Date of Report: ***September 15, 2006***

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated WFSU-SULT funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)

[X] 2. Interim Report #4 **Bold and *Italicized, red font Items are for Interim # 4***
[X] Updating the initial funding request based on more accurate site data or design analysis
[ ] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Straylor

B. Fire Number: CA-LMU-002537

C. State: California

D. County: Lassen

E. Region: 05 – Pacific Southwest

F. Forest: 06 - Lassen

G. District: 53 – Hat Creek

H. Date Fire Started: 7/22/2004

I. Date Fire Contained: 7/29/2004

J. Suppression Cost: $14,000,000

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):34 Miles
2. Fireline seeded (miles):
3. Other (identify): ¼ Mile

L. Watershed Number: 180200030103 Big Jack Lake and 180200030104 Davis Creek (6th code HUC)

M. Total Acres Burned: 3,422
NFS Acres(3,278) Other Federal (14) State ( ) Private (130)

N. Vegetation Types: Primarily eastside pine (ponderosa and Jeffrey pine) with a minor component of white fir, incense cedar, western juniper, Douglas fir and sugar pine. Quaking aspen is found near some some streams/ drainages. Shrub species include Mountain mahogany, basin big sage and greenleaf manzanita.

O. Dominant Soils: Klicker, Bobbit, Trojan

P. Geologic Types: Basalt

Q. Miles of Stream Channels by Order or Class: Perrenial 0.5 miles, Intermittent and Ephemeral 6.9 miles

R. Transportation System

Trails: _ miles Roads: 13 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 697 (low) 356 (moderate) 1,368 (high)

B. Water-Repellent Soil (acres): None Found

C. Soil Erosion Hazard Rating (acres):
10 (low) 3,112 (moderate) 296 (high)

D. Erosion Potential: 4.7 tons/acre

E. Sediment Potential: 5,760 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 2.8

F. Design Flow, (cubic feet / second/ square mile): 9.2

G. Estimated Reduction in Infiltration, (percent): 2

H. Adjusted Design Flow, (cfs per square mile): 9.5

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Overview: The Straylor Fire broke out Thursday July 23, from sparks caused when a power saw hit rocks during a logging operation on private land about 20 miles southeast of Fall River Mills. The blaze moved on to the Lassen National and burned a small area of Bureau of Land Management and private lands. The fire was contained at 3,422 acres on July 27, 2004.

Statement of Emergency:

Threats to Property: Roads in and adjacent to the burned areas are threatened by erosion both upslope (pluigged culverts could initiate road failure) and downslope (a failed culvert could result in undermining of road 35N05 where the downstream channel is immediately adjacent) of the road. Damaged roads

could disrupt rehabilitation crews, recreationists, and land managers. Seven existing culverts along the 35N05 are undersized and have been identified for upgrading. This will increase the water carrying capacity of the pipes and prevent potential culvert plugging with sediment and debris causing crossing failure and subsequent loss of the road. Davis Creek, Davis Creek Pond, Chico Flat Reservior, and Russell Dairy Creek have been identified as aquatic habitat, agricultural and other beneficial uses in reservoirs and tributaries located downstream from the 35N05.

Threats to Water Quality: The threat of increased turbidity and sedimentation exists throughout the burned area, with the additional concerns of nutrient loading and increased water temperature in Davis Creek (the only perennial within the fire perimeter). Most of the eastern half of the burned area is drained by ephemeral channels that converge in Russel Dairy Creek and flow into Catfish Reservoir, approximately three miles downstream of the burned area. The central portion of the burned area contains four ephemeral channels that converge into Chico Flat Reservoir within a mile of the fire boundary. A small pond named Davis Pond is located on Davis Creek, also within a mile of the fire boundary.

Ash is expected to move off of the hillslopes and out of ephemeral channels. A portion of the debris found on hillslopes and in these channels that was stable before the fire has become floatable and will be transported during the first few runoff events.

The loss of vegetation and groundcover are expected to increase the risk of hillslope erosion only slightly; the lack of hydrophobic soil conditions throughout the burned area, the amount of rock outcrops and scree slopes where ground condition was unchanged by the fire, and the islands of light to unburned areas found within the fire perimeter will moderate this increase. In most of the burned area, hillslope erosion is expected to be minimal.

A major concern for increased turbidity and sedimentation is related to the risk of the fine floatable material and ash plugging culverts and initiating road failures. If this occurs, large amounts of road fill would enter the system and would scour the downstream channel until reaching a low-gradient depositional area. The quantity of sediment generated by this type of event would affect the downstream reservoirs and associated beneficial uses (stock water, irrigation water, aquatic life).

Davis Creek is the other major value at risk, as the only perennial stream within the burned area. The fishery in this stream is thought to be rainbow trout, and is currently under study to determine if it is redband trout. Approximately half a mile of this stream is within the burned area; of this, about 0.3 mile is in high severity burn down to the edge of water. Most of the woody debris that was not submerged was either consumed by the fire or reduced to floatable material. Streambank sedges have already re-sprouted, but the woody riparian plants that were burned (alder, wild rose., and dogwood) are not expected to re-sprout in the most severely burned reach. Steep sideslopes will contribute ash, burned debris, and some increased sediment from hillslope erosion to the reach. Pools may fill with fines, loss of shade may increase water temperature, and increased nutrients may result in decreased oxygen and increased temperatures, exacerbating the possible temperature increase.

Threats to Heritage Resources: Two prehistoric archaeological sites are at risk due to the combination of their location within the burned area of the Straylor Fire and the location of other watershed concerns. These sites are lithic scatters with the potential to contribute scientific data to the archaeological record of the area as well as contribute to understanding broad regional patterns of land-use by people in the past.

These sites are threatened by: site 1) the potential of increased hillslope erosion; and site 2) the threat of road prism failure. These factors could significantly impact the archaeological value of the sites by displacing and removing artifacts from the site locations. The relationship of an artifact to other artifacts within an archaeological site is critical, resulting in scientific understanding beyond that of the artifact itself. The reduction and/or elimination of surface vegetation resulting from the fire, and the location of these sites close to points of public access also subjects these sites to increased vandalism. Mitigating impacts to these archaeological sites is imperative as archaeological sites are non-renewable resources.

Noxious Weed Spread; There is a risk that noxious weeds could increase in the burned area for the following reasons; 1) Mineral soil has been exposed, 2) Fire suppression vehicles and machinery were not cleaned before entering the area, and 3) There is an active cattle grazing allotment. Dozer lines, staging areas, and drop points are among the highest areas of concern because topsoil and the associated seed bank have been removed. Noxious weeds could easily occupy these areas because of the exposed mineral soil and lack of vegetative competition. Areas adjacent to roads within the burned area are a concern because vehicles and machinery were not cleaned. There is a risk that noxious weeds could have been introduced from outside the area. There is also a concern that cattle grazing will increase noxious weed spread where mineral soil has been exposed.

Noxious weeds significantly reduce the value of public lands. Noxious weeds all negatively impact timber production, grazing, wildlife habitat, and recreational opportunities. Furthermore, noxious weed control is expensive and time consuming. Prevention and control of small infestations can reduce these impacts and reduce expenditures in the long run. Thus, noxious weed surveys, control of small infestations, and post project monitoring are vital in reducing overall impacts and costs from noxious weeds.

To determine the extent of noxious weed spread in the Straylor Fire area, noxious weed surveys will be completed in June 2005. Priority areas to be surveyed will include dozer lines, staging areas, and drop points as well as all roads within the perimeter of the fire. Surveys will also be completed where known occurrences are adjacent to the perimeter of the fire.

Threats to Aquatic Habitat: Threats to Aquatic and Terrestrial Habitat: Habitat for two aquatic species of special concern was impacted by the fire, 1) trout (either naturalized rainbow trout or a previously unknown population of redband trout - a species of specific concern) and 2) *Juga acutifilosa* (Aquatic Snail, Forest Service Sensitive Species). Other aquatic species in the Davis Creek system that may be impacted by the fire include: fish (speckled dace, Pit sculpin), an amphibian (Pacific chorus frog), and several mollusks (*Juga nigrina, Lymnaea virgata, Physella virgata,* sphaerids and hydrobiids).

The California Department of Fish and Game (CDFG) has collected trout from Davis Creek for genetic analysis to determine whether or not these fish are native redband trout or naturalized rainbow trout from an undocumented historical introduction. Two distinct redband trout populations, the Goose Lake redband trout (Upper Pit River Drainage) and McCloud River redband trout (McCloud River Drainage), have been identified in Nothern California. Both of these populations are managed as species of concern, with the McCloud River population being managed under a special conservation agreeement (CDFG, USFS, USFWS, and several private entities involved). Mitigation of the effects to the instream and contibuting hillslope areas in Davis Creek is imperative as the trout population found there may represent a third unique population of redband trout in Northern California. The fact that several fish were killed during the actual fire event increases the need for immediate action to protect the remaining trout population.

Trout in Davis Creek are immediately threatened by increased sediment delivery and water temperature increases. Trout spawning success is greatly reduced by excessive fine sediment; the fines clog the space between the gravels, cutting off the flow of oxygenated water to fish eggs and suffocating them. Excess sediment also fills pools which are important resident habitat for fish. The filling of pools results in decreasing water depth and, combined with loss of shade (loss of trees), creates warmer water temperatures. Increasing water temperature is a potentially lethal threat to all life history stages of fish.

B. Emergency Treatment Objectives:

The primary objective of the proposed emergency rahabilitation is to take prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to property and prevent unacceptable resource degredation. The emergency treatments being recommended by the BAER team are specifically designed to achieve the following results: Davis Creek Fish, Heritage,

downstream water quality ag benny uses, roads, 34 miles of cat line without cleaning equip, cows are on allotments now,

- Prevent degedation of a Heritage Resource site with hand straw mulching.
- Prevent the spread of existing noxious weed populations.
- Minimize the threats to downstream water quality (ie:agricultural and other beneficial uses)
- Reduce the threat of road crossing failures, including the threat to a Heritage Resource site.
- Prevent further degedation to fisheries in Davis Creek.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land **70** % Channel **75** % Roads **50** % Other **N/A** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	85	90
Channel	100	100	100
Roads	85	85	85
*Other	95	95	95

* Davis Creek Temporary Fence

E. Cost of No-Action (Including Loss): $1,297,000

F. Cost of Selected Alternative (Including Loss): $471,449

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[ ] Geology	[ ] Range	[ ]
[ ] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[ ] Engineering	[ ]
[ ] Contracting	[ ] Ecology	[ ] Botany	[X] Archaeology	[ ]
[X] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS	

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H. Treatment Narrative: The following are proposed emergency rehabilitation treatments for the Straylor Fire. The land, channel, and roads are reasonable applications of treatments that have been determined to be effective for their purpose when used under similar conditions in other wildfire areas. The final set of treatments was determined with the input from the BAER assessment team, the local Resource Officer, the responsible Line Officer, and the District and Forest Specialists.

Increased Crew Costs

To implement this project, labor costs for all treatments was estimated using Contract Crews. These crews are self sufficient and supply vehicles, supervision, lodging, food and medical in the cost per hour for each crewmember, which was estimated at $25.00 an hour. The closest area for the crews to work out of is a small town. The area may not be able to logistically handle the large amount of crews needed to complete the project in a timely manner. Also, we are in the peak fire season and availability of less costly crews will be searched before implementation.

The fire area is located approximately one to two hours away from the closest town. For safety reasons all costs are based on a 12 hour work day schedule. This will allow for an actual 6 hours of work a day after deducting 4 hours a day for travel, ½ hour for lunch, walk in time to sites and 3 or 4 fifteen minutes breaks. Each treatment also includes a 15 % overhead cost for the core team. The costs for each treatment include all of the above variables, which raised the cost of some treatments above normal.

Land Treatments

Wattles

Certified weed free straw wattles (1,875 linear feet total) will be placed on identified areas along Davis Creek with high severity burned slopes The wattle treatment will address the threats to direct aquatic habitat and downstream water quality. Wattles will be placed on identified terraces and old road benches along Davis Creek. The installation of wattles will reduce surface runoff from the burned slopes and reduce the risk of fine sediment and ash from entering the creek.

Table 1. Wattle Installation

Unit Name	Treatment Acres
Davis Creek Treatment Area	3
	Totals: 3

Hand Seeding and Mulching

Hand seeding and mulching is prescribed on 2 acres in the Davis Creek Treatment Area. The treatment includes hand seeding native species in a ten-foot strip along each side of the stream and covering the newly applied seed with weed free mulch (1 ½ tons an acre) to protect the seed from washing off site. The Forest Botanist will provide information on the correct seed mix and seeding application rate. These areas pose a direct and immediate threat to aquatic habitat and water quality

Table 2. Hand Seeding and Mulching Treatment Areas.

Unit Name	Treatment Acres
Davis Treatment Area	2
Totals:	**2**

Mulching

Mulching using certified weed free straw is planned on a total of 41 acres. Hand mulching will address the immediate threat to, aquatic habitat and water quality. Additional mulching may be implemented on a small-scale site-by-site basis during implementation, if surplus straw is available and the treatment is warranted.

Mulching costs exceed normal dollar amounts per acre usually requested due to costs of staging the straw. After initial staging the straw will be loaded into pickup trucks and staged as close as possible to the mulching unit. Crewmembers will then hand carry the bales into the unit. .

Table 3. Mulching Treatment Areas.

Unit Name	Treatment Acres	Bales of Straw
S-1	23	
S-2	13	
Davis Creek Treatment Area	5	
Totals:	**41**	

Straw Wattles

Certified weed free straw wattles (1,875 linear feet total) will be placed on areas identified with high severity burned slopes along Davis Creek. The placement of wattles will address the threats to aquatic habitat and water quality. Placed along the contour on moderate slopes or in shallow swales the wattles have been proven effective in trapping small amounts of eroding material to keep it on site and provide small catchments for the accumulation of sediment that is moving down slope.

Straw wattle costs exceed normal dollar amounts per foot usually requested due to the increase of $0.12 per foot, increased delivery costs and staging costs. The increase per foot and delivery cost was experienced on a BAER implementation assignment for the Big Fire, Shasta-Trinity National Forest earlier this year. The staging costs include the time allowed to carry the wattles into the units and up/down the slopes to be installed.

Table 7. Straw Wattles Treatment Area.

Watershed	Treatment Areas	Linear Feet
Davis Creek	1	1,875
Totals:	**1**	**1,875**

Channel Treatments

Channel Cleanout

Channel clean out treatment is prescribed along both sides of Davis Creek and several small tributaries located in the high burn severity area of the Davis Creek Treatment area. Floatable material and debris should be removed from the main channel (bankfull width) and from contributing swales. The channel cleanout will address the threats to water quality and aquatic habitat.

Table 8. Channel Clean out Treatment Area.

Unit	Miles
Davis Creek	0.7
Totals:	**0.7**

Roads and Trails

Culvert Upgrade

Seven existing culverts along the 35N05 are undersized and have been identified for upgrading. The costs were taken from Public Works road contract estimates. This treatment will increase the water carrying capacity of the pipes and prevent potential culvert plugging with sediment and debris causing crossing failure and subsequent loss of the road. It addresses the threat to a Heritage Resource site located immediately downstream of one of the culverts, and to Davis Creek, Davis Creek Pond, Chico Flat Reservior, and Russell Dairy Creek, which have been identified as aquatic habitat, agricultural, andother beneficial uses tributaries located downstream from the 35N05.

Table 9. Culvert Upgrade Treatment Areas.

Unit	Units
Install 36" CMP	6
Install 48" CMP	1
Totals:	**7**

Actual costs exceeded the original estimate, also, based on further review by Forest Design Engineers, it was determined that 6 additional culverts and cross drainage is required to address projected water flow from these sub-basins and to meet BMP standards.

Structures

Temporary Fence

A temporary fence will be installed in the Davis Creek Treatment area along 600 feet of the Private and Forest Service land boundary. The fire damaged the identified 600 feet of the boundary fence and there are concerns that the cattle pastured on the private land will be able to access the Davis Creek treatment area. The area has been identified as high priority for implementing several BAER treatments that will protect aquatic habitat and water quality along the reach directly adjacent to the boundary

Table 10. Temporary Fence Treatment Area.

Unit	Number of Feet
Davis Creek Fence	600
Totals:	**600**

Other

Noxious Weed Assessment

To determine the extent of noxious weed spread in the Straylor Fire area, noxious weed surveys will be completed in June 2005. Priority areas to be surveyed will include dozer lines, staging areas, and drop points as well as all roads within the perimeter of the fire. Surveys will also be completed where known occurrences are adjacent to the perimeter of the fire.

Table 11. Noxious Weed Assessment.

Unit	Number of Acres
Dozer Lines, Drop Points	235
Totals:	**235**

The weed crew surveyed approximately 35 miles of system and unclassified roads and dozer lines in 2006. During this survey they monitored and treated 11 known and 12 new weed infestations scattered throughout the Straylor Fire area. Once again the presence of weeds along many established roads clearly indicates that these areas are serving as the

primary vectors for weed movement in the Fire area. In addition, a vast majority of these infestations primarily Medusahead and Scotch thistle sites were small, with only one or a few plants found, and many were clearly found along dozer lines. This strongly indicates that the dozers were also acting as vectors for the spread of noxious weeds during fire suppression activities.

The majority of weed infestations found consisted of medusahead, (Taeniatherum caput-medusae), a California C-rated noxious weed. This species was already known to the area prior to the Straylor Fire. Unfortunately, during suppression activities many staging areas were placed in known medusahead occurrences. Because of this, suppression activities moved this species throughout the Straylor Fire area. As a result, treatment and monitoring during the 2006 season concentrated on Scotch thistle (Onopordum acanthium), and other weeds within the project area including Mediterranean sage (Salvia aethiopsis) and perennial pepperweed (Lepidium latifolium), both B-rated weeds, and bull thistle (Cirsium vuilgare), a C-rated weed.

Considering the numerous new weed sites that were found during the 2006 field season, it is recommended that additional time and funding be allocated in 2007 to treat and monitor the over 23 sites known or found since the Straylor fire. It is believed that all of these sites can be contained and/or eradicated with continued treatment. It is estimated that approximately $4,000 would be needed in FY 2007 to treat known Straylor weed sites, and an additional $2,000 is requested to complete BAER treatment effectiveness monitoring. This funding would cover the costs of a weed crew, comprised of two GS-04 or 05 Biological Technicians, their supervision, and miscellaneous supplies and equipment (see Part VI on page 10).

Storm Patrol

Storm patrol is recommended to address the anticipated increase in sediment (ash) and floatable debris that may plug culverts or cause other road drainage problems during the first few runoff events. Culverts that do not require upsizing for the long term need to be monitored and cleaned of any material that begins to plug them during these events.

Table 12. Storm Patrol.

Unit	Cost
Storm Patrol	$4,000
Totals:	**$4,000**

I. **Monitoring Narrative:**

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Evaluation				$30,500	$0		$0		$0	$30,500
F. Other										
Noxious Weed	acres	110	235	$25,850	$0		$0		$0	$25,850
Interim #3				***$10,500***						***$10,500***
Interim #4				**$6,000**						**$6,000**
Storm Patrol	ea	4000	1	$4,000	$0		$0		$0	$4,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Other				$46,350	$0		$0		$0	$46,350
G. Totals				**$210,986**	**$0**		**$0**		**$0**	**$210,986**

PART VII - APPROVALS

1. ***/s/ Laurie Tippin*** _____ ***10/4/06*** _____
Forest Supervisor (signature) Date

2. **/s/ Beth G. Pendleton** _____ **10/11/06** _____
(for) Regional Forester (signature) Date