Date of Report: 8/18/00

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

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

[ ] 2. Interim Report
[ ]Updating the initial funding request based on more accurate site data and design analysis
[ ]Status of accomplishments to date

[ ] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Trout Canyon **B. Fire Number:** NV-HTF-040

C. State: Nevada **D. County:** Clark

E. Region: R4 **F. Forest:** Humboldt-Toiyabe

G. District: Spring Mountains National Recreation Area (SMNRA)

H. Date Fire Started: 8/4/00 **I. Date Fire Controlled:** 8/15/2000 Contained: 8/11/2000

J. Suppression Cost: 1,256,850.00

K. Fire Suppression Damages Repaired with -PF12 Funds:
1. Fireline waterbarred (miles): 0 (To Date)
2. Fireline seeded (miles): 0
3. Other (identify): Helispots – 2.5 acres – Slash scattered (See narrative included)

L. Watershed Number: 95% in HUC#160600151004; 5% in HUC#160600151005

M. NFS Acres Burned: 878 **Total Acres Burned:** 878

Other ownership type: ( ) State ( ) BLM () PVT

N. Vegetation Types: High Conifer Forest and Low Conifer Woodland Zonal Vegetation Types

O. Dominant Soils: Typic Arguistolls (40%), Lithic Arguistolls (30%), Lithic Xerorthentics (30%)

P. Geologic Types: Paleozoic Limestone, Dolomite, and Quartzite

Q. Miles of Stream Channels by Order or Class: 1st order: 3.5 2nd order .75 3rd order: 0
All stream miles are ephemeral types, perennial and intermittent channels do not exist in this area.

R. Transportation Systems:

Trails: 0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

West Watershed – 92 acres

A. Fire Intensity (acres): Low: 10 (11%) Moderate: 43 (47%) High: 39 (42%)

B. Water-Repellent Soil (acres): 8 (8%)

C. Soil Erosion Hazard Rating (acres):
Low: 0 Moderate: 92 High: 0

D. Erosion Potential: 34.78 tons/acre

E. Sediment Potential: 33.20 tons/acre

East Watershed – 808 acres

A. Fire Intensity (acres): Low: 230 (28%) Moderate: 231 (29%) High: 347 (43%)

B. Water-Repellent Soil (acres): 70 (9%)

C. Soil Erosion Hazard Rating (acres):
Low: 0 Moderate: 808 High: 0

D. Erosion Potential: 24.52 tons/acre

E. Sediment Potential: 11.45 tons/acre

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 1-3 years

B. Design Chance of Success: An average of 62.5 percent chance that a moderate to heavy precipitation event (0.25 inches) will not occur on any day of the year. Road work will have a greater than 62.5 percent chance of success in processing a storm of this magnitude.

C. Equivalent Design Recurrence Interval: 50 years

D. Design Storm Duration: 24 hours

E. Design Storm Magnitude: 2.7 inches

F. Design Flow: 72.6 cubic feet per second per square mile

G. Estimated Reduction in Infiltration: 9 percent

H. Adjusted Design Flow: 66.3 cubic feet per second per square mile

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:
The fire encompassed headwater 1st and 2nd order drainages of a tributary to Trout Canyon. The Trout Canyon Fire, caused by lightning, began on August 4, 2000 and was contained at 1800 hrs. on August 17, 2000. It covered 878 acres in portions of Sections 23, 24, 25 and 26 in T.20S., R.56E. as well as portions of Sections 19 and 30 in T.20S., R.57E.. It is situated within ½ mile East of the small community of Trout Canyon in Clark County, Nevada. It lies on the west side of the Spring Mountains facing Pahrump Valley. Administratively it is within the La Madre Wilderness Study Area on the Spring Mountains National Recreation Area of the Humboldt-Toiyabe National Forest.

The Trout Canyon Fire terrain ranges from approximately 6200 to 9500 feet in elevation and had been covered primarily in pinyon-juniper with some mixed conifer (white fir and ponderosa pine) in the higher areas. Steep, rocky, and rugged limestone slopes ranged from 20 % to 50%. The watershed that burned included four main ephemeral tributary drainages that head southwest and eventually drain into the Trout Canyon drainage system, plus one at the very top of a tributary to the Lovell Canyon drainage system. There is no perennial water or springs located within or directly adjacent to the burn and there are no vehicular access routes. Fire suppression actions included hand lines and retardant and water drops. Four helispots were cleared for dropping supplies to the firefighters and these were located along the ridgelines adjacent to the fire line. The Incident fire camp was located on private land in Trout Canyon and a helibase was set up on private property in Lovell Canyon.

Generally the fire intensities ranged from low in the lower portions of the watersheds to high in the upper portions. However, fire severity ranged from low to moderate, even in areas of high intensity, with the higher severity found in areas with deeper duff layers. Hydrophobic soils surveyed within the burned area averaged less than 0.5 inches in depth with maximum outliers reaching 0.75 – 1 inch in depth. Rock fragments covered between 50 and 75 percent of soil surface on most slopes and aspects (refer to Appendix A for Field Notes). Slopes range from 25% in the lower portions to 75% in the upper third of the area. Channels within the burned area ranged in their storage of readily available sediment deposits, however, most of them were storing deposits consisting of a mixture of 3 inch minus rock fragments and fine soils. Debris fans resulting from previous fires in the area moved about 16,875 cubic feet of material from slightly over 20 acres. This material was deposited prior to meeting the main channel on a slope of approximately 150 feet in length and 15%. Vegetation was covered with very little mortality as a result of the debris.

The objectives of BAER for this incident were determined through intensive review of threats to human life, cultural and other natural resources, and property in that order. The area poses no threat to human life downstream. Soil productivity in the form of soil loss is expected to occur, especially in the event of the design storm, due to a headwater area burning contiguously at a moderate to high intensity burn with loss of vegetation incorporating about 578 acres. In the event of the design storm flooding would cause extensive damage to a forest service road (Lovell Summit) that is located downstream about 1 mile. This Lovell Summit road accesses private property at Coal Springs which consists of property occupied by trailers. It is the only access for this type of vehicle, however, there is an alternate route to the private property via higher clearance vehicles. There is a small potential for this design flow to cause damage to a County road about 6 miles downstream. This county road accesses the community of Trout

Canyon and is the only access other than the Lovell Summit road. The Lovell Summit road would be impacted in three locations prior to the flood event reaching the county road.

Soils:

The SMNRA includes approximately 316,000 acres entirely within the Spring Mountains Range (Clark County) with considerable areas of altitudes above 11,000 feet. The rock units and the unconsolidated materials found within the Spring Mountains are entirely of sedimentary origin. The soil type is a gravelly loam and the rocks are Paleozoic in age.

The area of the burn is described as strongly dissected mountain slope land. The dominant soils types are:

- Typic Arguistolls, loamy skeletal, mixed, mesic; 24-48" depth to bedrock; moderate infiltration; moderate-slow permeability, and moderate-low erodability (40%);
- Lithic Arguistolls, loamy skeletal, mixed, mesic; 14-18" depth to bedrock; moderate infiltration; moderate-slow permeability, and moderate erodability (30%); and
- Lithic Xerorthents, fine loamy, calcareous, mixed; 6-10" to bedrock; moderate infiltration slow permeability, and moderate-high erodability (30%).

The profiles are stony throughout, and the bedrock is well-fractured, moderately hard weathered limestone and dolomite.

Wildlife:

Plant communities in the burned area consist of pinyon-juniper, mahogany, ponderosa, and white-fir vegetation community. There was no water in the burn and dry wash areas suggest that there are only temporary amounts of water present during monsoon seasons with little or no possibility of standing water. Observations of the burn area shortly after fire containment showed signs of usable cavities and burrows, as well as signs of Desert Cottontail (*Sylvilagus auduboni*), mule deer (*Odocoileus hemionus*), and Rocky Mountain Elk (*Cervus canadensis*).

With the burn specifications as listed above, potential habitat exists for three of the Spring Mountain's Animal Species of Concern. These species as well as their habitat requirements are listed as follows:

- Flammulated Owl (*Otus flammeolus*): Oak/Pine woodlands especially Ponderosa associations. They use old snags with cavities for nesting. They are found throughout the Spring Mountains between 5000-8000 ft. in elevation.
- Morand's Checkerspot (*Euphydryas anicia morandi*): Mixed conifer forests, pinyon woodland associations. They are a Spring Mountain endemic that are found at 6900-15000 ft. in elevation. They use paintbrush (*Castilleja linariifolia, and C. martinii*) as larval host plants.
- Spring Mountain Comma Skipper (*Hesperia comma spp.*): Mixed conifer forests; pinyon woodland associations. They are a Spring Mountain endemic that is widely distributed occuring between 4900-9900 ft. in elevation. Their larval host plants are perennial grasses.

Habitat:

The Spring Mountain National Recreation Area on the Humboldt-Toiyabe National Forest was established in August, 1993. The SMNRA encompasses the higher elevations of the Spring Mountains, which is a classic desert sky island harboring exceptional biological diversity.

PLANT COMMUNITY CLASSIFICATION
There are four broad vegetation zones defined by the predominant elevational gradient in the Spring Mountains and two broad azonal types defined by habitat characteristic. The four zonal vegetation types of the SMNRA from lowest to highest elevations are:

I) DESERT SHRUBLANDS
II) LOW CONIFER WOODLAND, MONTANE SHRUBLAND, AND CHAPARRAL
III) HIGH CONIFER FOREST AND WOODLAND
IV) ALPINE

The two broad azonal types are:

I) STEEP SLOPES AND CLIFFLANDS
II) RIPARIAN AND SPRINGS

The elevation for the fire ranged from 7,000 – 9,000 feet and the vegetation zones that were affected by the Trout Canyon Fire were the low conifer woodland and high conifer forest and woodland. The origin of the fire stated in the low conifer woodland (7,000 – 8,000 ft) with a range in slope from 3-35%, which includes *Ceanothus greggii* (Desert ceanothus), *Arctostaphylos pungens-Garrya flavescens* (Point leaf manzanita-silk tassel), *Pinus monophylla – Juniperus osteosperma* (Singleleaf pinyon pine - Utah juniper), and *Cercocarpus ledifolius var. intermontanus* (Curlleaf mountain mahogany).

The upper section for the fire ranged from 8,000 – 9,000 feet with a range in slope from 5- 75%. The vegetation affected within this high conifer forest and woodland plant community was *Abies concolor - Pinus ponderosa* var. *scopulorum – Cercocarpus ledifolius* var. *intermontanus* (White fir – ponderosa pine – curlleaf mountain mahogany), *Juniperus scopulorum* (Rocky mountain juniper). This plant community also includes *Pinus flexilis and Pinus longaeva* (Limber pine – Bristlecone pine), but there none sited within the fire. Field observations indicated that while some grasses were currently seeding, this year's seed crop will be lost. However, other shrub species appeared to have good potential for regrowth following the shallow high intensity fire.

COMMON ASSOCIATED PLANTS
Other common associated species that were sited near or within the fire was *Yucca baccata*, *Poa fendeleriana* (which is currently seeding 8/11/00), *Ephedra viridis*, *Ribes cereum*, *Cateilleja linariifolia* and Gambel's oak.

SENSITIVE PLANT SPECIES OR SPECIES OF CONERN
There are no known sensitive plant species recorded or found within the area for the Trout Canyon fire, although there is potential habitat for one endemic the *Glossopetalon clokeyi* (Clokey greasebush) and one sensitive the *Ivesia jaegeri* (Jaeger ivesia).

NOXIOUS WEEDS
Currently, there were no noxious weed located within the burned area, but there maybe a potential for noxious weeds to be introduced into the area from the local community and other recreationists.

CURRENT CONDITION OF VIABLE SEED
Soil was collected on-site within burn intensities of high and moderate to determine seed existence and viability per volume of soil. Seed existence and viability study has not been completed.

Cultural:

There are no known cultural resource properties that were affected by suppression or proposed BAER activities and there is a very low possibility of any unknown cultural resource sites being affected.

No prior formal or systematic cultural resource surveys had taken place within or anywhere close to the fire area. One prehistoric site was recorded in 1987 within one mile of the fire in the Trout Canyon drainage that was partially obliterated by a road. Incomplete notes on prehistoric cultural sites observed in the 1970s occur near springs such as Kiup Spring (about three miles to the southwest) and along possible travel corridors such as the main drainage which leads to Lovell Canyon. Unrecorded historic sites in the area include Williams Ranch within the Trout Canyon community and the "Lower Williams Ranch" near Kiup Spring.

Based upon knowledge of prehistoric and historic sites thus far recorded on the Spring Mountains, the sensitivity for either type of site to occur within the Trout Canyon Fire area is deemed low. This is due to its rugged, steep characteristics and lack of water. Although pinyon nuts and juniper berries were gathered in this mountain range, hunting and gathering would have been more favorable on gentler slopes, along main drainages and tributaries of Trout Canyon, and near springs such as Trout and Kiup rather than the steep and dry slopes of the burn area. As such, no archaeological surveys were conducted along the hand lines or helispot clearings for this fire.

The helibase on the private Sky Mountain Ranch in Lovell Canyon was located on a mechanically altered and leveled drainage bottom which was not surveyed for this incident due to an extremely low likelihood of a cultural site remaining there. The fire camp was located on private land in Trout Canyon where traditionally a fire camp and a small helispot have been set up in full cooperation with the landowners. Although there is an unrecorded historic adobe structure, corrals and fruit orchard in the immediate vicinity (possibly part of the Upper Williams Ranch), the primary areas utilized by fire incident personnel appears to have been bladed level at some point in the past. These areas of impact were visually inspected as the cultural sensitivity was considered higher on this ridge, however, no prehistoric lithic or ceramic artifacts were observed. A six inch steel irrigation pipe runs down the center of this big flat ridge area, but it is no longer functional. Its initial start and finish were not followed out.

Forest Road 536 (*aka* Lovell Summit Road) was originally built by the Civilian Conservation Corps. in 1933-1934 to connect the Las Vegas area to Pahrump, according to Bob Taylor of the BLM (personal communication on 8/11/00). The road strengthening in Section 35 at the drainage crossing would not affect any prehistoric properties and will help to maintain this historic route from washing out.

Fire Suppression Activity Damage Rehabilitation Recommendations:

Will be funded from forest fire suppression (FFS) funding.

FIRE LINE SITUATION:

- All fire lines need the available dead and green plant material pulled into the fire line. If the fire line is cupped, place the plant material on the fire line after it is rehabilitated.
- All cupped fire lines need to have the loosened soil material pulled back into the trenched area.
- Water bars, built a minimum depth of 6" into the undisturbed soil profile and no further than 10 to 20 feet apart, need to be placed in the fire line where:
- Soil depth is greater than 6 inches,
- Slopes are 40% to 75%,
- Fire line lies in an uphill and downhill position on the hill slope.

HELISPOT (3) AND DROP (1) SITES:

- Retrieve all plant material previously removed from the sites and scatter over the site in a random fashion.

SKY MOUNTAIN RANCH HELIBASE:

- Review the signed agreement with the landowner/agent to determine if adequate funds were allocated for rehabilitation of the site and repair to any structures or improvements. It was noted that fire vehicles had driven over and damaged some pop-up heads in an irrigation system for the trees bordering or near the pond site. The herbaceous vegetation at the helicopter landing site and the crew staging site was trampled.

This situation needs to be discussed with the landowner/agent for their assessment of the situation.

TRANSPORTATION SYSTEM SITUATION:

- Review the signed agreement with the Trout Canyon Homeowners Association and Sky Mountain Ranch to determine if adequate funds were allocated for repair of the road tread surface to a pre-fire condition. At this time, the TC Homeowner's Assoc. requested only the repair of the road tread surface as an action item.
- Foot trail that approached the Division B fire line section is on contour and acceptable in its current condition.
- Trail used to approach the Division A fire line section was previously used by hikers and casual ATV vehicles. The trail became pronounced with the fire fighters use. It is recommended efforts be made to camouflage the trail. Rake, pull, or fall, green and dead material onto the trail and scatter large cobbles and stones so to camouflage the trail.

INCIDENT COMMAND POST SITE:

- Review the signed agreement with the Trout Canyon Homeowners Association to determine if adequate funds were allocated for rehabilitation of the Incident Command Post site.
- All litter, debris and portable sanitation toilets to be removed from site.
- Aged metal 6" water line of no concern.
- If seeding is requested on private land, use certified, weed-free seed of non-aggressive species.

B. Emergency Treatment Objectives:

LAND:

Seeding areas that may be prone to noxious weed establishment due to accessibility will be determined through monitoring results. There were some shrub plants that survived the fire, but depending on what is found during future monitoring native seeds may be warranted.

CHANNEL:

No treatments intended.

ROADS AND TRAILS:

The objective of road reconstruction is to minimize damage caused by scouring flows by allowing full floodplain use with a hardened base level. This extensive damage would interrupt access to the private property at Coal Springs.

STRUCTURE:

No treatments intended.

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

Land **32** % Channel **N/A** % Roads **60** % Other ___ %

D. Probability of Treatment Success: 90%

E. Cost of No-Action (Including Loss): $20,000 (noxious weed management + road reconstruction and maintenance)

F. Cost of Selected Alternative (Including Loss): $13,000

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[X] Soils	[ ] Geology	[ ] Range	[ ] Water Chem./Muni. Water
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[ ] Engineering	[X] Natural Resource Specialist
[ ] Contracting	[X] Ecology	[ ] Research	[X] Archaeology	[ ]

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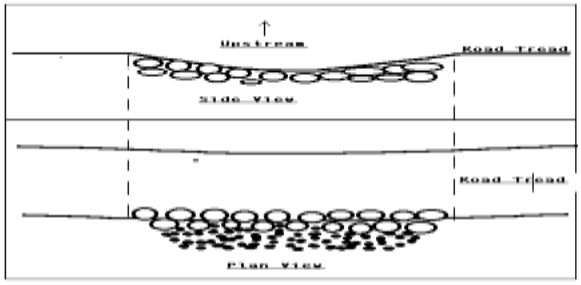
Victoria Dotson, Soils(summer coop), vdotson@fs.fed.us, (702) 873-8800, Implementation Leader

TREATMENT NARRATIVES:

1) Road Hardening

Road hardening is recommended on Lovell Summit road at one location; NW ¼ of SE ¼ of Section 35, T.20S., R.56E..
Method: Construct a hard base level by placing boulders (3-4 ft. diameter) and filled with 6 inch minus material. This base level will be constructed so that boulders protrude from the surface at or slightly above the current channel bottom (no greater than 2 inches above bottom). Boulders will be placed 2 widths wide parallel and on the downstream edge of the road tread. At the upper floodplain banks on either side of the drainage boulders will also be placed 2 deep. An apron of rock will be placed downstream of the road at a 2:1 slope with a length of 15 feet and width similar to boulder placement to prevent niche point and upstream-moving gully formation.



Purpose: Reduce the effects of roads and potential for increased damage associated with the road system. Provide permanent access to Coal Springs private property.

Limitations: Depth of scour by debris flow is deeper than hard structure will cause unpreventable loss of the road prism.

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

			NFS Lands		Other Lands			All
Line Items	Units	Unit Cost $	Number of Units	WFSU-SULT $	Number of Units	Fed $	Non-Fed $	Total $
A. Land Treatments								
Aerial Seeding (Annual site visits will determine actual need for application)								
B. Channel Treatments								
None								
C. Roads and Trails								
Low water hardened crossing	Each	8000	1	8,000				
D. Structures								
None								
Total Treatment Cost				8,000				
E. BAER Evaluation/Adminstrative Support								
GS-11 Specialists	Days	220	14	3,080				
GS-09 Specialists	Days	180	3	540				
GS-07 Specialists	Days	120	6	720				
GS-05 Specialists	Days	90	3	270				
Total BAER Evaluation Cost			26	4,610				

			NFS Lands		Other Lands			All
Line Items	Units	Unit Cost $	Number of Units	WFSU-SULT $	Number of Units	Fed $	Non-Fed $	Total $
Other								
Implementation team								
Total	Days	120	6	720				
Monitoring treatments	SEE	APPENDIX	A					
Year1 – 2 GS-09	Days	240	8	1,920				
Total			14	1,920				

F. Sub totals								
Treatments				16,000				
Baer assessment team				4,610				
Baer implementation team				1,440				
Monitoring				1,920				
TOTAL				15,970				

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date

APPENDIX B

BAER -MONITORING NEEDS

General: Track effects from precipitation events on burn area beginning immediately and subsequently for at least the next 3 years. Monitor cross-sections established during assessment to track changes annually and/or following large precipitation events in the area. Monitor noxious weed establishment and assess need for seeding treatment to prevent further encroachment.

Monitoring is needed to:

1) Provide for immediate storm tracking/monitoring to find and ameliorate developing problems before they can get worse, eg. Road system.
2) Annual site visits to accessible areas should be completed annually for 2 years to monitor noxious weed existence.
3) Field visit should be completed to observe and verify estimates of seed viability and shrub regrowth.
4) Track changes and trends of established cross-sections following the monsoon season annually. These stations are located about 400 feet above the Lovell Summit road in the drainge below the burned area.
5) Assess regrowth/sprouting of existing vegetation in untreated areas to comparing expected response against actual responses
6) Cooperate with and assist research as needed for site selection and sample collection and other needs. Likely research agencies likely could include, USFS Rocky Mt. Research Station, USGS, and others.

Documentation of field visits and observations on Forest Service lands should occur as visits are made and compilation of findings made as determined by the Region, Forest, or District.