USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report: July 03, 2001

Draft 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 or design analysis
[ ] Status of accomplishments to date

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

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Martis

B. Fire Number: CA-NEU-009855

C. States: California and Nevada

D. Counties: Nevada (CA) and Washoe (NV)

E. Regions: Region 5 and Region 4

F. Forests: Tahoe and Humboldt-Toiyabe National Forests

G. Districts: Truckee and Carson

H. Date Fire Started: June 17, 2001

I. Date Fire Contained: July 1, 2001

J. Suppression Cost: Est. $17,000,000

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 17.2; Hand Line: 28.4
2. Fireline seeded (miles): 13.6 (contingency dozer line to be done in the Fall)
3. Other (identify): Rock 5 Road/Stream crossings

L. Watershed Number**: 160501201**

M. Total Acres Burned 14,419
NFS Acres(10,252) Other Federal (0) State (645) Private (3,522)

N. Vegetation Types: Eastside pine, eastside mixed conifer, shrub (Mountain mahogany, bitterbrush, greenleaf manzanita, snow brush, mahalia mat, pinemat manzanita and high elevation red fir.

O. Dominant Soils: Volcanics – Jorge, Boomtown, Fugawee, Carioca, Sibelia, Sibelia variant, Meiss, Blackwell, Kyburz, Aldi, Franktown, Trojan;

Glacial Moraine – Tallac;
Granitics – Graylock, Temo.

P. Geologic Types: Kate Peak Formation – stratified tuff-breccia; volcanic andesite and dacite; glacial moraine; Cretaceous granite.

Q. Miles of Stream Channels by Order or Class:
Perennial: 33 miles Intermittent: 5.5 miles

R. Transportation System

Trails: System: 0 miles
Non-system: 21 miles

Roads: System: 16 miles
Non-System: 13 miles
Interstate Highway 80: 2.4 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): Whole Fire -- 4321 (low) 8921 (moderate) 502 (High) 675 (Rock)

Gray Creek -- 2380 (low) 3779 (moderate) 21 (High) 14 (Rock)
Bronco Creek -- 1051 (low) 2567 (moderate) 240 (High) 309 (Rock)
Truckee River -- 891 (low) 2574 (moderate) 241 (High) 351 (Rock)

B. Water-Repellent Soil (acres): Very little detected

C. Soil Erosion Hazard Rating (acres):
3605 (low) 3749 (moderate) 7065 (high)

D. Erosion Potential: **Gray Creek** (1 year return internal) 2.32 tons/acre
(2 year return interval) 52.73 tons/acre
Bronco Creek (1 year return interval) 0.21 tons/acre
(2 year return interval) 34.85 tons/acre
Truckee River Canyon Segement (1 year return interval) 0.14 tons/acre
(2 year return interval) 29.46 tons/acre

AVERAGE -- (1 year return) 1.04 tons/acre
(2 year return) 40.92 tons/acre

E. Sediment Potential**: Average** (1 year return interval) -- 512 cubic yeards / square mile
(2 year return interval) -- 20,145 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 10

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

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 2

E. Design Storm Magnitude, (inches): 1.2

F. Design Flow, (cubic feet / second/ square mile): 33

G. Estimated Reduction in Infiltration, (percent): 20

H. Adjusted Design Flow, (cfs per square mile): 40

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:
Based on field reviews and analysis, the BAER Team identified the following emergengies as a result of the Martis Fire as per FSH 2509.13:

1. **Threats to Human Life:** The following values were identified "at risk" during the initial phase of the Martis Fire BAER evaluation process: the town of Floriston, users of Interstate Highway 80, and the Union Pacific railroad. The only private residences located downslope from the Martis fire is the town of Floriston. Floriston is located along the Truckee River. The area immediately upslope from Floriston did not burn during the Martis Fire. The area above the unburned area received a patchy burn with a combination of high, moderate, and low burn severity along with a rock component. The slopes above Floriston range from 60% to 80%. The town of Floriston was susceptable to rock fall prior to the Martis Fire. There may be a slight increase in rock fall due to loss of vegetation. Both Interstate Highway 80 and the Union Pacific Railroad have normal maintenance procedures inplace to handle any additional rock fall due to the fire effects (personal conversation with John Sturkey – Maintenance Supervisor).

2. **Threats to Property:** Values identified "at risk" downstream and downslope include the structures within the town of Floriston, other private land, roads and bridges, a structure under construction at the mouth of Gray Creek, Interstate Highway 80, the Union Pacific Railroad line, and the water treatment plant for the city of Reno.

The town of Floriston, Interstate Highway 80, and the Union Pacific railroad risks are discussed in the above section. There are no emergency treatments available to address these values because of the steep, rocky slopes present. No emergency situation was identified on the private land within or adjacent to the Martis Fire. All roads and bridges within and adjacent to the Martis Fire were inspected by engineering personnel during fire suppression rehabilitation. Improvments implemented, if needed, were designed to armour and improve these facilities. There were no roads or trails identified in the portion of the Mount Rose Wilderness Area affected by the Martis Fire. The unoccupied building under construction at the mouth of Gray Creek, is located on debris and sediment captured by the remains of an old ice pond dam built in the 1880's, a portion of which was subsequently breached by Gray Creek. The owners of the facility recognized that their building was at continuous risk of being damaged by debris that may flow out of Gray Creek at this location during flood or flash flow events. The 100 year flood event that occurred in January 1997 did not appear to cause any damage to the site. The increased flow and suspended material that may result from an intense rain storm due to the affects of the loss of vegetation in the burned portion of the drainage, is not expected to reach the high levels that occurred in 1997. Due to the already existing pre-burn risk, the potential for increased effects caused by the wildfire are not expected to approach the 1997 flood event levels and create an emergency situation.

The water treatment plant on the Truckee River, which is the source for 60 percent of the domestic water use for more than 250,000 residences in the Reno/Sparks and surrounding area, is also identified as a "value at risk". Ash and suspended sediment originating in the burned-area stream system can potentially migrate to the Truckee River and downstream approximately sixteen miles from the town of Floriston to the Chalk Bluff Water Treatment Plant. The recently remodeled water treatment plant is designed to treat turbid water and water officials from the Truckee Meadows Water Authority, which operates the plant, are confident the plant can treat the sediment in the river. Ash content in the water can pose another problem to the water treatment plant, but plant officials believe they can adequately treat ash contamination with a

substance called alum. In the event of a severe summer thunderstorm or winter storm, the treatment plant can close intake valves and water would by-pass the treatment plant. In that case, the Reno/Sparks area would rely on stored water and groundwater wells for it's short-term water needs.

3. **Threats to Water Quality:** All watersheds in the burn area have a potential for short-term increases in sedimentation and associated effects on water quality due to the burn. Both Gray and Bronco Creeks are listed on the EPA 303(d) list for impaired watersheds with sedimentation and siltation listed as the parameter of concern. The potenial sources of impairment are natural sources and nonpoint sources. The effects to water quality in the Truckee River and the Reno/Sparks water supply due to the burn is discussed in the section above. In addition, the recreational use in the Truckee River, Bronco Creek, and Gray Creek could suffer as water quality decreases. Other downstream beneficial uses at risk as a result of potential short-term sedimentation of area waterways include irrigation, fishing, site-seeing, visual clarity and other recreational uses along the Truckee River.

Though the fire will accelerate natural and human-caused erosion processes, the BAER team found that no practicable treatment would effectively mitigate the impacts of erosion and resulting sediment yield from the Gray Creek watershed to the Truckee River. The steep, highly erosive, geologically unstable Gray Creek drainage was in a naturally poor hydrologic condition prior to the fire.

4. Threat to Federally Listed Species: Emergency consultation with the United States Fish and Wildlife Service (USFWS) was intiated the second day of the fire (G. Wilson, June 19, 2001; as documented in the Fish and Wildlife correspondence file for the Martis Incident). Any proposed emergency restoration treatments would be completed through consulation with USFWS as outlined in the Endangered Species Act of 1973, as amended; and FSM 2670 policy.

Lahontan Cutthroat Trout: The Nevada Division of Wildlife (NDOW) introduced Lahontan Cutthroat Trout (LCT) into West Fork Gray Creek and Bronco Creek in September 1983 and July 1984, respectively. The fish for the introductions came from Austin Meadows and Macklin Creeks in California that are believed by the California Department of Fish and Game (CDFG) to be remnant populations of the original cutthroat trout found in Lake Tahoe. A follow-up planting of LCT occurred on West Fork Gray Creek on September 9, 1987 using fish from the same areas as the original planting. NDOW planted 66 LCT ranging in size from 2 to 10 inches (Warren 1987b).

In 1990 and 1991, NDOW conducted fish inventories using electrofishing equipment to determine the status of the LCT introductions. In September of 1990, 91 fish per mile were found in West Fork Gray Creek; and in October 1991, 79 fish per mile were found in Bronco Creek (Warren 1992). "The electrofishing results represent the latest sampling and may not represent the carrying capacity of the stream due to the drought. For example, in August of 1988, Bronco Creek produced 264 fish per mile. In all the streams sampled, there were at least three age classes of fish present. The cutthroat in these four streams are well established and viable populations even though they are low in numbers (fish per mile)" (Warren 1992). An employee of NDOW, who is considered a very reliable source, was fishing in the upper headwaters of Bronco Creek during the summer of 2000. He reported seeing many LCT in the northwest quarter of section 33 in Township18 N and Range 18 E. (Tisdale, pers. comm., June 2001). LCT have been re-introduced (stocked) into the Truckee River in recent years. The closest site of LCT re-introductions directly into the river is approximately 10 miles upstream of the fire area. **The Truckee River, Gray and Bronco Creeks are all considered important streams to the recovery of LCT.**

Within the fire area, 11.7 miles of occupied LCT stream were burned. In addition, another 10.4 miles of potential recovery streams were burned. Some LCT were inevitability loss during fire suppression activities from water being lifted out of the Truckee River to be dropped on the fire. Although not observed during post fire surveys, some LCT were probably lost when the fire burned over these LCT streams.

Habitat protection work, to prevent permanent impairment to habitat that is important to the conservation of species at risk, is a valid BAER treatment. An objective of burn area emergency rehabilitation is to

"alleviate emergency conditions following wildfires…to prevent permanent impairment of ecosystem structure and function." (FSM, 2523.02 #2, 05/25/2000).

Both Bronco and Gray Creek are watersheds with steep slopes and unstable soils which have the greatest chance of impacting LCT within and downstream of the burn area. Increased sediment and debris delivery to the channels and higher water flows are expected.

Bald Eagle: The Truckee River runs through the western portion of the fire area. This portion of the Truckee River provides a substantial prey base for bald eagle that includes rainbow trout and LCT. Foraging habitat occurs within, upstream and downstream of the burn area. The Truckee River has been surveyed for wintering bald eagles which forage along the river for at least the past 10 years. These surveys are completed once a year during the first two weeks of January. Bald eagle sightings during the surveys in this area are scattered however, but consistent. The Nevada Department of Wildlife also maintains a data base of incidental wildlife observations. This data base lists several bald eagle surveys which list sightings in the Verdi and Belli Ranch areas which are downstram of the fire area, along the Truckee River.

Formal bald eagle nesting surveys have not been completed on the private land or public lands within, adjacent or downstream from the fire area. The potential for eagles to nest along the Truckee River in this area are limited due to the presence of Highway 80, generating a lot of disturbance which could limit successful nesting.

The available prey base for bald eagles (fish) may be reduced over the short term for bald eagles. As noted for LCT, additional sediments to the river may inhibit fish populations which limits prey availability for bald eagles.

5**. Threats to Long Term Soil Productivity:** The majority of soils within the burned area are upland soils that contain high percentages of gravel and cobble size rock. Typically, surface rock content can reach 75% and up to 100% with intermittent boulder outcrops. In some areas, the surface is gravely with fines intermixed in the surface layer. They have moderate to rapid runoff and hazard of water erosion is moderate to high. Some are subject to flooding during periods of unusually high snowmelt. Included in these soils is the Meiss-Sibelia-Rock outcrop, Jorge-Boomtown-Fugawee association, Carioca-SibeliaVariant-Fugawee, and the Macareeno-Blackwell-Carioca association. A significant portion of terrain adjacent to the Gray Creek channels and to a much lesser extent in Bronco Creek consists of glacial moraine soils that have slow runoff and slight water erosion hazard. Included soils are the Tallac very bouldery sandy loams. Over 10% of the Gray Creek watershed is composed of hydrothermally altered rocks of the Kate Peak formation exposed in the mid portion of the watershed and covering approximately 1,200 acres (Cole, 1969). Soils derived from these altered Andesites are very acidic (pH 5.0 –5.7), support very little vegetative soil cover and would not be conducive to grass seed germination. This outcrop is visible on air photos on the ridge separating the middle and north forks of Gray Creek, by the sparse vegetation, made up mostly of widely scattered brush and a few conifers.

Due to the nature of the fire behavior in the first burn period, 200 acres to 12,000 acres in six hours, the majority of the burn area experienced a high-intensity, short-duration fire behavior. Because the fire did not linger for long periods in any one area, much of the seed bank, for grasses and shrubs, that existed prior to the fire, remained intact and are expected to re-establish shortly after the burn. These areas were identifed as having low to moderate in burn intensity. However, there are isolated areas that exhibited the characteristics of a high intensity burn. These areas were field verified as to the extent of burn damage, potential for regeneration of grasses and shrub species, effects to long term soil productivity, and effects to downslope values.

Most of the area has a native seed bank that is intact and will sprout after rains. The seed bank is most intact in areas where the burn intensity in low and moderate. Seeds are likely present in the high intensity areas but likely have a lower viability. Many of the species present in the Martis Fire will stump sprout (some already have began) during the summer of 2001. These species include green leaf manzanita and snowbrush that are common and widespread over the landscape in the uplands. The soil in the uplands is

still moist over much of the landscape and will aid plant growth. Many of the riparian species such as cottonwood, willow, aspen, alder, sedges and grasses also are stump-sprouting species. Most of the riparian areas and many of the scrublands will be moderately vegetated by late summer because of the stump-sprouting species. Grasses and forbs from the seed bank may become established from summer rainfall, but most likely fall and winter rains will lead to widespread germination. Only a few areas that were burned with a high intensity or had low diversity such as mountain mahogany areas will take a longer time to re-vegetate.

Ground disturbance from BAER implementation team crews have potential to inhibit natural regeneration of the native seed bank and cause tracking and trailing that will aggravate the high erosion hazard that already exists from the fire effects on the watershed.

5. **Threats of Noxious and Invasive Weed Invasion:** Current inventory of noxious weeds in and around the Martis Fire include; Canada thistle, Poison hemlock, Diffuse knapweed, Musk thistle, Tall whitetop, Scotch thistle, Perennial pepperweed, Yellow starthistle, Purple loosestrife, and Hoary cress as well as numerous other invasive exotics such as Medusahead grass, Klamath weed, and Cheatgrass. Occurrences of Cheatgrass, Medusahead grass, Tall whitetop, Poison hemlock, and Musk thistle have been located in and adjacent to staging areas and firelines. The use of equipment in the efforts of suppression and rehabilitation of the Martis Fire poses a significant risk to spread of these noxious weeds to other areas where they are not found both in the fire area and at home units where efforts to eradicate these species can be costly. The Sierra Nevada Forest Plan Amendment (SNFP) recognizes that fire suppression equipment as well as burned areas act as vectors and ideal growing habitat respectively. The SNFP has directed Sierran Forests to develop baseline information for land areas with special considerations including noxious weeds for incorporation into a computer aided dispatch system. The link to a dispatch system has not been fully implemented on most Sierran Forests, however GIS mapping has been completed for the known occurrences of noxious weeds prior to the Martis Fire and has aided in development of plans to deal with noxious weeds during and after the fire.

It was realized early in the fire that there were noxious weed infestations in and around the Martis Fire. An important prevention in the spread of weeds that occur in the area is washing equipment prior to demobilization from the Martis Fire.

Cheatgrass was present throughout the Truckee River canyon, which is generally private lands. It will persist and likely expand after the fire due to open habitat. Some encroachment and expansion by cheatgrass into the Martis Fire area at the lower elevations and southern faces may be expected. However, it is expected that at elevations above 6,250-6,500 feet and areas where shrub species that stump sprout and germinate after the fire will quickly shade out and outcompete the cheatgrass.

B. Emergency Treatment Objectives:

To address the emergencies identifed by the BAER Team, the following objectives were identified:

Reduce the potential for erosion and associated sedimentation in site specific areas along the Truckee River, Gray Creek, and Bronco Creek. The areas identified for treatment have the highest potential for on-site and off-site soil movement and sedimentation due to the effects of the burn and have the best site conditions to institute emergency rehabilitation measures.

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

Land 80% Channel 100% Roads **N/A** % Other **N/A** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80%	90%	95%
Channel	80%	90%	90%
Roads	N/A	N/A	N/A
Other	N/A	N/A	N/A

E. Cost of No-Action (Including Loss):

Four parameters were used to determine the cost of the loss of resources if no treatments were applied. These include loss due to severely degraded water quality valued at $390,000, recreation valued at $1,000,000, the Threatened and Endangered fish species, Lahontan cutthroat trout, valued at $2,000,000, and soil lost through erosion valued at $100,000. Total cost of the No-Action is $3,490,000.

F. Cost of Selected Alternative (Including Loss):

Implementation of the proposed treatments would have the following affect on the four selected parameters. The loss of water quality would be mitigated to zero. Recreation would be minimally affected and remains at $1,000,000. The potential effects on the Lahontan cutthroat trout would be reduced by $1,000,000 to $1,000,000. The loss of soil due to erosion would be mitigated to $20,000. Total value of resources lost after implementation of the proposed treatments is reduced to $2,020,000. Total cost of implementing proposed treatments is $228,000. Assuming an 80% treatment success, the total value of successful implementation of treatments is (0.8) x ($2,020,000+$228,000) for a total of $1,798,400. Added to this amount is the cost of the values lost due to 20% of the treatments not being successful. This amounts to (0.2) x ($3,490,000+228,000) or $734,000. The total cost of this alternative is the value of successful implementation ($1,798,000) pus the value of unsuccessful implementation ($734,000) or $2,533,000.

G. Skills Represented on Burned-Area Survey Team:

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

Co-Team Leaders: Tim Biddinger and Rick Weaver

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BAER Team Core Members:
Tim Biddinger, Co-Team Leader, Tahoe NF
Rick Weaver, Co-Team Leader, Tahoe NF
Jim Bergman, Hydrologist, Tahoe NF
Blaze Baker, Botanist, Tahoe NF
Kris Tempel, Fisheries Biologist, Tahoe NF

Genny Wilson, Wildlife Biologist, Humboldt-Toiyabe NF
Expanded BAER Team Members:
Randy Westmoreland, Soil Scientist, Tahoe NF
Terry Birk, Archaeologist, Humboldt-Toiyabe NF
Pamela Wehking, Wilderness Ranger, Humboldt-Toiyabe NF
Gene Blanchard, Engineering, Humboldt-Toiyabe NF
Mike Deblasi, Hydrologist (trainee), Humboldt-Toiyabe NF
Ron Zinke, Resource Conservationist, NRCS – Nevada County, CA
Rick Connell, GIS Specialist, Humboldt-Toiyabe NF
Maureen Joplin, Geologist, Humboldt-Toiyabe NF

H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

Seeding:

1. **Truckee River drainage** – This treatment would use hand application of native grass and legume seed mix over approximately 70 acres of high and moderate intensity burn in Cox-Delaney Flat on the Tahoe National Forest. This treatment would create ground cover, develop a root mass to stabilize surface soil, and protect long term soil productiveity by reducing erosion and off-site soil loss. The BAER Team Botanist from the Tahoe National Forest in conjunction with the NRCS Resource Conservationist developed the following seed mixture for application to burned areas selected for application:

   Sitanion hystrix (Bottlebrush Squirreltail Grass) - 2 lbs/acre
   Agropyron (Elymus) trachycaulus (Slender Wheatgrass) - 15 lbs/acre
   Astragalus cicer (Cicer Milkvetch) - 13lbs/acre
   (also *Eriogonum sulphereus* (Sulpher Buckwheat) 3000' strip (2lbs total) –visual strip at slope break)

   Seed mix cost estimate is $113.80/acre not including the Sulpher buckwheat.

2. **Bronco Creek** – About 160 acres in the Bronco Creek drainage were identified for hand application. The watershed is divided into two seed mix areas; upper Bronco Creek treatment would use hand application of the following native grass and legume seed mix.

   Elymus glaucus (Blue Wildrye) 6lbs/acre
   Sitanion hystrix (Bottlebrush Squirreltail Grass) 2lbs/acre
   Agropyron (Elymus) trachycaulus (Slender Wheatgrass) 11 lbs/acre
   Astragalus cicer (Cicer Milkvetch) 10 lbs/acre

   Seed mix cost estimate is $154.50/acre.

   This includes 100 acres in Section 28, near Division K of the fire, 40 acres in lower Bronco Creek, and 20 acres adjacent to Bronco Creek in the SW1/4 of the SW1/4 of Section 28.

Surface Treatment:

1. Bronco Creek - About 50 acres have been identified for the placement of straw wattles to trap sediment due to overland sheet flow. This includes 20 acres in the SW1/4 of the SW1/4 of Section 28 (seeding also proposed for this area) and 30 acres in the NE1/4 of the SE1/4 of Section 28. Areas that are recommended for straw wattles lie above sensitive meadows on Bronco Creek and

exhibited sheet flow prior to the fire. The loss of surface vegetation in these areas increases the potential for sheet flow and sediment movement off the slopes into the channel. Placement of straw wattles will interrupt water movement by dispersing the water and reducing the energy and carrying capacity of the runoff. The wattles will capture sediment carried in the overland flow before it can enter the channel.

2. Gray Creek – A 40 acre area located in the E1/2 of the NE1/4 of Section 19 was identified for surface treatments adjacent to the West Fork drainage of Gray Creek. The West Fork of Gray Creek contains a resident population of Lahontan cutthroat trout (LCT), a threatened and endangered fish species. The area is a large historic mass failure/debris flow where all stabilizing large surface woody debris was consumed by the fire. Contour felling has been identified as an option for restoring the large surface woody component. Trees felled on the contour would trap sediment that may occur through overland water flow, keeping it on-site and out of the West Fork drainage. Contour felling would be implemented along a corridor that parallels the slope break above the West Fork. Trees would be felled and bedded in several rows in this corridor.

Channel Treatments:

1. Gray Creek – The same area that has been identified for contour felling has been recommended for channel treatments. The surface of the debris flow contains about 7000 linear feet of small channels with a high potential for transporting sediment directly to the West Fork during rainfall. About 150 loose rock grade control structures have been identified for installation in the small, unprotected drainages to control water flow and trap sediment, reducing sediment transport, improving water quality and protecting LCT habitat. Material is available on site for construction of the controlling structures.

Structures:

None identified.

Roads and Trail Treatments:

None – Taken care of during fire suppression rehabilitation and a post-fire road maintenance plan.

I. **Monitoring Narrative:**

A monitoring plan for the Martis Fire is needed to evaluate the potential for invasive exotic species and noxious weeds to invade and alter native plant communities. The plan will provide management recommendations to assist in protection from noxious and invasive exotic weed establishment and will determine potential methods for recovery of native ecosystems before Cheatgrass can become established. The monitoring plan is needed for early detection and control of noxious weeds along with monitoring of effectiveness of methods used to prevent widespread Cheatgrass invasion.

The burned area consists of approximately 14,500 acres of sagebrush, mountain chaparral, eastside pine, montane mixed conifer, riparian meadow, riparian hardwood, mountain mahogany, and timberline white pine communities.

Current inventory of noxious weeds in and around the Martis Fire include; Canada thistle, Poison hemlock, Diffuse Knapweed, Musk thistle, Tall whitetop, Scotch thistle, Perennial pepperweed, Yellow starthistle, Purple loosestrife, and Hoary cress as well as numerous other invasive exotics such as Medusahead grass, Klamath weed, and cheatgrass. Occurrences of Cheatgrass, Medusahead grass, Tall whitetop, Poison hemlock, and Musk thistle have been located in staging areas and firelines.

The use of equipment in the efforts of suppression and rehab of the Martis Fire poses a significant risk to spread of these noxious weeds to other areas where they are not found both in the fire area and at home

units where efforts to eradicate these species can be costly. The Sierra Nevada Forest Plan Amendment (SNFP) recognizes that fire suppression equipment as well as burned areas act as vectors and ideal growing habitat respectively. The SNFP has directed Sierran Forests to develop baseline information for land areas with special considerations including noxious weeds for incorporation into a computer aided dispatch system. The link to a dispatch system has not been fully implemented on most Sierran Forests, however GIS mapping has been completed for the known occurrences of noxious weeds prior to the Martis Fire and has aided in development of plans to deal with noxious weeds during and after the fire.

It was realized early in the fire that there were noxious weed infestations in and around the Martis Fire. An important prevention in the spread of weeds that occur in the area is washing of equipment prior to demobilization from the Martis Fire. Washing equipment was stationed at the eastbound Verdi truck scales by midday on June 21, 2001. All equipment that was demobilized was required to be washed as a part of their vehicle equipment inspection before returning to home units. Occurrences were flagged, for equipment avoidance, as they were located during the fire. One occurrence of Musk thistle was located at the Verdi staging and fueling area. This likely was the single most important occurrence with potential for spread into the fire. Crew hauls, dozers, engines, and any vehicle needing fuel passed through this occurrence and may have acted as a weed-spreading vector into the fire area. On June 26, 2001 all of the Musk Thistle was pulled and bagged at this location to prevent continued spread by equipment (this site was used for about 9 days before the plants were pulled). It is important for this reason that monitoring of the fire area for a three-year period be implemented. It is also possible that noxious weed introduction of other species occurred from other local sources and dirty equipment coming into the area from an off-site infestation.

Cheatgrass was present throughout the Truckee River canyon, which are generally private lands. It will persist and likely expand after the fire due to open habitat. Some encroachment and expansion by cheatgrass into the Martis Fire area at the lower elevations and southern faces may be expected. However it is expected that the higher elevations above 6,250-6,500 feet and areas where shrub species that stump sprout and germinate after fire will quickly shade out and out compete the cheatgrass.

Monitoring of the areas on the Humboldt-Toiyabe and Tahoe National Forests will be required to determine if the Martis Fire and associated suppression efforts resulted in the introduction and spread of noxious weeds. Monitoring areas utilized for fire suppression activities will be key in prevention of these weeds becoming a serious pest in those areas and adjacent areas in the burn. These areas include the Garson-Bronco Canyon Road and all roads in that network inside the burn area, roads in the western perimeter and into the west fork of Gray Creek, staging areas, and drop points. It will take 2-3 years for many of these plants to become identifiable depending on their biology. Very little of the Tahoe National Forest has land that was used in the suppression efforts. Time required would be about one day for two personnel annually for three years. Suppression efforts were more extensive and of a longer duration on the Humboldt-Toiyabe National Forest portions of the Martis Fire. Monitoring should take place for at least three years after the fire. Longer-term monitoring would also be advisable. This can be accomplished by noxious weed identification education for recreation and other staff as to the likely invaders of these areas.

Noxious weed monitoring on the Tahoe National Forest could easily be accomplished in one ten-hour day with two people. The noxious weed monitoring on the Humboldt-Toiyabe National Forest could be accomplished in seven ten-hour days with two people. An upper-grade (GS 9-11) employee with a mid-grade (GS 5-7) employee in botany or other appropriate natural resource series should be utilized. This time includes the necessary time needed to perform weed reporting. If noxious weeds were found, it would be the responsibility of the particular unit to fund eradication activities.

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

Line Items	Units	Cost	Units	SULT $	$	units	$	Units	$	$
A. Land Treatments										
Tahoe NF Hand Seed	Ac	260	70	$18,200			$0		$0	$18,200
H-T NF Hand Seed	Ac	300	160	$48,000			$0		$0	$48,000
H-T NF Straw Wattles	LF	2.5	40000	$100,000			$0		$0	$100,000
H-T NF Contour Fell	Ac	250	40	$10,000			$0		$0	$10,000
Subtotal Land Treatments				$176,200			$0		$0	$176,200
B. Channel Treatments										
H-T NF Grade Control	Ea	300	150	$45,000			$0		$0	$45,000
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Channel Treat.				$45,000			$0		$0	$45,000
C. Road and Trails										
None				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Road & Trails				$0			$0		$0	$0
D. Structures										
None										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Structures				$0			$0		$0	$0
E. BAER Evaluation										
BAER Team - Tahoe	Days	450	72	$32,400			$0		$0	$32,400
BAER Team - H-T	Days	450	17	$7,650			$0		$0	$7,650
F. Monitoring	Days	500	8	$4,000			$0		$0	$4,000
G. Totals				**$265,250**			**$0**		**$0**	**$265,250**

PART VII - APPROVALS

1. /s/ Karen Shimamoto_____ 7/6/2001 Humboldt-Toiyabe National Forest
   Forest Supervisor (signature) Date

2. /s/ Judie Tartaglia_____ 7/6/2001 Tahoe National Forest
   Forest Supervisor (signature) Date

3. /s/ JackBlackwell 7/23/01 Region 4 – Intermountain Region
   Regional Forester (signature) Date

4. Gilbert Espinosa 7-13-01 Region 5 – Pacific Southwest Region
   Regional Forester (signature) Date