is greatest. The proposed future projects will establish areas that are resistant to growing wildfire threats. Historic fire return intervals will be referenced to plan future fuels treatments designed to maintain the landscape in a resilient, fire inclusive condition. Prescribed fire will be applied in a cycle that approximates historic fire return intervals. The natural fire regime must be reestablished through systematic fuel modification projects before natural fires could be allowed to burn under any conditions within the watershed.

The risk of loss of valuable resources, including wildlife habitat, high value trees, and hydrologic functioning as a result of wildfire is high. There are over twenty federally listed or sensitive wildlife species that have been sighted or have suitable habitat within this watershed. Most notably, the California red-legged frog, a federally listed threatened species, occurs in this watershed, as well as California spotted owl and northern goshawk. The potential results from a wildland fire could disrupt municipal water supplies which would have devastating social and economic impacts if it coincided with a period of drought and already shortened water supplies.

The project area contains numerous dispersed and developed recreation sites and travel routes that provide a range of recreation opportunities. The visual character of these settings would benefit by improving and perpetuating attractive scenic quality as a result of the restorative efforts. Although the restoration efforts would likely result in short term (1-3 years) scenery disturbances that could be viewed by recreationists, proposed actions would help move toward more sustainable scenic character in the long term. Reducing tree densities and prescribed burning would help promote positive scenery attributes such as large tree character and mosaics of diverse conifer stands interspersed with meadows. The proposed actions would enhance views of existing naturally appearing landscapes, and positively affect the recreation experience.

In addition to providing clean and cold water for downstream human uses, the waters of the project area provide habitat for a variety of native resident fish species and multitude of other aquatic organisms. Intact riparian areas provide fish with good water quality, food, and necessary habitats for all stages of their life cycles. The abundant and diverse plant communities of intact riparian areas help ensure a source of water low in suspended sediments and turbidity. High intensity wildfire can cause fine sediments to be deposited in fish spawning areas that can kill eggs and emerging fry and affect aquatic macro invertebrates. The proposed fuels and vegetation management treatments are designed to influence the patterns of fire severity when a

wildfire occurs in this area so that riparian plant communities may have a higher survival rate to minimize the effects on the aquatic ecosystem.

One of the greatest threats to water quality and supply and to water delivery infrastructure is severe wildland fire. This type of fire in the Middle Fork of the American River watershed could result in an increase in peak streamflows and the potential increase in erosion rates and sediment delivery downstream after the fire. The increased peak flow, along with the bulking effect of increased floatable debris, sediment, and turbidity, could have the potential to fill reservoirs, block or damage diversion structures, and block water intake facilities. The magnitude of the potential disruption, is dependent on several factors such as the amount and location of high soil burn severity, steepness of slopes burned, soil depth and percent rock content, vegetation type, hydrophobic soil depth, and precipitation intensity. These potential effects from a wildland fire could disrupt municipal water supplies which would have devastating social and economic impacts if it coincided with a period of drought and already shortened water supplies. Proposed treatments are designed to reduce the risk of severe wildland fire.

The Forest Service is the primary manager of all of the roads in the watershed. Current road maintenance emphasis is on safety and upkeep on the arterial roads, collector roads and high-use local roads (e.g., roads accessing recreational sites). Given existing recent budgets and priorities, local roads in this area generally receive only custodial care and repairs are only done to correct problems causing resource damage. There are approximately 642 miles of roads in the watershed. About 147 miles have aggregate surfaces and approximately 483 miles are native surface roads. The Forest Service conducts routine evaluations of the current road management objectives in which non-routine maintenance and road maintenance levels are identified. Where non-routine maintenance is identified, opportunities to address them are typically in association with fuels or vegetation management activities due to the high cost of these maintenance needs. The implementation of the projects in the project area, augmented by funding from the CFLRP Program would allow for more road maintenance and increased mitigation of potential hydrological problems to occur in association with the fuels and vegetation treatments for ecological restoration. All temporary roads will be closed and rehabilitated as part of this project.

Fires also have the potential to cause substantial damage to roads and related structures. Impacts typically include damage to culvert ends, elimination of water bars, dips and other drainage structures, damage to asphalt surfacing, burning of woody debris that undermines fill slopes and road prisms, falling debris on roadways and damaged gates and barricades. The proposed activities would help minimize those effects.

Several important native and historic sites are in this watershed. Notably, the Michigan Bluff to Last Chance Trail is on the National Register of Historic Places and is entirely within the proposal area. Several more sites are eligible for listing and would be evaluated as part of this project. Opportunities exist to protect these sites from negative impacts by directional felling hazardous trees away from sensitive locations and hand thinning within sites. Some sites would be interpreted to increase public awareness and provide educational opportunities. Additionally, traditional cultural practices can be supported by these projects. One example of how this is incorporated is the use of prescribed fire to enhance Beargrass regeneration. Beargrass is a culturally significant plant used by traditional basket weavers. The district collaborates with the

local Basket Weavers Association in designing and implementing prescribed fire that stimulates this important native grass species.

Many noxious weeds are found in the watershed. Active management of noxious weeds to prevent their activity-related spread and to contain and control existing population is a critical component of all projects. Implementing the projects in this proposal offers an opportunity to work with partners and collaborators to design and implement interagency and public strategies to deal with the spread of noxious weeds. It will take action by all parties including private landowners and the public for any noxious weed management strategy to be successful. The projects in this proposal and the emphasis this watershed would receive with CFLRP funding, would allow it to serve as a showcase for integrated, collaborative noxious weed management.

Small rural communities with ties to forest management, including Foresthill, have experienced a significant loss in forest sector jobs over the past 20 years. With CFLRP funding, the District will directly increase job opportunities within the local communities of Foresthill and Auburn. Contractors not only provide local employment, but have the capability to deliver additional resources to meet a larger demand for restoration treatments. This equates to increased job opportunities. This funding could also provide more job opportunities in the green sector of power generation. The increase in and consistent delivery of woody biomass over the next ten years may increase cogeneration power facility operations. The cogeneration power plants in Lincoln, CA and Woodland, CA have a need for additional forest biomass for their plants.

It is clear that there is a strong need to strategically apply appropriate, targeted silvicultural and fuels reduction treatments to accelerate the development of key habitat and old forest characteristics, increase stand heterogeneity, restore pine, promote hardwoods, and move project areas towards resilient conditions. If unmanaged stands and plantations remain untreated, bark beetles may infest dense stands and cause large scale, unacceptable losses that may interfere with management objectives and increase fire danger. This is especially likely given the periodic multi-year dry cycles that are typical in this part of California. Under restored forest conditions, a diverse range of vegetative conditions would provide ecological niches for survival and reproduction of many plant and animal species, increasing the richness of biodiversity over time. Forest stands growing at appropriate densities, with diverse species composition, will be better suited to support opportunities for ecological adaptation in response to a changing climate and enhance the Forest's opportunity to provide a variety of ecosystem services.

### **Summary of Landscape Strategy**

The landscape strategy for the Middle Fork American River project is rooted in the Forest Service's National Strategic goals for ecosystem restoration. These goals are detailed in the 2006 national policy document, *Ecosystem Restoration: A Framework for Restoring and Maintaining the National Forests and Grasslands*. The Pacific Southwest Region has incorporated this framework into a document that guides integrated restoration management of Sierran forests (in *An Ecosystem Management Strategy for Sierran Mixed Conifer Forest (PSW-GTR-220)*). This national and regional direction has prepared the Tahoe National Forest to develop local, collaborative landscape strategies.

The local landscape strategy for the Middle Fork American River CFLRP Project was developed to promote social and economic values on the landscape, as well as restore ecological functioning of the watershed. Multiple documents and analyses were used to develop and refine the Middle Fork American River CFLRP Project (MFAR Project). Two documents written on this priority watershed, *The Middle Fork of the American River Watershed Assessment* and the *North Fork/Middle Fork American River Sediment Study*, discuss the necessity for maintaining (disturbance minimization) and enhancing (active restoration) watershed functions (Sediment Study p. 5-21). The Middle Fork Watershed Assessment focuses on the issues and key questions specifically identified for this watershed. They are assessed in terms of their biological, physical and social features. Types of information used in the analysis include: beneficial water uses; vegetative patterns and distribution; wildlife species and their habitat; human use patterns; and the importance of vegetative and riparian corridors. The analysis also includes an identification of the management opportunities that will provide background for the development of management decision in the future (Watershed Assessment p. 1). Chapter 6 of the Watershed Assessment provides management recommendations in this watershed. Many of these recommendations will be included for analysis in the CFLRP area.

The CFLRP project area is socially, economically and ecologically significant and needs to be managed as such. This landscape is socially significant because recreation values (e.g., rafting, fishing, hiking, mining, riding and camping), local communities within wildland urban intermix areas (i.e., Auburn, Georgetown and Foresthill), hydro-electric power facilities (L.L. Anderson Dam, Interbay Dam, Lowell J. Stephenson Powerhouse, Ralston Afterbay Dam, Oxbow Powerhouse, Duncan Creek Dam, Duncan Creek Tunnel, Ralston Powerhouse, and Ralston Tunnel), and municipal and agricultural water supplies (e.g., Sacramento area and the California central valley), among others, are at risk from severe wildfire effects. The Tahoe National Forest is one of the closest national forests to northern Californian urban centers such as the Sacramento metropolitan area (population 2.5 million) and the San Francisco bay area (population 7.4 million); hence, the importance of maintaining social and economic values in this area. Some of landscape values that make this watershed socially significant also make this landscape economically significant and a high priority for restoration activities. Activities that occur on National Forest lands, specifically in this landscape, contribute to local and regional economic opportunities such as from recreation (e.g., rafting, sport fishing, off-highway vehicle use, and special events [e.g., Western States Trail Endurance Run and Tevis Cup Ride]) and from vegetation management activities (e.g., biomass utilization and sawmill facilities).

This landscape is also ecologically significant because there is a high risk for loss of valuable resources, including wildlife habitat, high value trees, and hydrologic functioning as a result of wildfire is high. There are over 20 federally listed or sensitive wildlife species have been sighted or have suitable habitat within this watershed. Most notably, the California red-legged frog, a federally listed threatened species, occurs in this watershed, as well as California spotted owl and northern goshawk. In addition to providing clean and cold water for downstream human uses, the waters of the project area provide habitat for a variety of native resident fish species and multitude of other aquatic organisms. Discussions are currently being conducted for reintroduction of anadromous fish into the Middle Fork American River watershed. The National Marine Fisheries Service is currently in the process to develop and implement a steelhead reintroduction plan to re-colonize historic habitats above Folsom Dam. The Middle Fork

American River is a dynamic ecosystem subject to unpredictable stochastic events, such as wildfires. If fish are reintroduced as a result of these discussions large scale habitats should be protected and restored to prevent catastrophic risks of wildfires. Intact riparian areas provide fish with good water quality, food, and necessary habitats for all stages of their life cycles. High intensity wildfire can cause fine sediments to be deposited in fish spawning areas that can kill eggs and emerging fry and affect aquatic macro invertebrates.

Ecological restoration activities would coincide with long-term goals and objects identified in the *Tahoe National Forest Land and Resource Management Plan* (1990), as amended by the 2004 *Sierra Nevada Forest Plan Amendment*, specifically for old forest ecosystems; aquatic, riparian, and meadow ecosystems; fire and fuels management; lower westside hardwood ecosystems; and noxious weeds management. Identified vegetation and fuels management projects (see MFAR Project Map) would implement ideas presented in *An Ecosystem Management Strategy for Sierran Mixed Conifer Forest* (PSW-GTR-220), which emphasizes ecological restoration as a guide for forest management treatments. Overarching goals of PSW-GTR-220 are to reduce forest stand density and increase stand heterogeneity through tree removal and prescribed fire techniques. The District fuels management strategy is to reduce the extent and costs of high severity wildfire by strategically placing treatments across a broad landscape.

To accomplish this, and other multiple-use management goals, the American River Ranger District is proposing to use the best available science to implement a long-term fuels management strategy that will maintain and restore forest functionality (the ecological processes, goods, and services that the Middle Fork of the American River can provide), and minimize the potential for catastrophic wildfire effects to forest resources (e.g., threatened and endangered species, wildlife habitat and water quality) and community infrastructure (e.g., homes, hydroelectric power facilities, bridges and roads). The CFLRP project would maintain/restore forest functionality (the ecological processes, goods, and services that the Middle Fork of the American River can provide at the landscape scale). It has been acknowledged in these documents, and among current land owners/managers, that an open and transparent collaborative approach is necessary to successfully restore this watershed.

The proposed CFLRP treatments (see next section, Proposed Treatments) meet the criteria for Title IV funding. The Tahoe NF has a history of high intensity wildfires that are not only expensive to control, but are expensive to restore (e.g., reforestation, hazard tree removal, infrastructure restoration). Within the CFLRP area, there is one signed environmental document (Last Chance) and one nearly completed document (Deadwood) that will reduce wildfire intensity and provide desired conditions for the re-introduction of low intensity prescribed fire. Treatments would improve wildlife habitat and forest health through reducing stand density and improve stand heterogeneity, and the forest products (i.e., biomass and sawtimber) processed at local facilities. Unnecessary Forest System roads would be decommissioned and all unauthorized user-created routes would be restored. All activities would improve the health and resilience of the American River watershed from wildfire and pathogens; however, there is so much more that could be accomplished with additional funding (e.g., fen restoration and monitoring).

The *Middle Fork of the American River Watershed Assessment*, the *North Fork/Middle Fork American River Sediment Study*, and *An Ecosystem Management Strategy for Sierran Mixed Conifer Forest*, PSW-GTR-220 can be found on the Tahoe National Forest website. [Click here to go the Tahoe's website.](#)

### **Proposed Treatment**

As identified in our collaborative landscape analysis documents, there are significant opportunities and needs to reestablish natural fire regimes and improved ecological function through multiple landscape scale ecological restoration projects within the Middle Fork project area. The proposed treatment maintains our land management plan's long-term conservation goals while using the best available science to inform decision makers and the public. The landscape area is a priority watershed for the ARRD. While the proposed CFLRP landscape area only encompasses 85% National Forest System lands, this entire area contributes to the municipal and industrial water supply of the greater Sacramento area, provides habitat for threatened, endangered and sensitive species, and is a host to many other valuable ecological and cultural resources, including the California delta system. The following ecological restoration activities would enhance the resilience of these resources:

- Decrease the potential for severe wildfire effects to local communities, infrastructure improvements and forest resources within the project area and beyond.
- Reduce stand density to improve the forest's resilience to insect, disease, and drought induced mortality.
- Increase tree species diversity and enhance stand structural diversity to develop healthy forest stands that will be resilient to severe effects from wildfire, insects and diseases and changing climatic conditions.
- Maintain a road system that provides sustainable access to Tahoe National Forest Lands for the administration, protection and utilization of Forest lands and resources, consistent with Forest Plan direction.
- Reduce the occurrences of noxious weeds.
- Improve riparian and aquatic habitat.
- Enhance recreation opportunities and scenic quality.

Additionally, within the CFLRP landscape area, approximately 31,400 acres (25 percent) are designated Wildland Urban Intermix (WUI) threat zones, defense zones or urban cores. A portion of the CFLRP landscape area is covered under the *West Slope of the Sierra Nevada in Placer County*, Community Wildfire Protection Plan. Communities located near the Middle Fork American River watershed include Foresthill, Michigan Bluff and Georgetown. Vegetation and fuels treatments in the Middle Fork watershed, while not directly incorporating these communities, would complement local community wildfire protection plans and enhance their effectiveness.

Our plan to accomplish the goals outlined in this proposal is to implement six projects (Last Chance, Deadwood, Biggie, Frenchie, Michigan Bluff and Screwauger) over the course of ten years (see CFLRP Map, Appendix G). NEPA documents will be completed and implemented for these projects approximately every two years. The District anticipates mechanically treating

approximately 1,500 to 2,500 acres annually based on current timber industry workload and mill capacity. The District also anticipates prescribed understory burning on approximately 500 acres annually and pile burning on approximately 1,000 acres annually. Favorable conditions for prescribed burning are found at different times and locations throughout the project area and the burning season. Thinned areas, shaded slopes and higher elevations are suitable for drier, autumn understory burning. Effective pile burning may be accomplished in the winter season. Lower elevations and sunnier slopes are frequently suitable for understory burning during winter dry periods and into the spring. The District will also prioritize prescribed burning within units that are located most strategically for reducing the potential to carry large fires.

The first project to be implanted is the Last Chance Integrated Vegetation Management Project (NEPA complete and stewardship contract awarded). The Last Chance Environmental Assessment analyzed for treatments that will develop forest stands that are more resilient to ecosystem disturbances in the North Fork of the Middle Fork of the American River watershed. A total of 2,400 acres will be treated in Fiscal Years 2011 and 2012 to meet the purpose and need of the Last Chance Project: reduce severe wildland fire effects on vegetation, soils, water, and wildlife habitat; establish and maintain a pattern of area treatments that are effective in modifying wildland fire behavior (Strategically Placed Land Area Treatment (SPLATs)); improve conifer and hardwood tree health, vigor, and resistance to fire, insects, and disease while enhancing stand structural diversity; enhance bear grass production for Native American weavers; and decommission unnecessary roads. A variety of management actions will be used to accomplish these restoration activities, including understory thinning, mechanical removal of ladder and surface fuels, prescribed burning, and road obliteration and erosion control. Small diameter forest biomass will be removed and delivered to nearby cogeneration power facilities.

The Last Chance Project is unique because of the third-party monitoring that is focused on this project. The Last Chance project is part of the Sierra Nevada Adaptive Management Project (SNAMP), which is designed to develop, implement and test Adaptive Management processes through testing the efficacy of Strategically Placed Landscape Treatments (SPLATs) in an open and collaborative process. This includes monitoring management activities on ecosystem health, wildlife species, water quality and quantity, fire effects and public participation by SNAMP scientists. An important element of CFLRP project will be to implement adaptive management strategies from knowledge gained during the Last Chance Project monitoring, and to incorporate the landscape strategy reports and third-party monitoring strategies.

The District is currently completing the Environmental Assessment for the Deadwood Project. The decision will be made in June 2011, followed by Biggie. Deadwood has a similar purpose and need as Last Chance and is constant with broader goals of CFLRP. Initial forest health improvements and fuels reduction treatments would include commercial thinning, prescribed burning, tractor piling and burning, mastication, and hand thinning; scientifically proven methods used to improve ecological condition in other areas. Wherever possible, prescribed burning will be used as a follow up treatment to reduce surface and ladder fuels and to restore the ecological function of fire on the landscape.

Fuels management projects to be implemented over the next ten years would establish areas that are effective at modifying wildfire behavior and establish forest conditions that would be conducive for the reintroducing low intensity fire. Based on fire history studies, the watershed had a fire regime of frequent mostly low intensity fires, with occasional patches of moderate to high intensity fires. The natural fire regime must be reestablished through systematic fuel modification projects before natural fires could be allowed to burn under any conditions within the watershed. Prescribed fire would be applied in a cycle that approximates historic fire return intervals. After the treatments have been completed, the anticipated fire behavior would resemble those found historically within the watershed. In restored conditions, wildfires within the watershed should produce lower fire intensities and rates of spread under higher fire danger conditions. This would also allow more flexibility in fire management tactics, strategies, and objectives.

Furthermore, there is an urgent and immediate need to address the excessive cost of large fires. A recent research study of large wildland fire suppression expenditures by the Forest Service suggest that fire size and private land have the strongest effect on suppression expenditures (Liang et al. 2008). Efforts to contain federal suppression expenditures need to focus on the highly complex, politically sensitive topic of wildfires on private land, and the ability of fire management resources to contain fire size. Since approximately 15 percent of the proposed project area is non federal land, and no communities fall within those private holdings, the greatest opportunity to reduce suppression costs lies in reducing fire size. Fire spread modeling using FSPRO computer simulations suggest the average fire year acres for an *untreated* watershed to be 553 and average fire year acres of a *treated* watershed to be 393 (a reduction in fire size of about 30 percent). The R-CAT spreadsheet estimates an anticipated fire program cost savings of \$5,860,637 for the fully implemented proposal.

Another important ecological restoration activity is associated with management of National Forest System roads, especially decommissioning unneeded roads, ensuring appropriate design and maintenance of existing roads, and closing and rehabilitating any temporary roads, is a key component of the ecological restoration objectives in this landscape and are crucial to improving resource conditions in this watershed.

The restoration goals described in this proposal are attainable. The American River Ranger District has a successful track record working with our partners to accomplish restoration activities. The District regularly produces an integrated vegetation management environmental assessment each year, analyzing for approximately 2,000 to 3,000 acres of mechanical fuels treatments, 300 to 700 acres of prescribed burning, 20 to 50 miles of road decommissioning, 25 to 75 miles of aquatic habitat restoration, and 20 to 50 miles of trail maintenance. In addition, the District has worked with our partners to transport forest biomass from 5,000 acres to nearby power cogeneration plants (Placer County Air Quality Department), to enhance stream crossing by culvert replacement and bridge construction (State OVH Department) and to reduce stream erosion impacts by planting native vegetation (American River Watershed Group). If our proposal is selected we can immediately implement restoration treatments on numerous projects with completed environmental documents.

## **Collaboration and Multi-Party Monitoring**

### **Previous Collaborative Efforts**

Strong partnership collaboration has occurred throughout much of this landscape area for many years. Placer County, Placer County Water Agency (PCWA), the Sierra Nevada Adaptive Management Project (SNAMP [Link to website](#)), American River Watershed Group (ARWG), Placer County Fire Alliance and local fire safe councils have been actively engaged with the District in various projects within this area.

For example, The Placer County Air Control Pollution District has funded biomass operations from forest fuels reduction projects over the past two years. Through direct contributions of \$100,000 per year to the Forest, we have supported the removal of large woody debris piles generated from forest fuels reduction projects. This partnership has enabled the Forest to contribute to green energy production while reducing air pollutant emissions.

PCWA has been a long-term partner in the management of the American River Watershed. This agency controls hydro-electric power generation facilities along approximately 20 miles of the Middle Fork American River and contributes to the conservation and control of water. PCWA is an active participant in our local watershed groups and has contributed to numerous discussions on improving watershed health, and increasing forest resilience to wildfire and pathogens. PCWA partnered with the Forest to produce a watershed assessment of the Middle Fork American River in 2003. This assessment analyzed the current conditions of resources and determined opportunities for management and restoration. This has been a key document in guiding management actions in this watershed. PCWA is currently in their Federal Energy Regulatory Commission (FERC) relicensing process. Through this process the District is working with PCWA to identify vegetation, habitat and watershed health management actions and financial support PCWA will provide for these actions within the FERC boundary contained in this watershed. PCWA has also expressed interest in providing support for monitoring and funding of District projects that help meet its watershed goals of forest resilience, water quality enhancement and species habitat improvement in the upper sections of the landscape within the project area.

SNAMP was established in 2005 to develop, test and implement the Sierra Nevada Forest Plan Amendment (SNFPA) Adaptive Management Strategy. SNAMP is a unique collaboration among the Forest Service, U.S. Fish and Wildlife Service, CA Department of Fish and Game, CA Resources Agency, CA Department of Water Resources, the University of California and the public. A MOU is in place that develops the framework for this collaboration ([link to MOU](#)). The Last Chance planning area, which is within the CFLRP landscape area, was selected by SNAMP as one landscape area to develop and implement the application of an adaptive management process. University of California scientists are conducting research and public outreach to solicit input in the development of this process. This collaboration brings broader agreements in fuels reduction strategies while protecting important watershed resources. This partnership has secured funding for the SNAMP science teams to implement forest health, threatened and endangered wildlife habitat and water quality and quantity monitoring strategies within the Last Chance planning area. Past annual funding for these activities from the California Department of Water Resources, California Department of Fish and Game and the Sierra Nevada

Conservancy has ranged from \$500,000 to \$700,000. A one-time grant from the Packard Foundation for \$150,000 was awarded to SNAMP in 2008 to further scientific monitoring of fuels reduction treatments. SNAMP has also secured funding to increase the public participation processes and stakeholder involvement in our ecosystem restoration projects through regular public outreach meetings and an interactive website. Funding through the 2015 fiscal year in the amount of \$500,000 per year has been secured from partners for further monitoring and public outreach and to develop the adaptive management strategy.

The ARWG is a broad based group with representatives from the Tahoe and Eldorado National Forests, Placer County, Natural Resources Conservation Service, PCWA, state agencies, environmental groups and private land owners. This group has collaborated on several grant proposals to fund on the ground watershed restoration projects within the Middle Fork American River watershed. Grant funding was secured for fuel reduction activities including fuel break construction around communities at risk to wildfire. The ARWG also secured funding for a risk assessment to determine sedimentation issues and identify solutions for these issues through active forest management within the Middle Fork landscape area. Education and outreach projects were conducted in local communities to further explain and demonstrate fuel reduction needs/projects in the communities.

### **Ongoing and Future Collaboration**

All of these partners have committed to further collaboration with the Tahoe NF within this landscape area. The District is formalizing a more cohesive collaboration with these partners to enhance our ability to procure funding to meet our mutual watershed restoration goals. If funded we will seek other interested entities to join our collaborative including the United Auburn Indian Community and the Todds Valley Miwok Maidu Foundation, the Wild Turkey Federation and the local California Conservation Corps. Building a cohesive collaboration includes developing agreeable operating protocols for decision making, establishing monitoring strategies that are science based and adaptive and ensuring diverse representation in the collaborative group.

Collaboration will also continue with communities in Foresthill, Michigan Bluff and others. The Director of the FireSafe Council of Foresthill has recently emphasized the need for watershed restoration and fuel reduction for the Middle Fork Rim. “We need to emphasize the health of the Middle Fork watershed as the communities of Foresthill, Todd Valley and Michigan Bluff sit at the top of the Middle Fork plateau. What happens upstream in the watershed as well as directly below us in the canyon has a direct affect on Foresthill and Todd Valley,” stated Luana Dowling, Director of the Firesafe Council. The Forest Service will continue to participate with the FireSafe Council of Foresthill and the Placer County Fire Alliance and in various community events to emphasize the importance of watershed restoration and fuel reduction programs.

In addition, the Nevada/Placer Resource Advisory Committee was recently appointed by the Secretary of Agriculture. Watershed restoration and fuel reduction projects east of Foresthill in the Middle Fork watershed are being developed and will be presented for possible RAC funding. Communication and collaboration will continue to take place formally and informally with other agencies, key community leaders, interest groups, and the public.

## Utilization

Overcrowded forests and heavy biomass accumulations within the proposed CFLRP landscape area present tremendous opportunity to utilize sawtimber and small diameter woody biomass from forest health and hazardous fuels reduction treatments. Sawtimber generated from these treatments will provide necessary wood products to sawmills in our local area and stimulate economic growth in the surrounding communities. The revenue generated from the sawtimber will be used to treat small diameter ladder fuels, improve and decommission roads and aid in restoration monitoring. Small diameter biomass removal will be used generate renewable energy and displace energy production from fossil fuels. The District has a long history of using stewardship contracting authority to remove small diameter woody biomass during restoration and hazardous fuel reduction treatments and supplying biomass to cogeneration power facilities located in Lincoln and Woodland California.

Restoration treatments focused on the removal of small diameter trees and woody biomass would significantly reduce the fire hazard while enhancing water, soil and wildlife habitat characteristics and overall forest health. Fuels reduction treatments will be prioritized within the wildland urban interface (WUI), in particular where community and infrastructure issues are greatest, and across the entire landscape using the District's SPLAT strategy.

The long-term biomass capability in the CFLRP landscape area of small tree material is approximately 10 green tons/acre to 25 green tons/acre (2,000 to 5,000 board feet equivalent/acre). The Project Area is about 125,800 and we estimate an annual treatment capability on average of approximately 2,000 acres, which would yield an estimated 7.5million board feet annually (15,000 cubic feet) of sawtimber material and approximately 20 to 50 thousand green tons of residual woody material per year. The product value is estimated to range from \$85,000 to \$135,000 per year based on current timber cruise estimates and market conditions. Based on our forest inventory analysis of the Last Chance Stewardship project, the estimated output of biomass products is approximately 70,000 green tons of material. Specific project analyses of funding, operational and ecological constraints will determine the exact number of treated acres each year.

Forest products removed from the Tahoe National Forest are processed at existing facilities. The mill capacity handles material generated from federal, state and private lands. The sawmill located in Loyalton, CA, located on the eastside of the forest, has the potential to utilize biomass material generated from the entire forest. The Northern Sierra Biomass Utilization Task Force, a community based group located in Nevada City, California, is actively promoting biomass utilization. Their goal is to develop a biomass utilization facility within the next four years.

Based on current practices, small material (biomass) would be treated simultaneously with sawtimber using mechanical harvesting equipment. Biomass material ranging between four inch diameter to nine inch diameter would be cut, stacked and skidded to log landings in bundles with sawtimber material. Effective utilization and removal as described above lowers logging costs, meets multiple resource objectives, provides a greater return on investments and treats more acres than otherwise would be realized. This type of mechanized thinning will reduce ladder fuels and tree densities by removing understory trees greater than 4 inches diameter. Sawlog

material (10 inch diameter and larger) will be delivered to local sawmills to process into lumber. Mill waste is converted to secondary products. Small material (biomass) will be processed at the landing and removed as chips for use as fuel at electrical production facilities such as the Sierra Pacific Industries, cogeneration facility at Lincoln, California, or to other facilities for processing into a variety of products.

Generally, the biomass resource available in our region is underutilized. Under current economic conditions appraisals show negative values for biomass removal. In other words, the biomass has some value but the cost of removal is greater than its value. In order to remove the material incentives must be added. Added value from products such as sawtimber, in combination with additional appropriated funds, will help pay for the excess costs of biomass removal. As additional uses for biomass develop and demand increases in coming years, biomass prices may go up, further offsetting removal costs. Timing is very important in managing the costs of biomass removal. The cost to treat one vegetation strata (biomass) is much more expensive than treatments simultaneous with the removal of products of value (sawtimber).

### **Benefits to Local Economies**

With the downturn in the economy over the past several years, small rural communities with ties to forest management, including Foresthill and Auburn, have experienced a significant loss in forest sector jobs. The Bureau of Labor Statistics (November 2010) reports the current unemployment rate in Placer County at approximately 11.2 percent and the District is located within Placer County. Local communities to this project area with strong employment ties to the forestry sector are Foresthill, unemployment rate of 16 percent, and Auburn, unemployment rate of 10 percent.

With CFLRP funding, the District would directly increase job opportunities within the local and surrounding communities of Foresthill and Auburn and support local capacity to process and manufacture materials made from forest products. As calculated in TREAT (see Attachment E), we expect an annual total of 23.4 direct jobs and 23.2 indirect and induced jobs to be created through this project. These will extend through the life of the project. We estimate that 90 percent of these jobs will be full time, year around and 10 percent will be seasonal. Our primary mechanism for accomplishing CFLRP work will be through stewardship contracting. Local contractors will have the opportunity to compete for these contracts. The local contractor base exists and, despite current high unemployment, is ready and equipped to perform ecological restoration stewardship project work. There are about four logging companies available and three small business contractors that can perform mastication and timber stand improvement work. These companies are capable of ramping up capability and employment if presented with expanded contracting opportunities. Employment and training opportunities will also be provided to young people through the local High School programs and through cooperation with the California Conservation Corps. The American River District has a strong track record of working with the California Conservation Corps and will develop plans to provide employment/training opportunities to the Corps.

Recreation, water supply and power generation are also very important products which originate in part in our project area and are very important to the local economy. The proposed treatments

would enhance views of existing natural appearing landscapes which would positively affect the recreation experience and thereby maintain or increase recreation visits. The project should lessen fire extent and severity in the area and help to avoid catastrophic negative consequences to water quality which would affect the areas water delivery infrastructure and water supply. A sustained flow of high quality water is critical to the rafting, fishing and recreation experience in the Middle Fork American River.

CFLRP funding will also provide more job opportunities in the green sector of power generation. The increase and consistent delivery of woody biomass over the next ten years may increase cogeneration power facility operations. The cogeneration power plants in Lincoln, CA and Woodland, CA have indicated a need for additional forest biomass for their plants. This project, if funded, will also benefit the Foresthill Fire Safe Council and Placer County Fire Safe Alliance. The Council and Alliance will tier from our strategies and treatments to projects identified in their Community Wildfire Protection Plan. Through our strong relationship with these entities, we can both better compete and leverage additional funding opportunities to reduce the effects of catastrophic wildfire on forest resources and better protect communities at risk for large catastrophic wildfires.

Placer County is also the lead agency in constructing a biomass power generation facility in the Lake Tahoe area. The County expects land use and environmental studies to be delivered to the lead enforcement agencies (primarily the Tahoe Regional Planning Agency and Placer County) in the spring of 2010 with the project starting up in 2013. This is very important to this CFLRP proposal in two ways. First, if funded, the woody biomass generated from our fuels reduction and restoration projects has an additional location to be transported to and used for power generation (currently the plant in Lincoln and Woodland are the only facility accepting biomass from us). There is also the opportunity to enter into a long-term stewardship agreement to allow future woody biomass material from the Forest to be utilized in this facility. Second, the County is looking into a second location for a biomass power generation facility in Foresthill. The site where a sawmill once existed in Foresthill is being seriously considered. This would also provide a much needed economic opportunity for the local community.

### **Funding Plan**

The Tahoe NF is committed to allocating appropriated funds for restoring the watershed conditions in the Middle Fork watershed. The Forest plans to invest over \$200,000 of appropriated funds for implementation of fuels reduction work in the project area in FY 2011. If appropriated funds remain at or above the current levels, the TNF is committed to allocating \$530,000 per year in the future. It is also anticipated that increases in future timber values will provide more funds for biomass removal through stewardship contracting authority.

Investments will continue through SNAMP for implementation and monitoring of the Last Chance fuels reduction project. The Region 5 Regional Office is committed to continue funding of approximately \$500,000 through FY 2015. Additionally, our non-federal partners in the SNAMP efforts are also committed to approximately \$500,000 through FY 2015. While this funding is targeted to a specific location within the Middle Fork, the scientific learning and

adaptive management strategy will provide current, state of the art, science and scientific tools for our ecological restoration strategies.

Non-federal investments will also continue for implantation of restoration treatments. Placer County Air Control Pollution District will continue with approximately \$100,000 per year for biomass removal with the projects. We also anticipate PCWA to contribute funding through their FERC relicensing project and outside this project to further restoration treatments that reduce wildfire and sedimentation and increase aquatic habitat and water quality. Continued private land management will also enhance our projects. Sierra Pacific Industries (SPI) manages about 4,000 acres within this watershed. While not a direct funding contributor to land management on NFS lands, SPI supports and actively participates in our land management to further our shared restoration goals.

With the downturn in the economy over the last year, small rural communities with ties to forest management, including Foresthill and Auburn, have experienced a significant loss in forest sector jobs. With CFLRP funding, the District will directly increase job opportunities within these local communities. Contractors not only provide local employment, but have the capability to deliver additional resources to meet a larger demand for restoration treatments. This equates to increased job opportunities. This funding could also provide more job opportunities in the green sector of power generation. The increase and consistent delivery of woody biomass over the next ten years may increase cogeneration power facility operations. The cogeneration power plants in Lincoln, CA and Woodland, CA have indicated a need for additional forest biomass for their plants.

This project, if funded, will also benefit the Foresthill Fire Safe Council and Placer County Fire Safe Alliance. The Council and Alliance will tie from our strategies and treatments to projects identified in their Community Wildfire Protection Plan. Through a strong relationship with these entities, we can both better compete and leverage additional funding opportunities to reduce the effects of catastrophic wildfire on our forest resources and better protect the communities at risk for large catastrophic wildfires.

The monitoring strategy would include opportunities to use grants and agreements in support of developing monitoring plans. Our ongoing collaboration with local and regional partners would facilitate needs assessment and determination what, where and when to monitor. The collaboration would also determine how monitoring would be best accomplished including partner organizations, volunteers, contractors and Forest Service employees.

Based on current planning, equivalent or larger amounts of funding from all sources will be invested in each of the next 10 years. The result of these investments will be to increase the ecological resilience of the landscape, and provide jobs through local businesses. Past experience with stewardship contracting indicates operational costs decrease due to the efficiencies of removing cost and value products at the same time.

**Attachment A: Planned Accomplishment Table**

Performance Measure	Code	Number of units to be treated over 10 years using CFLR funds	Number of units to be treated over 10 years using other FS funds	Number of units to be treated over 10 years using Partner Funds <sup>1</sup>	CFLR funds to be used over 10 years	Other FS funds to be used over 10 years <sup>2</sup>	Partner funds to be used over 10 years
Acres treated annually to sustain or restore watershed function and resilience	WTRSHD-RSTR-ANN	10,000 Ac	10,000 Ac	2,500 Ac	\$10,026,800	\$4,970,000	\$5,500,000
Acres of forest vegetation established	FOR-VEG-EST	330 Ac	330 Ac	330 Ac	\$165,000	\$165,000	\$165,000
Acres of forest vegetation improved	FOR-VEG-IMP	7,500 Ac	7,500 Ac	2,500 Ac	\$7,500,000	\$3,750,000	\$3,750,000
Manage noxious weeds and invasive plants	INVPLT-NXWD-FED-AC	500	0	0	0	0	0
Highest priority acres treated for invasive terrestrial and aquatic species on NFS lands	INVSPE-TERR-FED-AC	0	0	0	0	0	0

<sup>1</sup> These values should reflect only units treated on National Forest System Land

<sup>2</sup> **Matching Contributions:** The CFLR [Fund](#) may be used to pay for up to 50 percent of the cost of carrying out and monitoring [ecological restoration treatments](#) on National Forest System (NFS) lands. The following BLI's have been identified as appropriate for use as matching funds to meet the required minimum 50% match of non-CFLR funds: ARRA, BDBD, CMEX, CMII, CMLG, CMRD, CMTL, CWFS, CWKV, CWK2, NFEX, NFLM (Boundary), NFMG (ECAP/AML), NFN3, NFTM, NFVW, NFWF, PEPE, RBRB, RTRT, SFSF, SPFH, SPEX, SPS4, SSSC, SRS2, VCNP, VCVC, WFEX, WFW3, WFHF. The following BLI's have been identified as **NOT** appropriate for use as matching funds to meet the required minimum 50% match of non-CFLR funds: ACAC, CWF2, EXEX, EXSL, EXSC, FDFD, FDRF, FRRE, LALW, LBLB, LBTV, LGCY, NFIM, NFLE, NFLM (non-boundary), NFMG (non-ECAP), NFPN, NFRG, NFRW, POOL, QMQM, RIRI, SMSM, SPCF, SPCH, SPIA, SPIF, SPS2, SPS3, SPS5, SPST, SPUF, SPVF, TPBP, TPTP, URUR, WFPR, WFSU.

Performance Measure	Code	Number of units to be treated over 10 years using CFLR funds	Number of units to be treated over 10 years using other FS funds	Number of units to be treated over 10 years using Partner Funds <sup>1</sup>	CFLR funds to be used over 10 years	Other FS funds to be used over 10 years <sup>2</sup>	Partner funds to be used over 10 years
Acres of water or soil resources protected, maintained or improved to achieve desired watershed conditions.	S&W-RSRC-IMP	8,000 Ac	8,000 Ac	2,500 Ac	0	0	0
Acres of lake habitat restored or enhanced	HBT-ENH-LAK	1 Ac	1 Ac	1 Ac	\$2,000	\$25,000	\$50,000
Miles of stream habitat restored or enhanced	HBT-ENH-STRM	90 Miles	100 Ac	10 Ac	0	0	0
Acres of terrestrial habitat restored or enhanced	HBT-ENH-TERR	5,000 Ac	5,000 Ac	1,250 Ac	0	0	0
Acres of rangeland vegetation improved	RG-VEG-IMP	5,000 Ac	5,000 Ac	1,250 Ac	0	0	0
Miles of high clearance system roads receiving maintenance	RD-HC-MAIN	150 Miles	150 Miles	0	\$225,000	\$225,000	0
Miles of passenger car system roads receiving maintenance	RD-PC-MAINT	0	120 Miles	0	0	\$1,800,000	0
Miles of road decommissioned	RD-DECOM	50 Miles	50 Miles	0	\$75,000	\$75,000	0
Miles of passenger car system roads improved	RD-PC-IMP	0	0	0	0	0	0

Performance Measure	Code	Number of units to be treated over 10 years using CFLR funds	Number of units to be treated over 10 years using other FS funds	Number of units to be treated over 10 years using Partner Funds <sup>1</sup>	CFLR funds to be used over 10 years	Other FS funds to be used over 10 years <sup>2</sup>	Partner funds to be used over 10 years
Miles of high clearance system road improved	RD-HC-IMP	\$25 Miles	\$25 Miles	0	\$125,000	\$125,000	0
Number of stream crossings constructed or reconstructed to provide for aquatic organism passage	STRM-CROS-MTG-STD	45	50	5	\$900,000	\$1,000,000	\$100,000
Miles of system trail maintained to standard	TL-MAINT-STD	40 Miles	30 Miles	30 Miles	\$80,000	\$80,000	\$80,000
Miles of system trail improved to standard	TL-IMP-STD	40 Miles	30 Miles	30 Miles	0	0	0
Miles of property line marked/maintained to standard	LND-BL-MRK-MAINT	0	0	0	0	0	0
Acres of forestlands treated using timber sales	TMBR-SALES-TRT-AC	7,500 Ac	7,500 Ac	0	0	0	0
Volume of timber sold (CCF)	TMBR-VOL-SLD	38,000 ccf	112,000 ccf	0	0	0	0
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production	BIO-NRG	200,000	50,000	50,000	0	0	0

Performance Measure	Code	Number of units to be treated over 10 years using CFLR funds	Number of units to be treated over 10 years using other FS funds	Number of units to be treated over 10 years using Partner Funds <sup>1</sup>	CFLR funds to be used over 10 years	Other FS funds to be used over 10 years <sup>2</sup>	Partner funds to be used over 10 years
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire	FP-FUELS-NON-WUI	7,500 Ac	7,500 Ac	1,875 Ac	0	0	0
Acres of hazardous fuels treated inside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire	FP-FUELS-NON-WUI	2,500 Ac	2,500 Ac	625 Ac	0	0	0
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire	FP-FUELS-WUI	2,500 Ac	2,500 Ac	625 Ac	0	0	0
Number of priority acres treated annually for invasive species on Federal lands	SP-INVSP-FED-AC	0	0	0	0	0	0
Number of priority acres treated annually for native pests on Federal lands	SP- NATIVE -FED-AC	0	0	0	0	0	0

**Attachment B: Reduction of Related Wildfire Management Costs**

**R-CAT Results Spreadsheet**

**Proposal Name: Middle Fork  
American River Project**

Start Year	2011
End Year	2019
Total Treatment Acres	27,906.00
Average Treatment Duration	15
Discounted Anticipated Cost Savings - No Beneficial Use	<b>\$ 3,499,218</b>
Discounted Anticipated Cost Savings - Low Beneficial Use	\$ 5,860,637
Discounted Anticipated Cost Savings - Moderate Beneficial Use	\$ 3,499,218
Discounted Anticipated Cost Savings - High Beneficial Use	\$ 3,499,218

[Link to TNF Fire Spread Probability Model \(FSPro\) map used for R-CAT calculations](#)

**R-CAT Assumptions and Data Sources**

Proposal: Middle Fork of the American River Restoration Proj.	Documentation Page
Was the analysis prospective (projecting activities, costs and revenues that are planned by the proposal) or retrospective (using actual acres, revenues and costs in an analysis looking back over the life of the project)?	Yes
Start year rationale:	2011
End year rationale:	2019
Duration of treatments rationale:	Duration based on length of CFLRP funding
All dollar amounts entered should reflect undiscounted or nominal costs, as they are discounted automatically for you in the R-CAT spreadsheet tool? Did you provide undiscounted costs, and in what year data are your costs and revenues provided.	All dollar amounts reflect undiscounted costs. Year 2011 base year for both revenue and costs.
Average treatment cost per acre rationale:	Average treatment cost per acre was calculated using a weighted average cost of planned treatments.
Rationale for actual costs per acre of treatment by year is used:	Except for mastication used recent Stewardship contract costs for mechanical treatments. Mastication used recent Service contract costs. Underburning used average Forest cost.
Average treatment revenue per acre rationale:	Based on the last two Stewardship Contract revenue projections. Both contracts within the the project area

<p>This tool is intended to be used to estimate <b>Forest Service fire program costs only</b>, did you conduct your analysis this way or have you taken an all lands approach?</p>	<p><b>Used R-CAT</b></p>
<p>Total treatment acres calculations, assumptions:</p>	<p>Based on the Last Chance and Deadwood Stewardship contract projects that are within the project boundary, the District's interdisciplinary team SPLAT layer, and planned projects to reduce the fire threat within Spotted Owl PACs</p>
<p>Treatment timing rationale with NEPA analysis considerations:</p>	<p>Planning strategy incorporates multiple treatment areas within project area. Treatment areas are scheduled for NEPA analysis prior to implementation. Implementation period estimated to occur 2-3 year timeframe.</p>
<p></p>	<p></p>
<p>Annual Fire Season Suppression Cost Estimate Pre Treatment, Assumptions and Calculations</p>	<p>Per RO recommendation calculated large fire acreage for the entire Forest for last decade, divided that result by the acreage within the Forest boundary to get a percentage of the Forest burned by large fires over the last decade. Multiplied the percentage of acreage burned by large fires by the acreage within the project area to calculate the potential large fire acreage over the next decade within the project area. Derived the large fire costs from the Forests fire data base. Again used the large fire data covering the last decade. Used the average acreage costs from these fires.</p>
<p>Did you use basic Landfire Data for you Pretreatment Landscape?</p>	<p>FSPRO runs conducted by the RO used Landfire data</p>
<p>Did you modify Landfire data to portray the pretreatment landscape and fuel models?</p>	<p>No</p>
<p>Did you use ArcFuels to help you plan fuel treatments?</p>	<p>ArcFuels was used to help plan the Last Chance and Deadwood Stewardship fuel treatments. Was not used for the rest of the project area</p>
<p>Did you use other modeling to help plan fuel treatments, if so which modeling?</p>	<p>The District created an interdisciplinary SPLAT layer based on Fireshed Assessment information</p>

Did you model fire season costs with the Large Fire Simulator?	No
If, so who helped you with this modeling?	
If not, how did you estimate costs, provide details here:	Used the Forests large fire costs for the last decade from the fire history layer to derive an average/acre cost for the large fires. Multiplied the expected large fire acreage within the project area by the average/acre cost derived from the Forest's fire history data layer
Did you apply the stratified cost index (SCI) to your Fsim results?	No. The Region decided not to run Fsim for this year CFLR projects
Who helped you apply SCI to your FSIM results?	N/A
Did you filter to remove Fsim fires smaller than 300acres and larger than a reasonable threshold?	Fsim was not run. The RO used FSPRO within WFDSS to calculate potential fire size reductions
What is the upper threshold you used?	N/A
Did you use median pre treatment costs per fire season?	N/A
Did you use median post treatment costs per fire season?	N/A
Did you test the statistical difference of the fire season cost distributions using a univariate test?	No
What were the results?	N/A
Did you estimate Burned Area Emergency Response (BAER) costs in you analysis?	Yes
Did you use H codes or some other approach to estimate these costs?	Costs based on BAER costs from fires on the Forest

Did these cost change between pre and post treatment?	Yes
Did you estimate long term rehabilitation and reforestation costs in your analysis?	Yes
How did you develop these estimates, and did these cost change between pre and post treatment?	The rehabilitation and reforestation costs were kept the same for pre and post-treatment. Cost was reduced by the projected reduction in fire size
Did you include small fire cost estimates in your analysis?	Yes
If so, how did you estimate these costs, what time period is used as a reference, and did these cost change between pre and post treatment?	Small fire cost estimate derived from information from the Forest's fire history data base for the years 2005-2009. Used the costs from fires that occurred within the project area.
Did you include beneficial use fire as a cost savings mechanism in your analysis?	Yes
How did you estimate the percent of contiguous area where monitoring is an option for pretreatment landscape?	Due to the landownership pattern within the Forest beneficial use fire is a very limited option to not an option on the Tahoe. Estimated that if the treatments were conducted that there may be a small sections or limited opportunities on large fires were monitoring may be an option
How did you estimate the percent of contiguous area where monitoring is an option for post treatment landscape, and why did you select the percentage of your landscape for low, moderate and high?	The landowneship pattern within and adjacent to small portions of the project area may allow the option for monitoring within the post treatment landscape. Selected low due to the limited opportunity to use this option on a large fire.
How did you derive an estimate for the percentage of full suppression costs used in fire monitoring for beneficial use?	Based on limited opportunities on large fires within the Forest and project area that there may be 25% chance to use this option under the post treatment conditions
Did you ensure that you clicked on all the calculation buttons in cells in column E after entering your estimates?	Yes

**Line 16: Did you use basic Landfire Data for you Pretreatment Landscape?**

We used the California Fuels Landscape (updated 08/27/2010) developed by the Pacific Strategic Support Cadre.

**Line 17: Did you modify Landfire data to portray the pretreatment landscape and fuel models?**

We used the California Fuels Landscape (updated 08/27/2010) developed by the Pacific Strategic Support Cadre. Since this dataset is updated yearly we did not modify it.

**Line 18: Did you use ArcFuels to help you plan fuel treatments?**

No

**Line 19: Did you use other modeling to help plan fuel treatments, if so which modeling?**

We used the Landscaped Editor function in the Wildland Fire Decision Support System (WFDSS) to simulate the treatment prescriptions, then the Fire Spread Probability model in WFDSS to test the post treatment landscape and derive the percent reduction of the probable area burn. The analysis used 7 days for the duration of the 256 fire simulations under average Energy Component (ERC) for August 15th. Data used was the 082710 version of the California Fuels Landscape (.LCP) at 60 meter resolution. Ignition files used were points on a 5,000 meter grid within the project boundary. Analyst: Phil Bowden

**Line 20: Did you model fire season costs with the Large Fire Simulator?**

Because of time constraints we did not.

**Methodology for Fire Spread Probability Model (FSPro) analysis**

**Fire Spread Probability (FSPro) Modeling:**

1. Due to time constraint The FSPro model in WFDSS was used to test both the pre & post treatment landscapes instead of the preferred Fire Behavior Simulator (FSim).
2. ArcMap GIS was use to clip the FSPro pre & post treatment raster outputs to the project area.
3. Then to derive the percent reduction of the probable area burned these outputs were compared.
4. This percent reduction can be applied to the historic acreage burned for the area and then used in the R-Cat spreadsheet.

**Fire Simulation Inputs**

**Weather Station:** Hell Hole RAWS

**Fuel Moisture Data:** The average Energy Component (ERC) for August 15<sup>th</sup> 3/20 – 11/01/2000 – 2010

**Fire Simulation duration:** 7 days

**Number of Fire Simulations:** 500

**Winds:** Gusts & Ten minute average 7/01 – 10/15/1989 - 2010

**Simulated Ignition:** Points on a 5,000 meter grid located within the project boundary were used.

**Analyst:** Phil Bowden (916)640-1119 [pbowden@fs.fed.us](mailto:pbowden@fs.fed.us)

### **Pre-treatment Spatial Fuels Attributes**

The 08/27/2010 version of California Fuels Landscape (.LCP) developed by the Pacific Southwest Region’s Strategic Support Cadre at 60 meter resolution was used because it has modeled past wildfire behavior in the local area very adequately. This dataset is also updated yearly and did not have to be modified for recent treatments and wildfires. The California Fuels Landscape is derived from the existing vegetation (CALVEG) dataset. Information on this dataset can be found at:

<http://www.fs.fed.us/r5/rsi/clearinghouse/forest-veg.shtml>

### **Post-treatment Spatial Fuels Attributes**

The Tahoe National Forest’s Fuels and Vegetation Management Staff provided the following 5 GIS Shape files and fuel landscape modifications for the simulated treatments:

<b>Shape File Name</b>	<b>Fuel Model</b>	<b>Canopy Base Height</b>	<b>Canopy Bulk Density</b>	<b>Canopy Cover</b>
TL8_Splats	188	3.7 meters	Multiply by 0.85	If >= 40 set to 40
TL8_DeadwoodFuelbreaks	188	3.7 meters	Multiply by 0.85	If >= 40 set to 40
TL8_DeadwoodTreatment	188	3.7 meters	Multiply by 0.85	If >= 40 set to 40
TL8_LastChanceTreatment	188	3.7 meters	Multiply by 0.85	If >= 40 set to 40
TL3 Rx Burns	183	2.5 meters	Multiply by 0.90	If >= 70 set to 70

The Landscaped Editor function in the Wildland Fire Decision Support System (WFDSS) was then used to to simulate these treatment prescriptions on the pre-treatment California Fuels Landscape (.LCP).

### **Fire Spread Probability (FSPro) Modeling Limitations**

Fire spread only is modeled and there are no outputs for the probability of other fire behavior attributes such as flame length, fire type, and fireline intensity. Unlike the preferred Fire Behavior Simulator (FSim) FSPro does not simulate the probability of fire ignitions happening. Due to this fact the pre and post treatment acreage change is quite arbitrary and should not be used as an input into the R-CAT spreadsheet. Also point ignitions on a 5,000 meter grid may not adequately test the post treatment landscape. Variations in the wind & ERC scenarios between the pre & post treatment simulations will also contribute to changes in burn probabilities. The large number of fire simulations (500) should reduce the effects from this variation.

**Attachment C: Members of the Collaborative**

<b>Organization Name</b>	<b>Contact Name</b>	<b>Phone Number</b>	<b>Role in Collaborative<sup>3</sup></b>
Sierra Nevada Adaptive Management Program Includes: U.S. Fish and Wildlife Service, CA Department of Fish and Game, CA Resources Agency, CA Department of Water Resources and the University of California.	Mike Chapel	916-498-5323	Monitoring and formulating adaptive management strategies
Placer County Air Control Pollution District	Brett Storey	530-745-3011	Consult on Biomass utilization and monitoring activities
Placer County Water Agency	Einar Maisch	530-823-4882	Participate in watershed restoration strategy development and pursuing funding opportunities
Upper American River Foundation	Bill Templin	916-601-9954	Participate in monitoring of restoration activities and pursuing funding and partnership opportunities
Trout Unlimited – Sac Sierra Chapter	Bill Templin	916-601-9954	Participate in monitoring of restoration activities and pursuing funding and partnership opportunities
Placer County Fire Alliance	George Alves	916-408-2775	Participate in fuel treatment design and strategy and effectiveness monitoring and pursuing funding and partnership opportunities
Foresthill Fire Safe Council	Luana Dowling	530-367-2465	Participate in fuel treatment design and strategy and effectiveness monitoring

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**Attachment D: Letter of Commitment**

February 14, 2010

Chris Fischer, District Ranger  
American River Ranger District  
22830 Foresthill Rd  
Foresthill, CA 95631

**Re: Commitment to Participate in the Collaborative Middle Fork of the American River Restoration Project on the Tahoe National Forest**

Dear Mr. Fischer:

We, the undersigned participants in the Middle Fork American River Restoration Collaborative, strongly support the collaboration and coordination currently underway in these watershed projects. The Middle Fork American River project includes some of the most fire prone areas in the Tahoe National Forest combined with high value recreation land, important wildlife habitat and critical watersheds. As a collaborative, we agree on the need to reduce the threat of catastrophic fire in a manner that helps restore the ecosystem and hydrologic functioning while incorporating the needs of the local communities and the municipal water supply facilities.

We actively support the multi-party monitoring program currently in the development stage. We will assist in the design and refinement of the monitoring program as well as search for additional funding opportunities. We will also continue to work with the communities of Foresthill, Todd Valley and Michigan Bluff regarding watershed health and fuel reduction. These communities are directly affected by what happens upstream in the watershed as well as in the canyon directly below them.

As active participants in the Middle Fork American River Restoration Collaborative, we agree that it is critical to work together for healthier forests and the economic well being of the local communities. We applaud this effort.

Sincerely,

/s/Einar Maish  
Placer County Water Agency

/s/Mike Chapel  
Sierra Nevada Adaptive Mgt Project

/s/Brett Story  
Placer County

/s/Bill Templin  
Upper American River Foundation  
Trout Unlimited-Sac Sierra Chapter

/s/George Alves  
Placer County FireSafe Alliance

/s/Luana Dowling  
Foresthill Fire Safe Council

### Attachment E: Predicted Jobs Table from TREAT Spreadsheet

Region 5

TREAT Project Impacts for: MIDDLE FORK OF THE AMERICAN RIVER RESTORATION PROJECT

SUMMARY TABLES: Average Annual Impacts (For CFLR Fund Money Only)

Table 5

	Employment (# Part and Full-time Jobs)	Labor Inc (2010 \$)
Commercial Forest Products	30.8	1,527,264
Other Project Activities	8.3	\$442,608
FS Implementation and Monitoring	7.4	\$294,053
<b>Total Project Impacts</b>	<b>46.6</b>	<b>\$2,263,924</b>

**Note**

Employment is full, part-time, and temporary jobs (direct and secondary). Labor Income is the value of wages and benefits plus Proprietor's Income (direct and secondary)

Other Project Activities (ecosystem restoration, etc.) are labor intensive and therefore will produce higher employment impacts relative to commercial harvest activities which are highly mechanized and are not as labor intensive.

**Impacts-Jobs and Income**

The economic impacts of the restoration strategy are reported in this worksheet. No data entry is required, and the summary table may be cut a paste directly into the proposal. As reported here, the jobs and labor income are a result of the direct, indirect and induced effects, and are assumed to last the life of the project.

**Detailed Average Annual Impacts Table (For CFLR Fund Contributions Only)**

	Employment (# Part and Full-time Jobs)			Labor Inc (2010 \$)		
	Direct	Indirect and Induced	Total	Direct	Indirect and Induced	Total
<b>Thinning-Biomass: Commercial Forest Products</b>						
Logging	4.9	5.8	10.7	237,306	294,167	531,473
Saw mills	5.6	10.8	16.5	305,902	474,505	780,408
Plywood and Veneer Softwood	-	-	-	-	-	-
Plywood and Veneer Hardwood	-	-	-	-	-	-
Oriented Strand Board (OSB)	-	-	-	-	-	-
Mills Processing Roundwood Pulp Wood	-	-	-	-	-	-
Other Timber Products	-	-	-	-	-	-
Facilities Processing Residue From Saw mills	1.1	2.6	3.7	85,653	129,020	214,672
Facilities Processing Residue From Plywood/Veneer	-	-	-	-	-	-
Biomass--Cogen	0.0	0.0	0.0	461	250	711
<b>Total Commercial Forest Products</b>	<b>11.6</b>	<b>19.2</b>	<b>30.8</b>	<b>629,322</b>	<b>897,941</b>	<b>1,527,264</b>
<b>Other Project Activities</b>						
Facilities, Watershed, Roads and Trails	2.1	1.4	3.5	147,068.1	79,731.8	226,799.9
Abandoned Mine Lands	0.0	0.0	0.0	0.0	0.0	0.0
Ecosystem Restoration, Hazardous Fuels, and Forest Health	4.0	0.8	4.8	171,200.8	44,607.6	215,808.4
Commercial Firewood	0.0	0.0	0.0	0.0	0.0	0.0
Contracted Monitoring	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Other Project Activities</b>	<b>6.1</b>	<b>2.2</b>	<b>8.3</b>	<b>318,269</b>	<b>124,339</b>	<b>442,608</b>
<b>FS Implementation and Monitoring</b>	<b>5.7</b>	<b>1.8</b>	<b>7.4</b>	<b>205,275</b>	<b>88,778</b>	<b>294,053</b>
<b>Total Other Project Activities &amp; Monitoring</b>	<b>11.8</b>	<b>4.0</b>	<b>15.7</b>	<b>\$523,543</b>	<b>\$213,117</b>	<b>\$736,661</b>
<b>Total All Impacts</b>	<b>23.4</b>	<b>23.2</b>	<b>46.6</b>	<b>\$1,152,866</b>	<b>\$1,111,059</b>	<b>\$2,263,924</b>

**Attachment F: Funding Estimates for 10 year life span of project**

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	\$1,706,900.00
FY 2011 Funding for Monitoring	\$204,000.00
1. USFS Appropriated Funds	\$200,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value: SNAMP	\$500,000.00
5. Estimated Forest Product Value	\$75,000.00
6. Other (specify) Secure Rural School Program, Title II Funds	\$50,000.00
FY 2011 Total (total of 1-6 above for matching CFLRP request)	\$1,025,000.00
FY 2011 CFLRP request (must be equal to or less than above total)	\$885,900.00
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	0
Other Public Funding	0
Private Funding	0

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	\$2,207,900.00
FY 2012 Funding for Monitoring	\$204,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value: SNAMP	\$500,000.00
5. Estimated Forest Product Value	\$106,000.00
6. Other (specify) Secure Rural School Program, Title II Funds	\$50,000.00
FY 2012 Total (total of 1-6 above for matching CFLRP request)	\$1,386,000.00
FY 2012 CFLRP request (must be equal to or less than above total)	\$1,025,900.00
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	0
Other Public Funding	0
Private Funding	0

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	\$2,251,000.00
FY 2013 Funding for Monitoring	\$225,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value: SNAMP	\$500,000.00
5. Estimated Forest Product Value	\$106,000.00
6. Other (specify) Secure Rural School Program, Title II Funds	\$35,000.00
FY 2013 Total (total of 1-6 above for matching CFLRP request)	\$1,371,000.00
FY 2013 CFLRP request (must be equal to or less than above total)	\$1,105,000.00
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	0
Other Public Funding	0
Private Funding	0

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	\$2,207,000.00
FY 2014 Funding for Monitoring	\$250,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value: SNAMP	\$500,000.00
5. Estimated Forest Product Value	\$112,000.00
6. Other (specify)	0
FY 2014 Total (total of 1-6 above for matching CFLRP request)	\$1,342,000.00
FY 2014 CFLRP request (must be equal to or less than above total)	\$1,115,000.00
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	0
Other Public Funding	0
Private Funding	0

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	\$2,232,000.00
FY 2015 Funding for Monitoring	\$225,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value: SNAMP	\$500,000.00
5. Estimated Forest Product Value	\$112,000.00
6. Other (specify)	0
FY 2015 Total (total of 1-6 above for matching CFLRP request)	\$1,342,000.00
FY 2015 CFLRP request (must be equal to or less than above total)	\$1,115,000.00
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	0
Other Public Funding	0
Private Funding	0

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	\$1,700,000.00
FY 2016 Funding for Monitoring	\$200,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value:	\$100,000.00
5. Estimated Forest Product Value	\$120,000.00
6. Other (specify)	0
FY 2016 Total (total of 1-6 above for matching CFLRP request)	\$950,000.00
FY 2016 CFLRP request (must be equal to or less than above total)	\$950,000.00
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	0
Other Public Funding	0
Private Funding	0

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	\$1,700,000.00
FY 2017 Funding for Monitoring	\$200,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value:	\$100,000.00
5. Estimated Forest Product Value	\$120,000.00
6. Other (specify)	0
FY 2017 Total (total of 1-6 above for matching CFLRP request)	\$950,000.00
FY 2017 CFLRP request (must be equal to or less than above total)	\$950,000.00
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	0
Other Public Funding	0
Private Funding	0

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	\$1,700,000.00
FY 2018 Funding for Monitoring	\$200,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value:	\$100,000.00
5. Estimated Forest Product Value	\$120,000.00
6. Other (specify)	0
FY 2018 Total (total of 1-6 above for matching CFLRP request)	\$950,000.00
FY 2018 CFLRP request (must be equal to or less than above total)	\$950,000.00
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	0
Other Public Funding	0
Private Funding	0

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	\$1,730,000.00
FY 2019 Funding for Monitoring	\$200,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value:	\$100,000.00
5. Estimated Forest Product Value	\$135,000.00
6. Other (specify)	0
FY 2019 Total (total of 1-6 above for matching CFLRP request)	\$965,000.00
FY 2019 CFLRP request (must be equal to or less than above total)	\$965,000.00
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	0
Other Public Funding	0
Private Funding	0

Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2020 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2020 Funding Type	Dollars/Value Planned
FY 2020 Funding for Implementation	\$1,730,000.00
FY 2020 Funding for Monitoring	\$200,000.00
1. USFS Appropriated Funds	\$530,000.00
2. USFS Permanent & Trust Funds	0
3. Partnership Funds	\$200,000.00
4. Partnership In-Kind Services Value:	\$100,000.00
5. Estimated Forest Product Value	\$135,000.00
6. Other (specify)	0
FY 2020 Total (total of 1-6 above for matching CFLRP request)	\$965,000.00
FY 2012 CFLRP request (must be equal to or less than above total)	\$965,000.00
Funding off NFS lands associated with proposal in FY 2020 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2020 Funding Type	Dollars Planned
USDI BLM Funds	0
USDI (other) Funds	0
Other Public Funding	0
Private Funding	0

Attachment G: Maps

[Link to 11x17 color copies of the three maps below](#)



