

Proposed Treatment

The Upper South Fork of the Salmon River (USF) has been identified as a landscape that meets the criteria for the Collaborative Forest Landscape Restoration Program (CFLRP) and needs additional implementation funding to carry out the restoration treatments. The Klamath National Forest (KNF) has a history of large expensive wildfires and is identified nationally as one of the National Forests where fire suppression costs have been excessive. The KNF has been working to mitigate severe wildfire effects by implementing projects that restore ecological processes, create sustainable resilient landscapes, and reestablish natural fire regimes. These projects also improve local economic and social conditions through job creation and protecting many places people enjoy in the USF landscape. The KNF has worked with many cooperators to develop collaboratively-based projects that meet public needs. Partners who had traditionally been in conflict with the KNF have become advocates for landscape restoration treatments of the USF.

Within the USF, ten projects are planned that include 3,460 acres of thinning, 41,000 acres of strategic fuel treatments (including 10,171 acres of fuel breaks and 4,070 acres surrounding travel corridors), 508 acres of reforestation, sediment reduction treatment on 40 miles of road, and treatment of 65 miles of roads to provide safer travel. More than 81,000 hundred cubic feet (CCF) of wood will be removed with these projects. Funding from the CFLRP would help treat enough area to significantly affect fire behavior and forest restoration at the landscape level. Several projects are scheduled for implementation within the USF landscape area this fiscal year. Between the appropriated funds that are already allocated, and the value of wood to be removed, about \$1.2 million dollars are available for matching the CFLRP funds this year.

The USF is an 119,000-acre landscape on the KNF in northern California. The USF includes 117,000 acres of National Forest System land, of which 85% is forested, and 2,200 acres of private land, primarily in small isolated parcels of which approximately half contain home sites. The area is densely wooded and has a recent history of uncharacteristically large expensive stand-replacing wildfires. The USF includes two Late Successional Reserves (LSRs) identified through the Klamath Forest Plan of 1995 to promote the development and retention of “old growth” and mature (late successional) vegetation and the habitat for wildlife species (such as the northern spotted owl) that depend on such forests.

As a landscape that has burned and will again, one part of the restoration goal is to create conditions where fire can operate within a natural range of variability or be suppressed with least cost and resource damage when suppression is necessary. Other parts of the goal include restoration of habitat for anadromous fisheries (such as salmon and steelhead trout) and for wildlife (such as the northern spotted owl) that depend on late successional vegetation as well as for elk and other game species; reduction of unwanted sediment and high water temperatures in the Salmon River and its tributaries; and restoration of the landscape for scenic beauty and recreation opportunities for the human population. The USF contains two distinct recreation settings, identified by the KNF’s Recreation Facility Analysis. The “Salmon River Country” setting offers sightseeing, kayaking, camping and fishing within its rugged, remote river canyons and the “Wilderness/Backcountry” provides uncrowded backpacking and equestrian use on steep forested ridges.

All projects are aimed at improving ecological resilience under changing conditions such as those driven by natural disturbances, climate change, and human uses. Treatment objectives for the Taylor Fuels project, located on land allocated to LSR, are to reduce forest fuel loading and ladder fuels; reduce the risk of uncharacteristically intense wildfire; reduce the risk to life, property and natural resources from wildfire; develop sustainable forest conditions; restore functions and processes of natural ecological systems. Objectives for the Eddy Gulch LSR Fuels/Habitat Protection (Eddy LSR) project are to protect existing and future late successional habitat from threats of wildfire; to reduce wildfire threat to communities and municipal water supplies; and to ensure public and firefighter safety. The Petersburg Pines project, in general forest for which planning began early in 2010, incorporates the Salmon River Community Wildfire Protection Plan (CWPP) and proposes to meet the objectives of the CWPP; to lower stand density and return forested lands to a condition resistant to insects, pathogens and stand replacing wildfires; and to implement the KNF Elk Restoration Strategy. Objectives of the Caribou Fire Reforestation Project, begun after a large-scale wildfire in 2008 and located in general forest, are to re-establish forest cover; to allow wildfires to play their natural ecological role; and to abate the snag hazard adjacent to roads. The objective of the Caribou Site Prep and Reforestation project, and the Blindhorse Reforestation project, is to reestablish conifer vegetation in areas burned by wildfire. The Upper South Fork project objective is to improve forest health, increase stand growth and vigor, and reduce the risk of catastrophic wildfire. The Dogpaw Plantation Thin was designed to improve fuel conditions, reduce stand density and associated insect-caused mortality, and increase tree growth. Other restoration projects are planned to improve the water quality of the Salmon River and streams that flow into the river by reducing potential sediment delivery.

A desired outcome of the planned integrated projects will be resilient vegetation, of different ages and size classes, to provide a diversity of habitats. One element in providing this outcome is the use of wildfires. In addition to firefighter and public safety, the Federal Wildland Fire Policy recognized the role of wildfire as an essential ecological process and natural change agent. The KNF Forest Plan provides guidance to restore fire to its natural role in the ecosystem, to the maximum extent possible, consistent with the safety of persons, property and other resources. The proposed landscape restoration treatments will increase the ability to manage wildfires for multiple objectives, meeting one of the guiding principles of the Federal Fire Policy and the Forest Plan. Each of the projects includes strategically placed treatments to achieve desired results (see landscape map in Map section). All of the currently planned projects are complete and ready for implementation except Eddy LSR and Petersburg Pines. The Decision for Eddy LSR is expected to be signed by summer and that for Petersburg Pines by the end of 2010.

Many restoration projects across the landscape have been completed since the Forest Plan was signed in 1995, especially those that treat low-lying vegetation to reduce chances of stand-replacing wildfire and those that reduce sediment delivery to the river and streams. Treatments to reduce surface fuels have been accomplished on 3,900 acres in the USF, but are needed on considerably more to meet the Pacific Southwest Region (Region 5) Leadership Intent for Ecological Restoration (May 3, 2010). Treatments to reduce the risk of sediment entering stream channels from roads include decommissioning of roads, and storm-proofing to change the road prism through out-sloping, creating rolling dips, and eliminating inside ditches and cross drains to keep sediment from moving into streams (hydrologic disconnection). Road improvement

projects scheduled for implementation in 2010 through 2019 include replacing 57 culverts with those that can handle 100-year storm flows, armoring 3.2 miles of road to reduce risks of sedimentation, and stabilizing roadbeds in inner gorges to reduce erosion.

Major planned activities, and associated acreages of treatment, are listed by project in Table 1 (in the Utilization section). All vegetation treatments that include harvest of trees more than 10” in diameter (often referred to as commercial thinning because these trees can be sold to help pay for other treatments) will be accomplished by variable density thinning except in the fire-killed stands. Variable density thinning reduces the overcrowding of trees by utilizing a series of skips and gaps. Gaps consist of wide thinning in areas to produce a park-like stand; skips consist of untreated, relatively dense patches of trees in other locations to provide closed canopy conditions for wildlife habitat.

Stands where trees will be harvested by variable density thinning in the Eddy LSR project are all located along ridge tops to create a strategic fuel break system. In the event of a wildfire, the fuel breaks will allow firefighters to halt the advance into other parts of the LSR. Fuel breaks also provide a place to begin prescribed burning. Interspersed areas will be treated to thin smaller diameter trees. Treatments of small fuels will occur either by using masticators or chainsaws and handpiling. These treatments will result in a closer approximation of the historic condition of this landscape.

Treatments in the Petersburg Pines project are designed to reduce threats of intense wildfire and improve elk winter range as displayed in the KNF Elk Restoration Strategy. A number of meadows will be restored (by removing trees encroaching on them) to promote additional elk grazing. Cutting and hand-piling of trees, and retaining hardwoods along major ridgelines between the Salmon River and the Trinity Alps Wilderness boundary will improve ecological resilience and scenic quality within this portion of the landscape. Like the ridge treatments in Eddy LSR, the ridges in the Petersburg Pines area can then be used as a base for prescribed burning and wildfire suppression. A fuel break on the ridgeline is proposed for the community of Cecilville. Removal of hazard trees and thinning dense roadside vegetation (ladder fuels) along specific roads will provide safer emergency routes for residents to leave the area during wildfire threat. These treatments will also provide a safer route into the area for firefighters and places (anchor points) where they can initiate firefighting activities.

The Caribou Fire Restoration, Caribou Site Prep and Reforestation, and Blindhorse Reforestation projects will remove standing dead trees and establish a new forest consisting of both conifer and hardwood trees on approximately 500 acres that burned with a high intensity and the effects of which were of high severity (many acres of dead vegetation). Removal of the charred biomass (small trees and other understory vegetation) will result in areas in which firefighters will be able to fight wildfires. Black oaks will dominate the vegetation on a fuel break established on the ridgeline where the Caribou Fire of 2008 was contained. As part of this project, all temporary roads used during harvesting operations will be closed to disconnect the roads from erosion into streams (hydrologic disconnection). Project design will replicate natural appearing fire patterns and minimize scenery disturbances visible from river and wilderness recreation settings.

Ridgeline mastication of small diameter ladder fuels will be done as part of the Taylor Fuels project to reduce the likelihood of stand-replacing wildfire. Chainsaw cutting and hand-piling of ground and ladder fuels are used to break up the fuel continuity between valley bottoms and upper slopes. Treatments along strategic ridgelines help isolate areas of high fuel loading from recent drought and insect-induced mortality to the conifer overstory (canopy).

The restoration treatments in Dogpaw Plantation Thin will reduce stand densities in a large pine plantation, established after the original trees were destroyed in a high intensity wildfire in 1955. Western bark beetles are beginning to cause pockets of mortality and are threatening the entire plantation due to overcrowding of trees. The dead and dying trees will be removed in a biomass operation and living trees will be thinned using mechanical harvesting techniques. The resulting stands will be more resilient to drought and insects, and enhance scenic character by creating more open stands with large trees visible from sensitive travel routes and viewpoints.

Several different types of contracts will be used to implement these restoration projects including both timber and service stewardship contracts. Much of the prescribed burning will be done by KNF crews. The Salmon River Restoration Council (SRRC), a group of USF residents, will continue to implement restoration treatments such as noxious weed reduction on both private and public lands, road restoration, and fuels reduction on private lands. The current implementation schedule includes underburning in the USF area during the spring and fall of 2010. A contract for treatments in the Caribou Fire Restoration project is expected to be awarded by fall of 2010. A contract for the mechanical harvesting in Dogpaw plantation has been awarded and this project is expected to be completed in 2010. Other projects that have been submitted for contracting include site preparation and both hand-piling and yarding on the Caribou and Blindhorse projects. Conifer planting in the Caribou area will occur in the spring of 2011. Thinning, biomass removal, cutting and piling of fuels, and mastication in the Eddy LSR are expected to take place in 2011. Thinning of trees in Petersburg Pines is expected to begin in 2012 along with underburning and fuel break construction. Road restoration work will be carried out in over the next three years.

By coordinating with restoration treatments occurring on KNF lands, local residents of the USF increase their potential success in obtaining grants through local fire safe councils and elsewhere to create defensible space around their residences and better insure the safety and protection of life on emergency access routes identified in the CWPP. This helps more of the landscape to be restored and become more resilient to wildfires with high severity effects on the watershed while protecting communities and providing for firefighter safety.

Monitoring the success of landscape restoration will occur in a number of ways. All the reforested areas will be examined to determine the number of trees that are surviving (survival exams) in the first and third season after planting. Multiparty monitoring will include agency personnel, fire safe council members and interested individuals. Success will be measured in reduced conifer mortality from drought, disease and insects; improved decision space and safe travel for firefighters and residents in a wildfire situation; and reforested conifer stands.

Ecological Context

The ecological context refers to the physical and biological environment of the USF area and its resilience to disturbances such as wildfire, insect and disease infestation, and climate change. Social and economic sustainability tied to the ecological context are discussed further in later sections of this proposal.

The USF area is part of the larger Klamath Mountain Bioregion in which coniferous forest diversity is higher than anywhere in North America. Much of the landscape consists of steep mountain terrain. Deeply weathered granitic bedrock is prone to shallow fast-moving debris slides and deep-seated slow-moving landslides dominate on metamorphic bedrock. The USF contains more than 500 miles of streams and is part of the Salmon River Watershed, designated as a “Key Watershed” under the 1994 Northwest Forest Plan and the 1995 KNF Forest Plan. Key Watersheds serve as refugia for maintaining and recovering habitat for at-risk stock of anadromous, such as the spring-run Chinook salmon, and resident fish. The main river segments are recommended for inclusion in the National Wild and Scenic River (WSR) System. The river and tributaries provide habitat for one of the only remaining wild populations of spawning spring Chinook salmon.

The Mediterranean climate is characterized by long, hot summers and cool, wet winters with average precipitation of 45 to 55 inches. Complex topography ranging in elevation from 2,300 feet to 8,900 feet and deeply dissected canyons influence the structure and composition of vegetation in the watershed. The dominant vegetation in the watershed can be classified into three ecological zones. The lower elevation zone is dominated by a mix of conifers and hardwoods, including Douglas-firs. The middle elevation zone is dominated by a mix of hardwoods (such as Oregon white oak, and black oak) and a diverse array of conifer species (such as ponderosa pine, sugar pine, and incense cedar). With increasing elevation and moisture, white fir and Shasta red fir replace the pines in the highest elevation zone with an open mosaic of patches of trees bordered by meadows and rocky ridges at the highest elevations.

Wildfire is the most widespread and dynamic disturbance affecting the USF area (see the Wildfire section for more information). Both vegetation and topography are key drivers of the fire regime in the watershed and most fires are ignited naturally by widespread lightning events. The historic fire regime was characterized by frequent fires of low- to-mixed severity. Numerous fire starts occur in the watershed every year and most are suppressed. Due to fire suppression, approximately 83 percent of the watershed has been without large wildfires over the past 20 years; approximately 90 percent of the area shows moderate to severe departure of condition class based on historic fire return intervals. As a result, the build-up of ladder and surface fuels has increased the probability of high severity stand-replacing fire (Agee and Skinner 2005). In addition, forest vegetation has changed from a heterogeneous pattern to a more homogeneous pattern of small openings within dense forest. An increase in vegetation density has led to large scale insect and disease attacks in the watershed and created stands less resilient to drought, warming climate, and intense wildfires.

The goal for the USF watershed through landscape restoration strategy and project design is to ensure diverse resilient forest ecosystems with high-quality aquatic and terrestrial habitat by reaching desired conditions. Desired conditions are defined in the Forest Plan and other

landscape restoration strategies; they were identified by looking at the USF landscape as an integrated and resilient ecosystem. The landscape restoration strategy includes the protection of communities and sensitive scenic, soil, water, air, vegetation, wildlife and fish resources from severe and intense wildfires while still recognizing that fires have played a key role in developing and maintaining healthy ecosystems. The restored vegetation will consist of more open and diverse stands of trees than currently exist. Species that are resilient to wildfires and climate change such as pines, incense cedar, and oaks will be more dominant on the landscape.

There are 30 mapped locations of incursions of eight species of non-native invasive plants (noxious weeds) in the USF area. Noxious weed populations will be reduced or eliminated. The Salmon River will be at less risk of sedimentation from roads and loss of vegetation due to high severity wildfires and insect and disease damage; this would improve habitat for fish. Thinning of LSRs would lead to improved growth in the remaining trees, and eventual development of larger and older trees, improving the habitat for wildlife species such as the northern spotted owl.

Data derived from weather stations within and adjacent to the area show mean annual air temperature in the watershed has risen by about 2° (F) within the last 50 years, influenced by a significant increase in mean minimum (nighttime) temperatures. There is no apparent long-term trend in average precipitation during the same period, with considerable variability from year to year, but there has been a significant decrease in precipitation falling as snow. Increasing temperatures, changing precipitation patterns, and declining soil moisture trends have shifted the suitable range for many tree species to higher elevations. With higher rainfall to snowfall ratios and higher nighttime minimum temperatures, broadleaf trees (especially oak species) are predicted to become an increasingly important component of conifer-dominated forests. Higher temperatures also correlate with longer summer drought conditions which, in turn, increase drought stress on seedlings and increase wildfire risk. A restoration strategy with projects that mitigate for increased disturbance from high intensity wildfires while promoting species diversity, are the most likely to increase ecosystem resilience in the face of climate change. Within the USF landscape promotion of drought tolerant and fire-resistant species of trees (including pines and incense cedar) and restoration and maintenance of a healthy hardwood component are critical to increasing short-term resistance to effects of climate change and promoting longer-term resilience to change.

Strategies needed to restore resilience vary in different ecological zones in the USF. In the lower elevation ecological zone, restoring and maintaining vegetation in riparian areas surrounding streams (Riparian Reserves as defined in the NWFP and KNF Forest Plan) is often the focus of ecological restoration strategies and project implementation. Treatments to maintain or improve water quality and watershed function are emphasized. Treatments to protect aquatic resources, developed in collaboration with the USDC National Marine Fisheries Service, the State of California Department of Fish and Game (CDF&G), the North Coast Regional Water Quality Control Board (NCRWQCB), and local community groups such as the SRRC, will include treating vegetation within stream and river corridors when at risk from wildfire, and disease or insect outbreaks, while maintaining a healthy water resource.

In the mid and upper elevation ecological zones, Wilderness, Riparian Reserves (including unstable lands), and LSRs are the primary land allocations. Uncharacteristic wildfire occurs in the middle ecological zone more than in any other zone of the USF. In addition, this is one of the

most important ecological zones for late successional species such as the northern spotted owl and its critical roosting and nesting habitat on lower slope positions on north and east facing slopes. Research by Taylor and Skinner (Alan H. Taylor and Carl N. Skinner (1998): Fire history and landscape dynamics in a late successional reserve, Klamath Mountains, California, USA. Forest Ecology and Management 111: 285-301) concluded that “patterns of past fire severity, inferred from age-classes, indicate that upper slopes, ridgetops, and south- and west-facing slopes experienced more severe fires between 1850 and 1950 than lower slopes or east- and north-facing slopes. Implications are that lower slopes and north and east aspects are more likely than other topographic positions to sustain or promote long-term, closed canopy late-successional conditions. Prescribed fire will likely be an integral component of management plans that successfully maintain natural processes and structures in late-successional reserves in the Klamath Mountains.” To identify, protect and improve sustainable habitat for threatened, endangered, and sensitive species of fish and wildlife, projects in the USF will continue to use the results of monitoring of Forest Plan implementation, past research, and current ongoing research to understand the effects of ecological disturbance events such as wildfire and tailor projects to reduce unintended negative effects.

To prevent, remediate or control invasive plant species (noxious weeds) treatments will continue on the 30 mapped locations of incursions of eight species of non-native invasive plants in the USF area. These treatments, in collaboration with the SRRC, are discussed in more detail in the Collaboration section.

As discussed in the Proposed Treatment section, insect and disease concerns are related to the highly dense forested condition of the USF and associated tree mortality related to insect and disease infestations. These concerns are addressed in a number of proposed treatments that would reduce the number of trees in stands by variable density thinning, reducing the number of small trees by mastication and other fuel treatments, and strategic ridgelines treatments to help isolate areas of high fuel loading from insect-induced mortality of conifer canopies.

In addition, the USF watershed has been the focus of projects designed to reduce the risk of sediment entering stream channels from the roads. The KNF has a substantial history of road decommissioning and storm-proofing in the USF. The KNF has collaborated with local residents to decommission 33 miles of road and storm-proof 23 miles, in the USF since 1995. Local communities are stakeholders and collaborators in this process because the USF serves as the source of their municipal or domestic water. Future projects will continue this emphasis as discussed in the Proposed Treatment section.

The proposed treatment of the USF landscape will increase resilience and the ability of the landscape as a whole to adapt to changing climate and other disturbances. Landscape restoration has been and will continue to be influenced by the scientific studies and research projects either completed or ongoing within the USF. Formal collaborative research with the USDA/USDI Joint Fire Science Program, USDA Forest Service Pacific Southwest Research Station, USDI Fish and Wildlife Service, State Universities, and local entities within the USF landscape include fire effects studies, fuel treatment studies, and carbon sequestration studies. Results have been used to determine responses of late successional and other wildlife species to wildfire treatments, as well as in developing and designing other treatments using local and best available science.

Collaboration

Non-governmental parties interested in management of national forest lands within the landscape include, but are not limited to, the SRRC, Salmon River Fire Safe Council, Siskiyou County Fire Safe Council, RMEF, Ducks Unlimited (DU), Quail Unlimited, the American Forest Resource Council (AFRC), California Deer Association (CDA), the National Fish and Wildlife Foundation, and the NCRC. Governmental parties include the local tribes, Siskiyou County, AmeriCorps, Student Conservation Association, United States Department of Interior (USDI) Fish and Wildlife Service, USDI Bureau of Reclamation, United States Department of Commerce (USDC) National Marine Fisheries Service, the California Department of Forestry and Fire Protection (CALFIRE) and CDF&G. The Siskiyou County Board of Supervisors has provided the Forest with a letter of support for the proposal (posted at the USF web site <http://fsweb.klamath.r5.fs.fed.us/Resources/UpperSoForkLA/>)

Collaboration with local groups occurs through the use of memoranda of understanding (MOU), project planning under the Healthy Forest Restoration Act (HFRA), field reviews, stream surveys for salmon and steelhead, noxious weed treatments, watershed education and river cleanup, joint development of restoration strategies, actions implemented under cost-share or participating agreements, and training of local residents in skills needed for restoration activities has been occurring since the 1990's. The KNF participates in the monthly meetings (called the Salmon Learning and Understanding Group) hosted by the USF community to exchange ideas, address problems, identify treatments, and create visions for the watershed.

The KNF met with local Native American tribal councils on all proposed treatment projects. The SRRC and Fire Safe Council were instrumental in the development of the Eddy LSR, Petersburg Pines, Caribou Fire Reforestation and Caribou Site Prep projects. The USDI Fish and Wildlife Service and the USDC National Marine Fisheries Service provided input into the design of the fuels and habitat protection project in the Eddy LSR. The Siskiyou County Natural Resource Advisor and the AFRC helped develop criteria for the Caribou and Petersburg Pine projects. The RMEF and the CDA were involved in the Petersburg Pines project development. All provided ideas and concerns that helped develop the projects in meetings held in local communities and on field trips to project areas. The biggest accomplishment of these collaborative efforts has been to keep the projects moving forward towards implementation by shaping projects that have adequate public support to be implemented. Through the collaborative process the groups work with the KNF to develop and implement projects that are ecologically restorative and meet the needs of a diverse public.

Noxious weed control is another area of collaboration. The SRRC has been involved in noxious weed management since the early 1990's. A noxious weed program sponsored by the SRRC promotes and implements manual removal, mulching, and other non-chemical methods of weed control throughout the watershed. This program has been effective at significantly reducing and eradicating many of the populations of spotted knapweed located throughout the USF and continues to target weed species at prioritized locations associated with large wildfires.

Wildfire is a concern of all parties involved with the USF. It affects their homes, drinking water or favorite fishing hole, the air they breathe, or habitat for species listed under the Endangered

Species Act (ESA). The CWPP, a Community Liaison program for increasing communication during wildfires, and support for projects to decrease fuel loading within the USF are examples of collaboration between the communities and the KNF.

The KNF participates in many partnerships to accomplish wildlife, fish, and fuels management treatments in the USF area. The KNF reintroduced elk in the area with the support of the RMEF and the CDF&G. The KNF partnered with RMEF and DU to restore the Petersburg wetlands. The RMEF has also helped sponsor the USF vegetation treatments and the Station Gulch big game water source/guzzler. Prescribed burning in the Long Gibson area of the USF project was supported by Quail Unlimited, the CDA, and the RMEF.

For more than 20 years, the Salmon River community has helped survey salmon and steelhead in the USF watershed. In addition to ongoing monitoring for salmon and steelhead, water quality, noxious weed, and the Pacific Southwest Research Station's migratory bird and spotted owl monitoring, the KNF is working with community groups to develop the multi-party monitoring plan for the Eddy LSR project.

At a larger scale, collaboration resulted in the finalization of two agreements for restoration of the Klamath River Basin (discussed in more detail in the Landscape Strategy section). These agreements are supported by the USDA Secretary of Agriculture and the USDI Secretary of Interior, and the Governors of California and Oregon, as well as by other federal, state and local agencies and groups.

The USF area is an ideal landscape on which to implement and highlight the “all lands approach” to resource management, in that treatments on private lands have been and will continue to be coordinated with treatments on federal lands. The Pacific Southwest Region of the Forest Service (Region 5) has already submitted an all-lands proposal for integrated invasive weed management that includes the KNF. Partners such as the SRRC have demonstrated how a non-profit can take the lead for actions on all land ownerships concerning knapweeds, dyers woad, and other invasive plants. Similar experiences and opportunities exist for reducing fuels risk, creating safer access roads, improving elk habitat, and protecting watershed values while stimulating the economy. The SRRC currently is the largest employers in the USF, providing jobs to residents, many of whom are displaced woods workers. The USF landscape restoration proposal will foster treatment of an area of rugged terrain with important natural resource values and a number of engaged partners on a landscape that is prone to high severity large wildfires.

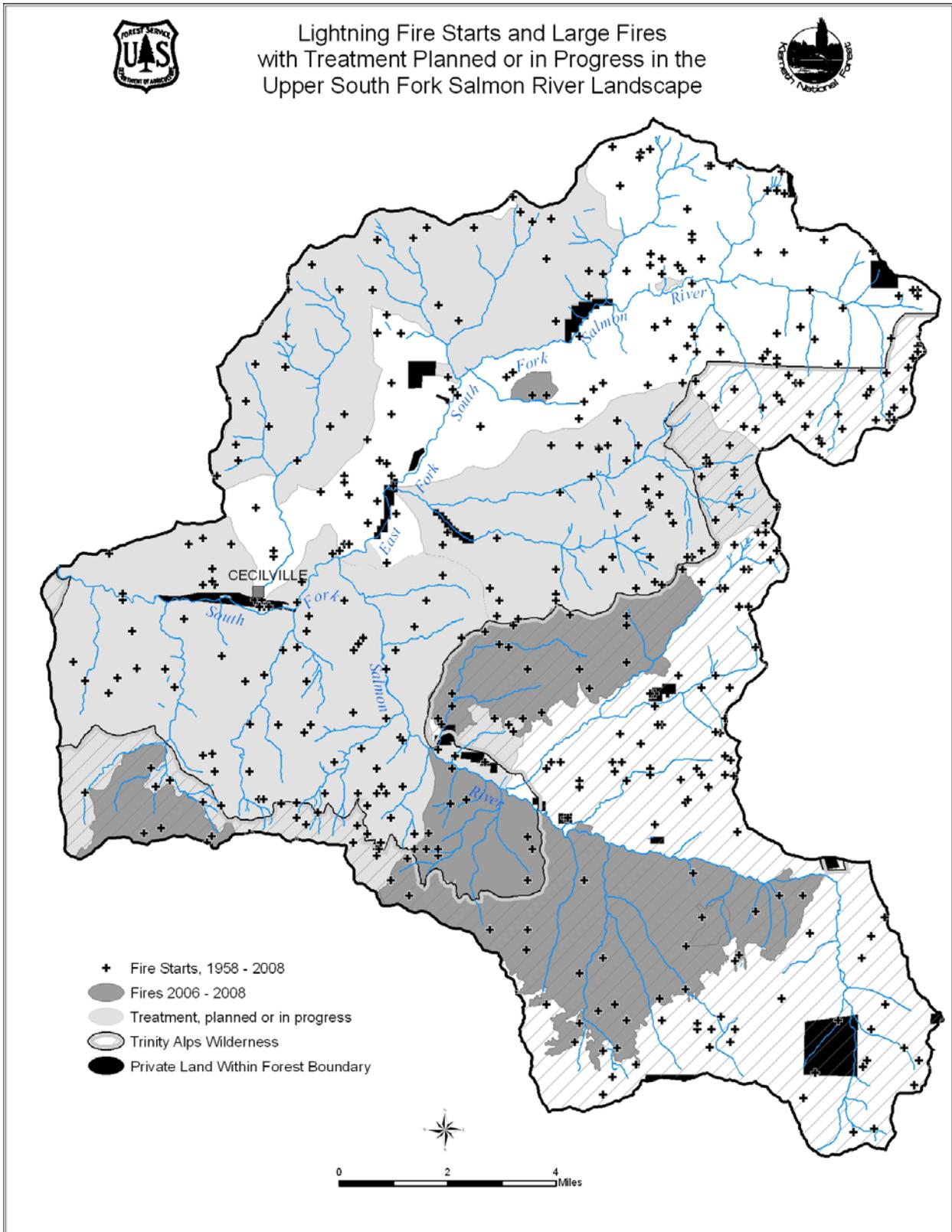
Wildfire

Fire has historically played a vital role in shaping the vegetation patterns of the USF watershed as can be seen by the sheer number of fire starts and large fire history alone (see map on next page). As a result of the large number of simultaneous fires combined with poor access for fire-suppression resources, steep topography, and extensive strong canyon inversions, widespread lightning events have recently contributed to over 20,000 acres burned within the watershed and situations where fires burn for weeks to months and cover very large areas. After the strategically placed fuels reduction projects discussed in the Proposed Treatment section are implemented, approximately 70,000 acres or about 60 percent of the watershed will be positively affected. Maintaining treatment effectiveness will reduce firefighter exposure, suppression costs, and fire effects to the many physical, biological and social values and resources of this landscape.

Recent fire activity and consequences have led to debate over how wildfires should be managed in the future in remote areas such as the USF watershed. Over the last four years, fire suppression costs on the KNF have ranged from 15 to 74 million dollars per year. The increases in recent years in the number of acres burned in large wildfires, cost of suppressing these fires, and resulting firefighter exposure lead to a need to minimize these conditions by implementing projects that restore ecological processes, create sustainable resilient landscapes, and move toward re-establishing natural fire regimes.

Due primarily to the suppression of wildfires and dense growth of vegetation, the historical fire regime of frequent fire (5-19 years) and low- to-mixed severity has changed. Currently, approximately 83 percent of the USF watershed has been without sizeable wildfires over the past 20 years. Sixty five percent of the USF has not had a large wildfire since fire suppression efforts began on the KNF. In spite of the number of fires that start every year (approximately 450 fires began between 1958 and 2008), few large wildfires have occurred. As a result, the build-up of surface and ladder fuels has increased the probability of having a high severity stand-replacing fire. Therefore, current fire behavior is anticipated to burn much like recent fires with a mix of severities within the altered fire regime including significant areas of uncharacteristically high severity wildfire. In addition, recent research of the 2006 and 2008 fires in the Upper South Fork landscape show that patterns of fire severity can be attributed to vegetation type, solar radiation, weather patterns, and slope positions. Upper slopes, the tops of ridges, and south and west facing aspects typically experienced higher fire severity. The degree of fuel management in the area has also been directly linked to fire severity in the area.

Implementing landscape restoration projects will change conditions in the USF watershed to move toward restoring pre-suppression conditions and make the landscape more resilient to future changes. Landscape treatments are designed to transform current ecosystem conditions into largely self-maintaining structures and functions that require less human intervention, yet still support desired conditions. The Salmon River CWPP addresses this landscape level concept by highlighting the effects on rural areas that are at risk of wildfire. The CWPP has been incorporated into the Eddy LSR, Petersburg Pines, and Caribou projects. The prescribed treatments will improve conditions for residents, their neighborhoods and communities, and for firefighters in the event of a large scale wildfire and help restore healthy forested conditions.



Utilization

Utilizing material from fuel reduction, watershed, and forest restoration projects can enhance the economic feasibility of a project. Utilization stretches funds available for projects, often allowing more acres to be treated. Challenges arise when low value products such as small diameter material and biomass chips are hauled long distances since haul costs are a major portion of the expense. The forest products industry in the KNF area (within economic haul distance) consists of 2 veneer mills as well as 3 sawmills in both California and Oregon. Biomass cogeneration capacity is growing in the area and includes one mill with 100,000 BDT's of installed capacity which is expected to start-up within the year.

The proposed integrated fuel treatment project involves:

- Material from thinning that can be sold as sawlogs (>10" diameter material)
- Biomass utilization (3"-10" material + tops, limbs, and bole material from thinning)
- Specialty products (poles and firewood)

Benefits of restoration treatments are great even though there are relatively high costs associated with removing material from steep slopes and hauling materials from the USF. Although some of the proposed projects are located along county or KNF roads, long travel distances increase the cost of hauling materials to facilities that use them. Therefore, economic efficiencies are sought in treatment design and equipment use. Processing materials over 10" in diameter that can be sold as sawlogs (roundwood) and low value biomass material in one operation has been found to be the most cost effective. Economic efficiencies include using equipment already onsite to process materials over 10" in diameter to also process smaller materials. Higher value material helps pay to cut and skid the lower valued material to landings. Additionally, making poles and firewood available for public use helps reduce the cost of treatments designed to make road access safer since 6" and larger material is costly to hand pile.

As proposed, projects to implement the landscape restoration strategy will consist of approximately 46,000 CCF (23 MMBF) of sawlog/veneer material, 33,000 CCF (16.5 MMBF) of biomass, and close to 1,700 CCF (850 MBF) in pole and firewood products (Table 1).

The KNF has established a successful history of completing the types of treatments that are proposed. Local contractors have the capacity to remove logs and biomass from steep slopes. Local mastication contractors also have the capacity to work in rugged terrain. The KNF also has a record of completing large prescribed burning projects.

TABLE 1. List of Projects for the Upper South Fork Salmon River Proposal, with outcomes.

| Project | Sawlog ¹ | Biomass ² | Burning ³ | Travel Corridors ⁴ | Fuel Breaks ⁵ | Planting ⁶ | Mastication ⁷ | Cut/Hand-pile Poles/Firewood ⁸ | Miles of Road Affected ⁹ |
|--|--|----------------------|----------------------|-------------------------------|--------------------------|-----------------------|--------------------------|---|-------------------------------------|
| Dogpaw Plantation Acres | 40 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Dogppaw Plantation Volume | 415 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Eddy LSR Acres | 930 | 930 | 22630 | 2910 | 8291 | 0 | 2290 | 2180 | 60 |
| Eddy LSR Volume | 14000 | 9200 | 0 | 0 | 0 | 0 | 0 | 1090 | |
| Petersburg Pines Acres | 2490 | 2000 | 2600 | 1160 | 1880 | 0 | 0 | 390 | 25 |
| Petersburg Pines Volume | 27480 | 20000 | 0 | 0 | 0 | 0 | 0 | 600 | |
| Caribou Site Prep Acres | 215 | 215 | 0 | 0 | 0 | 215 | 0 | 0 | |
| Caribou Site Prep Volume | 4300 | 2160 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Caribou Reforestation Acres | 0 | 94 | 0 | 0 | 0 | 220 | 0 | 106 | |
| Caribou Reforestation Volume | 0 | 1880 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Taylor Fuel Acres | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 230 | |
| Long Gibson Acres | 0 | 0 | 1700 | 0 | 0 | 0 | 0 | 0 | |
| Upper South Fork Acres | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 0 | |
| Blind Horse Acres | 0 | 0 | 0 | 0 | 0 | 73 | 0 | 73 | |
| USF Road Sediment Reduction | Project affects about 40 miles of roads: Upgrades 57 culverts, and storm-proofing, site stabilization on 18 roads in 7 subwatersheds | | | | | | | | 40 |
| Total Acres | 3675 | 3279 | 27230 | 4070 | 10171 | 508 | 2450 | 3599 | |
| Total Volume (CCF) | 46195 | 33340 | 0 | 0 | 0 | 0 | 0 | 1690 | |
| Estimated Cost | \$5,884,350 | \$2,667,200 | \$5,446,000 | \$2,614,750 | \$4,212,975 | \$66,040 | \$1,531,250 | \$1,797,275 | |
| Estimated Revenue | \$7,391,200 | \$2,500,500 | \$0 | \$0 | \$0 | \$0 | \$0 | \$8,450 | |
| \$\$ Needs Total: \$15,398,690: | -\$1,506,850 | \$166,700 | \$5,446,000 | \$2,614,750 | \$4,212,000 | \$66,040 | \$1,531,250 | -\$8,450 | \$ 1,079,000 |

¹ Estimated Volume = 17,415 CCF tractor and 28,780 CCF cable; average costs = \$90 (tractor) and \$150 (cable); estimated revenue = \$160/CCF

² Average costs = \$45/green ton to chip and haul; estimated revenue = \$30/green ton. Volume is CCF.

³ Average costs = \$200/acre to underburn

⁴ Average costs = \$600/acre to cut and pile, and \$125/acre to burn piles (includes a reduction in costs from pole and firewood treatment)

⁵ Average costs = \$350/acre to reestablish vegetation

⁶ Average costs = \$600/acre to cut and pile and \$125/acre to burn piles

⁷ Average costs = \$625/acre to masticate in the Salmon River area

⁸ Average costs = \$600/acre to cut and pile and \$125/acre to burn piles; there is a \$5 revenue plus a \$300/acre reduction in costs to hand-pile travel corridors.

⁹ Cost is for Upper South Fork Road Sediment Reduction Project only. Average cost is \$27,000/road mile for culvert upgrades including storm-proofing/site stabilization for watershed improvement.

Investments

Proposed Federal investments in restoring vegetative conditions in USF are outlined in the Proposed Treatment section of this proposal. Additional Federal investments for decommissioning of unneeded roads, storm-proofing needed roads to reduce risk of sediment delivery to streams, meadow restoration and treatment of invasive weed populations are also discussed in the Proposed Treatment section and in the Funding Estimate section.

Non-federal investments, either in funds or by in-kind contributions by partners, are discussed in general in the Collaboration section of this proposal. These investments include providing training for forestry, fire, fuels, and watershed skills. Skills developed through this training will be put to work on both federal and non-federal lands, on projects such as shaded fuel breaks, adequate accessible water systems, underburning, and on multi-party monitoring.

Outside the USF landscape, non-federal entities are investing in equipment, tools, and infrastructure to help in restoration efforts. For example, a number of organizations are investing in chipping and chip hauling equipment. A lumber mill outside the USF but within Siskiyou County is adding a co-generation facility that will process wood chips, and the city of Yreka is also working to develop a co-generation facility. These facilities could provide processing for biomass from both the USF landscape restoration efforts and for similar efforts elsewhere in the area. In combination with the treatments in the USF proposal, these efforts will create jobs to help moderate Siskiyou County's current 17% unemployment rate. The opening of two co-generation facilities in Siskiyou County will decrease the cost of treating small diameter material by providing markets within a reasonable transportation radius. It would also provide a larger market for the material since all of the material being removed from just the USF could provide the entire needs of the co-generation facility being added to the lumber mill for more than a year.

Two local purchasers of wood from the KNF have been investing in smaller stinger-steered chip vans that will remove chips from roads that were designed for log trucks and cannot be driven by larger chip vans. The smaller equipment would allow removal of small diameter material from areas that would otherwise be inaccessible to chip vans and significantly reduce the costs of removing material generated by restoration treatments. The co-generation plants, the smaller chip vans, and chipping equipment being invested in by non-federal entities will provide the long-term advantage of reducing the cost of treating small diameter material from the USF and other steep landscapes on the KNF. The USF landscape restoration projects provide an example of treating relatively inaccessible areas that may be applied to other fire-prone areas with steep slopes. Stewardship contracting can encourage private sector entrepreneurs to craft creative, less costly methods of accomplishing planned work. For example, a stewardship contract for the Dogpaw plantation thinning project has been awarded to a local company that is helping to develop and test the stinger-steered chip vans designed to traverse narrow roads previously inaccessible to the typical chip vans.

Landscape restoration projects in the USF are expected to create 400 jobs related to the removal and use of small diameter trees, most jobs will be available for workers within Siskiyou County. There would be 230 jobs created as jobs in the woods, transporting materials, mill working, and in the co-generation operations. In addition, approximately 40 more jobs would be created with fuel break construction, mastication, planting, thinning, and burning.

A program started a few years ago at a local area community college, College of the Siskiyous (COS), helps train students in Natural Resource technical careers such as collecting inventory data for fisheries studies, using chainsaws and chippers to create fuel breaks, and operating mechanical harvesting equipment to thin dense stands of trees. This past year, COS started their new Environmental Resources Program to create pathways for growing jobs, careers, and communities. This is an Associate in Science Degree and Certificate program that has three specific components: 1) Power Generation Technology; 2) Environmental Resources Technology; and 3) Sustainable Communities.

The Siskiyou Training and Employment Program (STEP), the NCRC, and the COS are working together to provide practical-based training, work experience and job development throughout Siskiyou County. This collaborative group has received several grants to train individuals in the core areas of environmental resources, and to provide valuable on-the-ground work experience. The USF restoration projects will provide training opportunities and support the efforts of this training collaborative. Through existing participating agreement authorities, the KNF will be able to work seamlessly with this collaborative training group to create a highly skilled, local workforce in natural resources and to stimulate the creation of new jobs.

The Siskiyou Biomass Utilization Group (SBUG), formed in 2009, consists of numerous Siskiyou County stakeholders including the KNF, USDI Bureau of Land Management, Siskiyou County Government, Fire Safe Councils, USDA Natural Resource Conservation Service, USDI Fish & Wildlife Service, and several large private commercial timberland owners. The SBUG is dedicated to maximizing the biomass utilization opportunities in Siskiyou County. The efforts of the SBUG along with the results of this proposed project will assist in the development of cost effective biomass utilization pathways in Siskiyou County. Overall, this proposal has strong community-based collaborative support mechanisms that will increase the success of this project while creating local job development and training opportunities for individuals. This proposal encourages the success of existing and emerging small business in the natural resource field.

Funding Estimate

The following funding estimate covers the potential life of the USF landscape restoration proposal. Funding for fiscal year (FY) 2010 is displayed in Table 2. Needed funding for FY 2011 through FY 2019 is displayed in Table 3. Agreements for monetary funding and in-kind contributions from partners are being negotiated; although we have commitments for participation by collaborators, the specific amount and value of contributions is still to be determined (TBD). For example, the RMEF has expressed a willingness to participate financially in support of treatments to benefit elk in the Petersburg Pines project but can't commit to a specific amount until a decision is made on this project. For FY 2010, projects that will receive funding from appropriated and trust funds are displayed in Table 4. Monitoring for the USF projects is expected to continue until 2026 at a similar rate of funding.

Table 2 – FY 2010 Funding

| Funds to be used on NFS lands for ecological restoration treatments and monitoring that will be available in FY 2010 to match funding from the Collaborative Forested Landscape Restoration Fund | |
|--|-----------------------|
| Fiscal Year 2010 Funding Type | Dollars/Value Planned |
| FY 2010 Funding for Implementation | 607,000 |
| FY 2010 Funding for Monitoring | 90,000 |
| 1. USFS Appropriated Funds | 697,000 |
| 2. USFS Permanent & Trust Funds | 58,100 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 822,200 |
| 6. Other (specify) | 0 |
| FY 2010 Total (total of 1-6 above for matching CFLRP request) | 1,577,300 |
| FY 2010 CFLRP request (must be equal to or less than above total) | 1,200,000 |
| Funding off NFS lands associated with proposal in FY 2010 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2010 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | 0 |

Table 3 – Funding projected for 2011 through 2019

| 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 | 350,000 |
| FY 2011 Funding for Monitoring | 45,000 |
| 1. USFS Appropriated Funds | 395,000 |
| 2. USFS Permanent & Trust Funds | 20,000 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 9,069,500 |
| 6. Other (specify) | 0 |
| FY 2011 Total (total of 1-6 above for matching CFLRP request) | 9,484,500 |
| FY 2011 CFLRP request (must be equal to or less than above total) | 2,800,000 |
| Funding off NFS lands associated with proposal in FY 2011 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2011 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |
| 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 | 500,000 |
| FY 2012 Funding for Monitoring | 45,000 |
| 1. USFS Appropriated Funds | 545,000 |
| 2. USFS Permanent & Trust Funds | 20,000 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 2,000 |
| 6. Other (specify) | 0 |
| FY 2012 Total (total of 1-6 above for matching CFLRP request) | 567,000 |
| FY 2012 CFLRP request (must be equal to or less than above total) | 500,000 |
| Funding off NFS lands associated with proposal in FY 2012 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2012 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |

| 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 | 500,000 |
| FY 2013 Funding for Monitoring | 45,000 |
| 1. USFS Appropriated Funds | 1,600,000 |
| 2. USFS Permanent & Trust Funds | 20,000 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 2,000 |
| 6. Other (specify) | 0 |
| FY 2013 Total (total of 1-6 above for matching CFLRP request) | 567,000 |
| FY 2013 CFLRP request (must be equal to or less than above total) | 500,000 |
| Funding off NFS lands associated with proposal in FY 2013 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2013 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |
| 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 | 500,000 |
| FY 2014 Funding for Monitoring | 45,000 |
| 1. USFS Appropriated Funds | 545,000 |
| 2. USFS Permanent & Trust Funds | 20,000 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 2,000 |
| 6. Other (specify) | 0 |
| FY 2014 Total (total of 1-6 above for matching CFLRP request) | 567,000 |
| FY 2014 CFLRP request (must be equal to or less than above total) | 500,000 |
| Funding off NFS lands associated with proposal in FY 2014 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2014 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |

| 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 | 500,000 |
| FY 2015 Funding for Monitoring | 45,000 |
| 1. USFS Appropriated Funds | 545,000 |
| 2. USFS Permanent & Trust Funds | 20,000 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 2,000 |
| 6. Other (specify) | 0 |
| FY 2015 Total (total of 1-6 above for matching CFLRP request) | 567,000 |
| FY 2015 CFLRP request (must be equal to or less than above total) | 500,000 |
| Funding off NFS lands associated with proposal in FY 2015 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2015 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |
| 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 | 400,000 |
| FY 2016 Funding for Monitoring | 55,000 |
| 1. USFS Appropriated Funds | 455,000 |
| 2. USFS Permanent & Trust Funds | 0 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 1,500 |
| 6. Other (specify) | 0 |
| FY 2016 Total (total of 1-6 above for matching CFLRP request) | 456,500 |
| FY 2016 CFLRP request (must be equal to or less than above total) | 400,000 |
| Funding off NFS lands associated with proposal in FY 2016 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2016 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |

| 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 | 400,000 |
| FY 2017 Funding for Monitoring | 55,000 |
| 1. USFS Appropriated Funds | 455,000 |
| 2. USFS Permanent & Trust Funds | 0 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 1,500 |
| 6. Other (specify) | 0 |
| FY 2017 Total (total of 1-6 above for matching CFLRP request) | 456,500 |
| FY 2017 CFLRP request (must be equal to or less than above total) | 400,000 |
| 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 | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |
| 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 | 300,000 |
| FY 2018 Funding for Monitoring | 55,000 |
| 1. USFS Appropriated Funds | 355,000 |
| 2. USFS Permanent & Trust Funds | 0 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 1,500 |
| 6. Other (specify) | 0 |
| FY 2018 Total (total of 1-6 above for matching CFLRP request) | 356,500 |
| FY 2018 CFLRP request (must be equal to or less than above total) | 350,000 |
| 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 | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |

| 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 | 200,000 |
| FY 2019 Funding for Monitoring | 55,000 |
| 1. USFS Appropriated Funds | 255,000 |
| 2. USFS Permanent & Trust Funds | 0 |
| 3. Partnership Funds | TBD |
| 4. Partnership In-Kind Services Value | TBD |
| 5. Estimated Forest Product Value | 1,500 |
| 6. Other (specify) | 0 |
| FY 2019 Total (total of 1-6 above for matching CFLRP request) | 256,500 |
| FY 2019 CFLRP request (must be equal to or less than above total) | 250,000 |
| Funding off NFS lands associated with proposal in FY 2019 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund) | |
| Fiscal Year 2019 Funding Type | Dollars Planned |
| USDI BLM Funds | 0 |
| USDI (other) Funds | TBD |
| Other Public Funding | 0 |
| Private Funding | TBD |

Table 4 – Projects to be Implemented in FY 2010

| Project | Appropriated Funds | Partner funds | Trust Funds |
|-----------------------|--------------------|---------------|-------------|
| Caribou | 530,000 | | 0 |
| Dogpaw | 25,000 | | 0 |
| Blind Horse | 0 | | 41,400 |
| Upper South Fork (KV) | 0 | | 16,700 |
| USF Roads | 35,000 | | 0 |
| Noxious Weed Mgmt | 17,000 | | 0 |
| Fish monitoring | 10,000 | | 0 |
| Wildlife monitoring | 20,000 | | 0 |
| Watershed monitoring | 60,000 | | 0 |
| Totals | 697,000 | | 58,100 |

Funding Plan

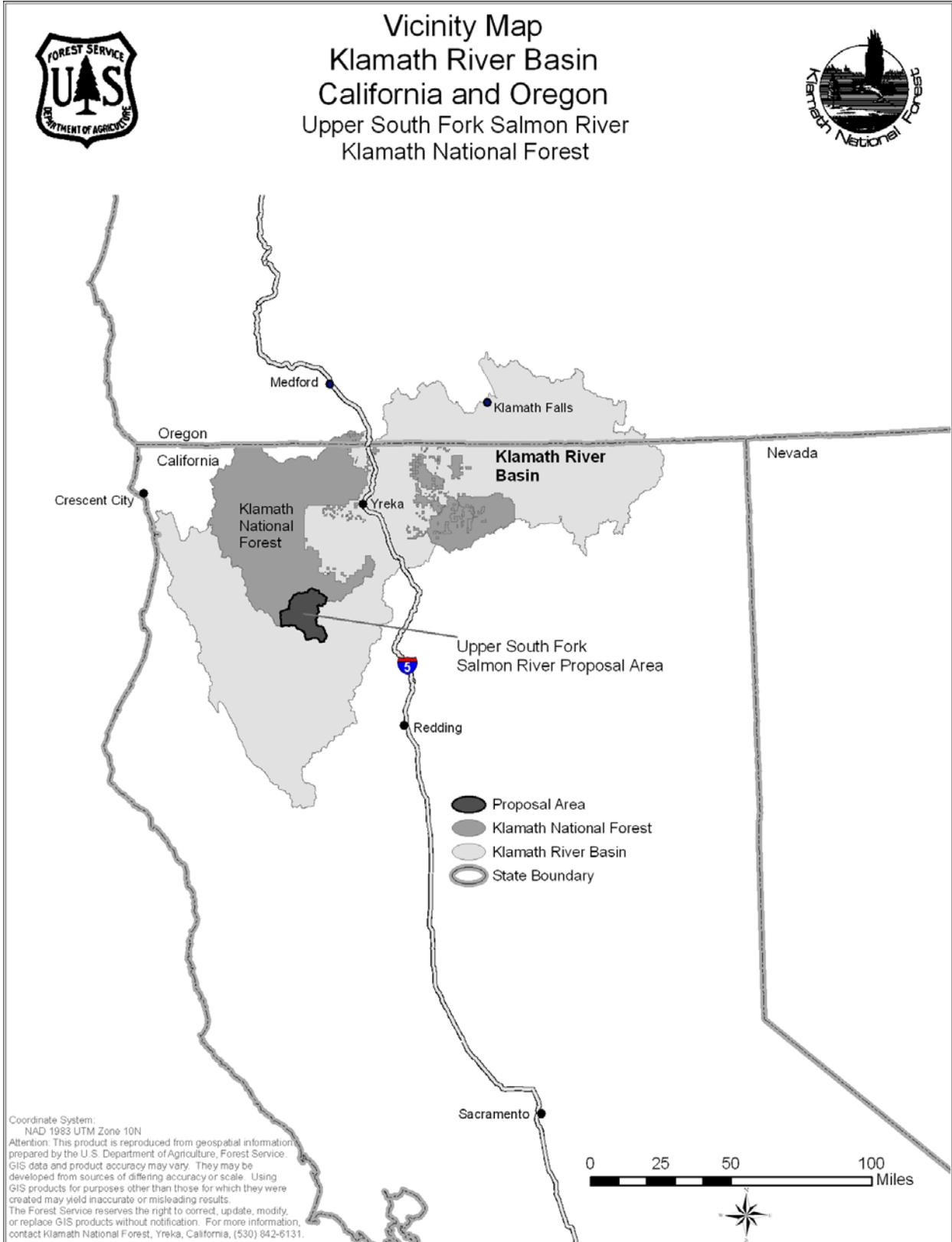
Since there has been a significant financial investment in planning in the USF watershed, the KNF has a funding strategy to annually dedicate additional funds for the implementation and monitoring of these ecological restoration projects. Funding would be a mix of wildlife and fisheries management, vegetation and watershed management, roads improvement, and hazardous fuels funds. The ongoing project planning (e.g., Petersburg Pines) has been funded with a mix of forest products, wildlife and fisheries management, and hazardous fuels funds.

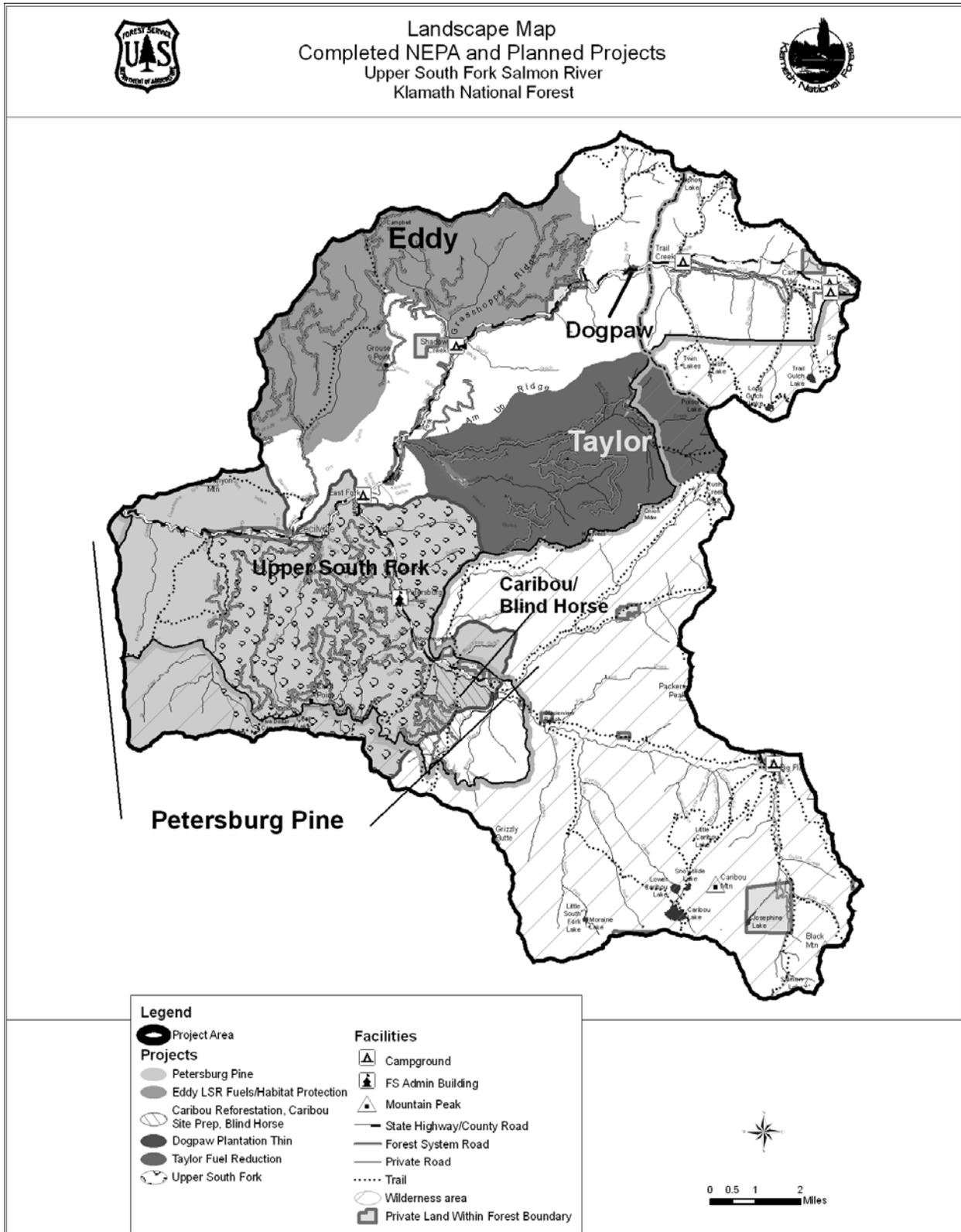
If the KNF receives the CFLRP funds, implementation of restoration projects in USF can begin immediately for work to be accomplished in FY 2010. Planned projects to improve fuel conditions along strategic roads and construct fuel breaks along ridges can be implemented immediately using task orders for existing service contracts. Then, prescribed underburning can begin to reduce fuels using these strategic roads and fuel breaks as anchors. Other restoration projects, such as rocking roads to reduce the risk of sediment getting into streams and replacing culverts, can also begin immediately using task orders for existing contracts.

As discussed in the Collaboration section, multiparty monitoring of implementation (making sure the project is implemented as planned) and monitoring the effects of projects has been occurring in the USF watershed for a number of years and will continue as more restoration projects are implemented. Multiparty monitoring has included monitoring the effects of noxious weed removal and eradication treatments carried out by the KNF and the SRRC. The SRRC has also partnered with the Forest to monitor the effects of KNF management activities and natural disturbances by surveying the number of salmon in the Salmon River. Water quality monitoring by the NCRWQCB, the KNF, and interested groups is planned to assess effects of management activities and natural disturbances on water quality in the river and its tributaries.

These monitoring efforts are currently financed with appropriated funding. Some CFLRP funds are expected to be used for monitoring if this proposal is selected for funding. After the implementation of proposed projects, the KNF will continue to monitor the project effects with appropriated funding as in the past. There is \$90,000 allocated for monitoring in the USF for FY2010. An additional \$745,000 from KNF and CFLRA funds is required to monitor the proposed treatments for the ten projects over fifteen years.

The fact that the Forest has spent a good portion of our limited appropriated funding within this landscape and has worked diligently with partners to craft projects that return the ecological function to this watershed is a good indication of the commitment by the Forest to landscape restoration in the USF area. The ecological need has been identified and prioritized as one of the highest on the Forest due to the high risk of catastrophic loss of forested habitat. Implementation of many of the projects has begun with current funds.





Landscape Strategy

The USF Ecosystem Analysis can be found at: <http://fsw.klamath.r5.fs.fed.us/Resources/UpperSoForkLA/> along with the Elk Strategy, CWPP, LSRA, and additional color maps.

The landscape strategy for the USF stems from direction in the Northwest Forest Plan of 1994 (NWFP), as incorporated in the KNF Forest Plan of 1995, to provide for long-term sustainability of natural resources and public benefits. The long-term strategy to sustain forest resources includes designation of land allocations and associated Standards and Guidelines, and the Aquatic Conservation Strategy which plays an important role in improving the health of the Northwest's aquatic ecosystems. The Aquatic Conservation Strategy sets forth a process to characterize the aquatic, riparian, and terrestrial features within watersheds (watershed or ecosystem analysis). Information gathered during ecosystem analysis can be used as part of a strategy to restore, enhance, maintain or protect forest resources.

The USF Ecosystem Analysis of 1994 was prepared in response to direction in the NWFP. As discussed earlier, the USF is part of a "Key Watershed" designated as such because it contributes directly to conservation of at-risk anadromous salmonids and has a high potential for being restored as part of a watershed restoration program. The USF Ecosystem Analysis describes historical conditions, existing conditions and desired conditions for the landscape based on NWFP objectives. By comparing the existing and desired conditions for the USF landscape, the Ecosystem Analysis identified management opportunities to move the landscape toward the desired condition and, thus, is a landscape restoration strategy. The USF Ecosystem Analysis identified opportunities for restoration based on four high priority themes: (1) the potential for surface erosion and increased sedimentation in streams from roads, natural mass wasting (slumping and earthflow) and wildfire; (2) densification of forested stands and white fir encroachment resulting in high levels of disease and insect mortality in the Eddy LSR, the Taylor LSR, and the Petersburg Pines area; (3) a high incidence of ground and ladder fuels from fire suppression, leading to a rating of "high fire hazard" in Eddy LSR, Taylor LSR, Petersburg Pines, and Caribou areas; and (4) the moderate or poor condition of foraging habitat for deer and elk due to conifer encroachment on meadows and oak woodlands in the Petersburg Pines area and Eddy LSR.

In addition, the USF Ecosystem Analysis addresses the maintenance and enhancement of public benefits. Public recreation use is concentrated along the corridors of the Salmon River and its tributaries, and in wilderness areas, resulting in overlapping areas that can be seen from sensitive viewing points that encompass about 90 percent of the landscape. Restoration of impaired scenic quality, including the severe departure of Scenic Character from its historic range in terms of vegetation structure and wildfire resiliency is part of landscape restoration projects.

In addition to the USF Ecosystem Analysis, a landscape restoration strategy for the USF has been refined by new information and additional analyses that help focus restoration needs in the proposal area:

- the Taylor/Carter Meadows LSR Assessment of 1996
- the Klamath River Basin Assessment of 1997
- the KNF Forest-wide LSR Assessment of 1999

- the Salmon River Subbasin Restoration Strategy of 2002
- Clean Water Act – Total Maximum Daily Load (TMDL) and Implementation Plan with NCRWQCB June 22, 2005
- the KNF Elk Management Strategy of 2007
- Salmon River CWPP of 2007
- The KNF Recreation Facility Analysis of 2008
- the Klamath Basin Restoration Agreement and the Klamath Hydroelectric Settlement Agreement of 2010
- the USDA Forest Service Pacific Southwest Region (Region 5) Leadership Intent for Ecological Restoration of 2010

The LSR assessments were prepared to provide landscape management strategies specific to the LSR portion of the landscape. The Taylor/Carter Meadows LSR Assessment is a stand-alone document; the KNF Forest-wide LSR Assessment includes aquatic and terrestrial components. Consistent with the USF Ecosystem Analysis, the Taylor/Carter Meadows LSR Assessment identified the Taylor portion of LSR as showing dramatic impacts from insect infestations, high fire behavior potential, and a high likelihood of loss to wildfire. The Forest-wide LSR Assessment identified the Eddy LSR as having high concentrations of ground and ladder fuels with a need to protect existing patches of late-successional forest from loss due to large scale disturbances such wildfire or insect infestation. As in the USF Ecosystem Analysis, thinning, fuels reduction, and salvage in areas of high mortality were identified as priority treatments in Eddy LSR and Taylor LSR project decision documents. In addition, shaded fuel breaks were identified as a high priority in the Eddy LSR to protect existing late-successional habitat.

The importance of the USF was recognized by its designation as part of a “Key Watershed” for salmonid recovery in the Aquatic Conservation Strategy of the NWFP and in the Klamath River Basin Assessment. The USF is also part of the Salmon River Subbasin Restoration Strategy that proposes an action plan to reduce upslope hazards and retain high quality aquatic habitat. As with the USF Ecosystem Analysis, this strategy identifies reducing erosion from roads and reducing risk of wildfire as priorities for restoration activities. A Memorandum of Understanding between the NCRWQCB and the KNF outlines the restoration actions to be implemented to meet the water quality goals of the TMDL. The objectives of this restoration strategy focus on (1) decommissioning roads or upsizing road culverts to control road-related sediment; (2) developing a fuels reduction plan to prevent the loss of riparian vegetation and stream shade by high intensity wildfire; (3) restoring historic mine sites; and (4) long-term monitoring of in-stream sediment and temperature to determine the effectiveness of the TMDL restoration actions.

The Salmon River CWPP, as discussed earlier in the Collaboration section, was developed under the guidance of the National Fire Plan of 2000 and provides a prioritized list of projects to focus and guide landowners, organizations and funders in developing and implementing projects to reduce risks from future wildfires in the Salmon River drainage. The CWPP identifies the Salmon River as the highest wildfire risk watershed in the Klamath Basin.

The KNF Elk Management Strategy, developed to manage elk habitat on the KNF, is also part of the landscape restoration strategy for the USF. A large number of elk use the USF watershed for both summer and winter range foraging due to a successful elk reintroduction program.

Consistent with the USF Ecosystem Analysis, the Elk Strategy identified over 2000 acres of “high restoration potential” forage habitat in the USF.

The KNF Recreation Facility Analysis Work Plan identified the recreation setting themes for the USF as “Salmon River Country” and “Wilderness/Backcountry,” assigning target uses, activities, and experiences to meet public expectations identified within public comments. In combination with scenic restoration in support of these recreation settings and the provision of local jobs, this strategy helps meet the social and economic needs of the local citizens.

In February 2010 at the Klamath Basin Science Conference, the Salmon River was again recognized as a contributor to the aquatic health of the Klamath River Basin by the Yurok Tribe. The Salmon River is one of the largest cold water-producing subbasins in the Klamath Basin (Salmon River Restoration Subbasin Strategy), a fact that increases in importance when considering the removal of four dams on the Klamath River and potential impacts of climate change.

The USF is part of the restoration and management strategy of The Klamath Basin Restoration Agreement and the Klamath Hydroelectric Settlement Agreement that was finalized by a large group of stakeholders shortly after the Klamath Basin Science Conference. On February 17, 2010, the Secretary of the Department of Agriculture committed support to the restoration of the Klamath River Basin. On February 18, 2010, the Secretary of Interior recognized the collaboration in the Klamath River Basin by saying, “The Klamath River, which for years was synonymous with controversy, is now a stunning example of how cooperation and partnership can resolve difficult conflicts. The Agreements provide a path forward to meet the needs of local communities, tribes, farmers, fishermen and other stakeholders while restoring a beautiful river and its historic salmon runs.” The strategy for the Klamath River landscape was finalized in February 2010 to provide a framework for removal of the dams by 2020 contingent on Congressional approval and a scientific assessment by the Interior Department confirming that their removal is indeed in the public interest. The agreements also outline activities that would be undertaken to restore fisheries and provide water supply certainty to communities and water users in the Basin.

Other projects add pieces to the picture of restoring the Klamath River landscape.

- Other high priority areas for restoration that fit the CFLR criteria include those that will help to restore the middle Klamath River area. The KNF has strong restoration partners including the Happy Camp Fire Safe Council, the Karuk Tribe of California, the Mid Klamath Watershed Counsel and others that have been active in collaborating with the KNF to restore the Indian Creek watershed. The overarching goal of current and future restoration projects in the Indian Creek watershed is to improve watershed function, protect biodiversity, and sustain social-ecological systems and functions. The KNF and restoration partners are actively managing this watershed to reduce risk of uncharacteristic wildfire to the community and the landscape as a common goal. A series of collaborative projects have been restoring ecosystems, reintroducing fire, and managing fuels throughout the Indian Creek Watershed.

- Restoration projects being proposed within the Klamath basin that would in concert with the USF Proposal lead to a more fire resilient and healthier landscape include the Shasta Trinity National Forest’s proposal to treat 25,720 acres of plantation which would help improve forest health and resiliency in the Trinity River sub-basin.
- Projects that will benefit restoration of watersheds surrounding the Klamath River are also being planned and implemented in landscapes on the Six Rivers, Shasta-Trinity, and Fremont National Forests, on tribal lands, and private lands. The Trinity River, another major tributary to the Klamath River, has a strategy developed through the Trinity River Basin Fish and Wildlife Restoration Act. Trinity River Basin Fish and Wildlife Restoration Act enacted in 1985 and renewed in 1999 implements its strategy to restore the Trinity River Subbasin. The Act mandates that the Trinity River Basin Fish and Wildlife Task Force activities be coordinated with other managing groups, such as the Klamath Fishery Management Council. The Bureau of Reclamation has provided more than \$5,000,000 to implement its strategy to recover fish and fish habitat affected by the Klamath Reclamation Project. Projects include fish passage removal, upland sediment reduction, livestock fencing, wetland development, and fish migration studies. Restoration on private lands is the focus for the Partners Program at USDI Fish and Wildlife Service and the USDA Natural Resource Conservation Service.

The projects identified in the USF Proposal reflect the needs brought forward from the largest-scale assessments (NWFP, Forest Plan) to the mid-scale assessments (USF Ecosystem Analysis) to the more focused (CWPP). All landscape strategies, and the projects proposed to implement these strategies, incorporate scientific approaches and information. At least 6 scientific studies are currently ongoing in the USF area and the results of these will continue to be used to inform implementation of restoration strategies.

The Upper South Fork of the Salmon and the proposed treatments within that landscape meet the criteria for the CFLRP due to the following reasons:

- The KNF has a history of large, expensive, and damaging fires. The treatments would reduce fire effects and lower suppression costs.
- There are many restoration treatments with signed planning documents in the USF landscape that are ready to be implemented and more nearing signature soon.
- The Forest has allocated over \$500,000 in appropriated funds and there is more than \$800,000 in product value that can be used as matching funds.
- The Forest has good long-term and continuing collaboration with the local communities, environmental groups, government agencies, and tribes.
- The KNF and community have the infrastructure and track record to complete large vegetation management and fuels projects.
- The implementation of the projects in the USF Proposal would help to restore the Klamath River Basin meeting the intent of the settlement agreement linked to the possible removal of the four Klamath River dams.

This proposal addresses community protection, fuels reduction, habitat restoration, watershed restoration, and protection of forest resources over the next 10 years (Table 1, Utilization section). Landscape restoration of the USF would benefit greatly from support and funding of the CLRP.