Eldorado National Forest
Ecological Restoration Implementation Strategy

Looking north into Sopiago Creek watershed and the Middle Fork Cosumnes River, from Forest Service Highway88 Scenic Byway.

Overview

Located within the Sacramento River basin, the Eldorado National Forest (Forest) manages approximately 600,000 acres of land in 4 counties. Most of the Forest lies in El Dorado County. In descending order of land area the other counties are: Amador, Alpine and Placer Counties in California. Water is a major resource on the Forest. The Forest produces roughly 1.5 million acre feet of water per year to California's residents. This amount is equivalent to the amount of water used by over 5 million households for an entire year. There are over 600 miles of fishable streams in four major drainage systems. The Forest has 297 lakes and reservoirs (including both public and private land). Water from these lakes and reservoirs is used for recreation, irrigation, agriculture, power generation, environmental and wildlife conservation, as well as municipal and industrial needs.

Functioning watersheds are critical to the sustainability of a clean water supply necessary to sustain a healthy environment, economic viability, and strong communities. The primary goal for the Forest is to implement ecological restoration with watershed health in mind. Fire is an important ecological function on the Forest. The presence or absence of fire in these ecosystems affects the structure and function of forest habitats influencing the health and resiliency of these watersheds. Additional goals include:

- Maintain healthy and well-distributed populations of native species through sustaining habitats associated with those species
- Use ecological strategies for post-fire restoration
- Apply best science to make restoration decisions
- Involve the public through collaborative partnerships that build trust among diverse interest groups
- Create additional funding sources through partnerships
- Incorporate the "Triple Bottom Line" into our restoration strategy: emphasizing social, economic and ecological objectives

- Implement an "All lands approach" for restoring landscapes
- Establish a sustainable level of recreational activities and restore landscapes affected by unmanaged recreation
- Implement an effective conservation education and interpretation program that promotes understanding the value of healthy watersheds and ecosystem services they deliver and support for restoration actions.
- Improve the function of streams and meadows
- Restore resilience of the Forests to wildfire, insects and disease
- Integrate program funding and priorities to create effective and efficient implementation of restoration activities
- Reduce the spread of non-native invasive species

Challenges

Implementation of this suite of restoration goals will collectively restore resilience and sustainable ecosystems on the forest under current and future conditions. However, there are a number of challenges the forest must overcome to fully achieve our ecological restoration goals. The most critical of these challenges include:

- Our organizational capacity to increase or maintain the pace and scale of activities is being negatively impacted by reduced budgets. Current downsizing our organization, specifically in the areas of forest and fuels management, will directly affect how quickly we restore forest ecological function. Reduced budgets also impact our ability to retain and maintain employees with experience and expertise.
- Funding sources, in particular from outside sources such as Partnerships, emphasize implementation rather than planning. Our ability to complete required environmental planning and analysis is more constrained due to reduced budgets and limitations on use of partnership funds.
- Although there is emphasis for integrating ecological restoration for some programs, current program funding guidance does not support integration of funding and priority setting for ALL programs needed for efficient and effective ecological restoration. Low levels of funding for soil and watershed improvement continue, compounded by a need to develop technical capacity for restoration work.
- While local communities may recognize the benefits of implementing ecological restoration for ecosystem services, there is a need to increase the understanding and support from downstream water users, including Sacramento and East Bay communities.

Strategies for Ecological Restoration

The Forest is implementing out-year strategic planning between all programs involved in ecological restoration activities. Integration affords being more efficient in planning investments, and affords effectiveness of restoration activities on a landscape basis, as wells as fostering collaborative partnerships. Out-year strategic planning across programs (multi-year program of work) allows planners, resource specialists and collaborative partnerships to know where the Forest's priorities are located for management activities. The Forest is also employing Best Science approach to ecological restoration. The recommendations and guidance described in the recent General Technical Reports 220/237, "An Ecosystem Management Strategy for Sierran Mixed Conifer Forests" is being applied to all thinning and fuels treatment projects occurring in mixed conifer stands. There are currently several complimentary integrated strategic planning efforts addressing ecological restoration goals on the Forest.

Watershed Restoration Strategy

- The Forest will continue to implement the Watershed Condition Framework (WCF) resulting in a more strategic approach to watershed restoration on the Forest. The Forest currently has Watershed Restoration Action Plans for two Priority watersheds: Union Valley Reservoir-Silver Creek and Caples Creek. Essential Projects within the Union Valley-Silver Creek Priority Watershed are: Van Vleck Area Restoration Planning & Implementation and N. Union/McKinstry Meadow/Jones Fork OHV Restoration.
- The Forest is also engaged in projects outside of Priority Watersheds, including the South Fork Rubicon River OHV Restoration project, Cody Meadow restoration in the South Fork American River watershed, Callecat watershed restoration projects in the Cosumnes River basin, and the forest-wide Road-Sediment Survey Project Planning.
- Meadow and riparian restoration work, including planning and implementation of restoration projects, will continue to be a watershed program emphasis. Meadow restoration identified in the Regional Forester's Leadership Intent is a

component of the National Strategic Plan for watershed restoration and is also a priority for multiple Forest Service partners.

- Roads will continue to be an emphasis for watershed restoration. The Forest will continue to pursue opportunities to remediate effects to aquatic resources through the Legacy Road Program and other available means. The Forest has identified high risk road segments through four years of road sediment surveys conducted in 2008-2011. Addressing outcomes of Travel Management may be a priority in the near future.

Integrated Vegetation and Fuels Management Strategy

The Eldorado led the region with integration of vegetation management and fuels management. Planning for all vegetation and fuels management projects incorporate activities that work together to restore forest health and include prescribed fire to manage fuels at levels that meet goals for maintaining wildlife habitat in a healthy forest where remaining fuel presents a low potential for catastrophic wildfire. Table 1 at the end of our chapter shows the activities planned for integrated vegetation and fuels management.

Invasive Species Management Strategy

- The forest collaborates with various partners to control or eradicate invasive species on the forest. Priority species for management on the forest include spotted knapweed, yellow starthistle, purple loosestrife, perennial pepperweed, medusahead, and Canada thistle.
- In 2011 the Eldorado National Forest collaborated with various outside partners to accomplish 340 acres of invasive plant control on NFS lands. Partnerships included El Dorado County, El Dorado Irrigation District and PG&E.
- In 2012 two seasonal employees increased capacity and are treating high priority infestations across the forest using a combination of funding sources including Eldorado and Amador County RAC, Fred's restoration dollars, and NFVW. Approximately 400 acres of invasive plant control accomplishment are expected using integrated pest management. Species include: yellow starthistle with Eldorado County (250 acres), spotted knapweed control, invasive species at ranger stations, admin, and recreation sites. Surveys include recent wildfire and other project areas for new infestations.
- An EA for using Integrated Pest Management (IPM) to treat invasive plants across the forest is in progress. With the EA in place the forest expects to increase invasive species management to approximately 460 acres.

Tactics for Increasing Restoration

There are currently several tactics being implemented on the Forest to increase the pace and scale of ecological restoration.

- The Forest has successfully integrated the fuels and vegetation management programs focusing on the integration of budgets and seamless organizational planning and implementation. Landscape scale planning will include restoration activities proposed from a suite of program areas in addition to fuels and vegetation activities to increase planning and implementation efficiencies.
- The Forest is a regional and national leader in the use of Stewardship Contracting to increase monetary investments leveraged with appropriated funds. Fuels and vegetation projects are planned at the landscape scale to use economies of scale.
- The Forest has begun the use of managed fire for resource benefits to achieve ecological restoration.
- The Forest has increased opportunities for partnerships and grants. Partnerships include entities such as Coca Cola, Trout Unlimited (El Dorado Chapter), Amador-Calaveras Consensus Group, and Friends of the Rubicon. Grant funds from the State of California Division of Off-Highway Vehicles and Sierra Nevada Conservancy have contributed to projects such as trail reconstruction and decommissioning, and project planning. Increased use of partnerships, grants, and Stewardship Contracting will aid in increasing the pace and scale of restoration treatments across all program areas on the Forest.

Recent Accomplishments

The Forest has recently planned or implemented numerous projects relating to ecological restoration. Examples of some of these projects include aquatic organism passage, reforestation, trail rehabilitation, improved aspen health, decreased road densities, increased fire resilience and forest health, decreased erosion and decreased sediment in streams. Several of these projects are highlighted below.

Cornerstone Restoration Project

The Cornerstone Restoration Landscape Project is an integrated approach to restoring ecological function for

a large portion of the Mokelumne River basin stretching across the Eldorado and Stanislaus National Forests. The Forest, in collaboration with the Amador Calaveras Consensus Group (ACCG) have developed an 8-year schedule of restoration activities focusing on projects that improve forest health and watershed conditions, creating fire-safe communities, and sustaining local economies.

Because of this collaborative effort, one of 10 nation-wide Collaborative Forest Landscape Restoration Program (CFLRP) grants was awarded to the Cornerstone Project. The CFLRP provides matching funding for a wide variety of ecological projects including meadow and stream restoration, restoration of cultural sites, enhancing forest vegetation resiliency, and reducing the risk of catastrophic wildfire with threats to lives and property. The Stanislaus and Eldorado Forests in collaboration with ACCG are developing a Master Stewardship Agreement. The Agreement is intended to memorialize and formalize the mutually beneficial collaborative relationship between the Forests and ACCG. Collaborative project design within the Mokelumne watershed spanning the "cornerstone" where both Forests meet at the Mokelumne River is ongoing.

Raintree Restoration Project

The Raintree Restoration Project is an integrated approach to restoring ecological function covering approximately 9,000 acres of Sierran Mixed Conifer forest. This project restores forest health and resiliency to insect and disease and wildland fire by: Incorporating the principles outlined in the GTR-220 and 237; treating fuels and overly dense forested stands; enhancing montane hardwood communities by removing competing vegetation; enhancing quaking aspen aggregations through removal of competing overstory vegetation; closing/decommissioning of approximately 47 miles of non-system roads; restoring dispersed recreation areas impacted by motor vehicle use; placement of large woody debris (LWD) in LWD deficient stream channels; and reforesting areas affected by root disease. Prescribed fire will be applied throughout the project area in the future to maintain low fire behavior potential and maintain resilience to the effects of future wildland fire, insects and disease.

The Raintree Restoration Project employed a robust community outreach and collaborative approach to building a proposed action. Collaboration resulted in the formulation of new ideas and capturing the issues, concerns and opportunities provided during collaborative process. A series of meetings were held, including visits to the project area to begin fostering partnerships and development of the project framework. Collaborators included representatives from the Sierra Forest Legacy, El Dorado Fire safe Counsel, California Forestry Association, Trout Unlimited (El Dorado Chapter), El Dorado County Board of Supervisors, and the Pacific Southwest Research Station.

The Forest used the Stewardship Contracting authority to implement the project, thus increasing the monetary investment to complete the integrated restoration work. The Forest leads the Region in the use of Stewardship Contracting, which has increased the Forest's pace and scale of restoration treatments by retaining more timber receipts locally for implementing restoration activities.

Woods Lake Recreation Area Restoration Project

Woods Lake Recreation Area Access (Woods Lake) project is an example of an integrated project to improve stream and aquatic species connectivity while providing safe public access to a popular campground, picnic area, trailhead, and recreation residence area. The existing access road includes a culvert over a tributary to Woods Lake Creek that is misaligned, undersized and is losing structural integrity. Along with an overly sharp turn and misalignment, the culvert has been overtopped and culvert headwall erosion has narrowed the road to an effective width of only 10 ft. over the culvert, too narrow for recreational vehicles. A serious public safety concern exists, and further deterioration of this stream crossing could result in the closure of the Woods Lake recreation area. In addition to the public safety concern, this deteriorating culvert presents a serious risk to aquatic habitat and water quality. Failure of the culvert crossing during a large streamflow event would release several cubic yards of sediment into the east fork of Woods Lake Creek, sufficient to damage over 1.6 miles of pristine aquatic habitat, including partial or complete filling in of pools with sediment, lateral and/or channel erosion, and partial burial of wet meadow areas next to the stream.

Replacement of the existing hazardous culvert by a standard bridge will improve and protect stream function as well as improve public safety for the popular Woods Lake recreation facilities that are in proximity to the well-traveled Forest Service Scenic Highway 88 Byway. The Woods Lake project will remove the existing culvert with its constriction in stream flow and erosion sediment delivery, reshape the streambanks to match the upstream and downstream streambanks, and restore steam function for the east fork of Woods Lake Creek. Streambank restoration includes replanting native riparian and upland vegetation to stabilize the reshaped streambanks and filter sediment to protect water quality. This is an Alpine County RAC and legacy road funded project.

The project was proposed through collaboration between the Alpine County Resource Advisory Committee (RAC) and the Amador Ranger District of the Eldorado National Forest. A series of meetings were held, with visits to the project site to foster partnerships and development of project objectives. Alpine County's RAC provided sufficient funding to complete NEPA and site survey and design, with the understanding that the Forest would apply for Legacy Road program funding to complete the project. Additional funding for implementation was obtained from the Forest Service Legacy Road program. The project is scheduled for completion in summer of 2012.

Freds Fire Restoration Project

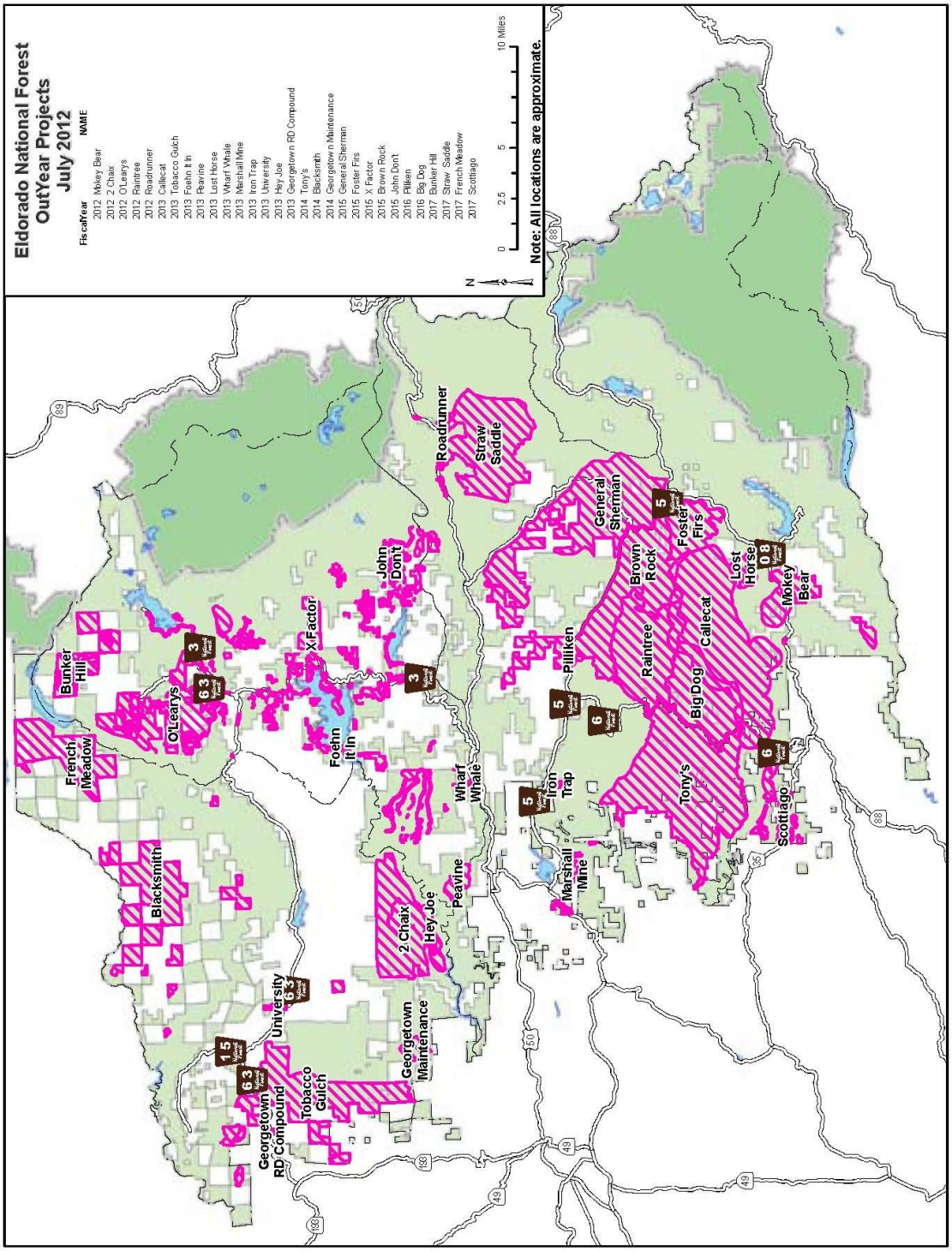
The Freds fire ignited along Highway 50 on October 13, 2004 and burned approximately 7,700 acres in mixed ownerships; 4,600 acres of Eldorado National Forest (ENF), 2,830 acres of Sierra Pacific Industries, and 280 acres of other private landowners until October 17, 2004 when a winter storm helped contain the fire. The fire burned westerly in steep terrain (3,920 – 6,966 feet in elevation) into the Cleveland Fire on the west and the Wrights Fire on the east. The area burned by Freds Fire on the Eldorado National Forest supported the last significant stands of old forest along a 30 mile stretch of the South Fork American River Canyon. Most of those stands burned at high intensity, and the impacts of this loss for forest structure, habitat connectivity, wildlife habitat, watershed, and aesthetics spread beyond the fire boundary.

The Forest received a settlement of $10,640,000 for damage caused by the Freds Fire. Fire settlement funds for the restoration of the area affected by the Freds Fire provide a unique opportunity to reverse ecosystem degradation, restore ecosystem health and resilience, rehabilitate damaged infrastructure, and prepare the impacted landscape for the effects of changing climates and human use patterns. The Natural Resources Damages Statute 16 579 states use of these funds are… "to cover the cost to the United States of any improvement, protection, or rehabilitation work on lands under the administration of the Forest Service rendered necessary by the action which led to the … settlement."

The Forest is currently cooperating with the RO to design a post-fire restoration strategy utilizing settlement funds both for the Freds Fire and to produce a template for use by other forests for fire landscape restoration. The Freds Fire Restoration strategy includes priorities for activities to increase the pace and scale of restoration in the Freds Fire landscape. For 2012, projects for invasive species treatments and reforestation are funded and underway from the previous Freds Fire Restoration EIS decision. Implementation of the Freds Fire Restoration Strategy is expected to begin in FY 2013.

TABLE 1: INTEGRATED VEGETATION AND FUELS MANAGEMENT STRATEGY

	Ranger District	Quarter Implement	CCF* Sawtimber	CCF* Non-Sawtimber	Commercial Acres	Biomass Acres	Prescribed Burn (RxB) and Mechanical Surface Fuel Treat Acres
FY 2013							
Meiss Trap (Raintree 2) IRTC	PVL	1st Qtr	10,000		923	923	
Tobacco Gulch IRSC/IRTC	GTN	2nd Qtr	3,000		500	500	
Callie Cat IRTC	AMA	3rd Qtr	23,000		1,915	1,915	
Permits/Addon							
South Zone Rx Burn	PVL/AMA						
North Zone Rx Burn	PAC/GTN						
Total FY13:			**36,000**	**4,000**	**3,338**	**3,338**	**5,000**
FY 2014							
Blacksmith Tractor/Skyline IRTC	GTN	3rd Qtr	20,000		2,500	2,500	2,500
Tony's IRTC	PVL	4th Qtr	20,000		4,000	4,000	1,000
Copy Cat IRTC (Callecat2)	AMA	1st Qtr	7,000		600	600	
Permits/Addon				4,000			
South Zone Rx Burn	PVL/AMA						2,500
North Zone Rx Burn	PAC/GTN						2,500
Total FY14:			**47,000**	**4,000**	**7,100**	**7,100**	**8,500**
FY 2015							
Foster Firs IRC	AMA	3rd Qtr	15,000	1,500	1,500		500
X Factor/John Don't IRC	PAC	1st Qtr	3,500	900	900		900
General Sherman/Brown Rock IRC	PVL	4th Qtr	30,000	3,000	3,000		3,000
Permits/Addon				4,000			
South Zone Rx Burn	PVL/AMA						2,500
North Zone Rx Burn	PAC/GTN						2,500
Total FY15:			**48,500**	**4,000**	**5,400**	**5,400**	**9,400**
FY 2016							
Western Gtn Fuels Reduction IRC	GTN	1st Qtr	10,000		1,500		
Pilliken Plantation IRC	PVL	1st Qtr	4,000		2,000	2,000	2,000
Big Dog IRC	PVL	4th Qtr	6,000		1,000	1,000	1,000
Permits/Addon				4,000			
Total FY16:			**20,000**	**4,000**	**4,500**	**3,000**	**3,000**
Total FY17							
Straw Saddle IRC	PVL	4th Qtr	3,000		300	300	300
Bunker Hill Forest Health Tractor/Skyline	PAC	1st Qtr	9,000		900		1,000
French Mdw Tractor/Skyline IRC	GTN	4th Qtr	6,000		1,000	1,000	400
Scottiago IRC	AMA	1st Qtr	10,000		1,000	800	
Permits/Addon							
Total FY17:			**28,000**	**4,000**	**3,200**	**2,100**	**1,700**
* CCF = Hundred Cubic Feet							


Eldorado National Forest
OutYear Projects
July 2012
FiscalYear
NAME
2012 Mokey Bear
2012 2 Chair
2012 O'Learys
2012 Raintree
2012 Roadrunner
2013 Callecat
2013 Tobacco Gulch
2013 Foehn It In
2013 Peavine
2013 Lost Horse
2013 Wharf Whale
2013 Marshall Mine
2013 Iron Trap
2013 University
2013 Hey Joe
2013 Georgetown RD Compound
2014 Tony's
2014 Blacksmith
2014 Georgetown Maintenance
2015 General Sherman
2015 Foster Firs
2015 X Factor
2016 Brown Rock
2016 John Don't
2016 Pilliken
2016 Big Dog
2017 Bunker Hill
2017 Straw Saddle
2017 French Meadow
2017 Scottiago
0 2.5 5 10 Miles
N
Note: All locations are approximate.
Roadrunner
Straw Saddle
General Sherman
Foster Firs
Brown Rock
Lost Horse
Mokey Bear
John Don't
X Factor
Pilliken
Raintree
Callecat
Big Dog
Bunker Hill
O'Learys
Foehn It In
Wharf Whale
Iron Trap
Tony's
Scottiago
French Meadow
Marshall Mine
Blacksmith
2 Chair
Hey Joe
Peavine
University
Georgetown Maintenance
Tobacco Gulch
Georgetown RD Compound