FS - 2500 - 8 (8/93)

Date of Report: April 1st, 2002

USDA - FOREST SERVICE / BURNED - AREA REPORT

(Reference FSH 2509.13)

PART 1 ... 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 (# 2)
(X) 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 the emergency work

PART 2 ... BURNED - AREA DESCRIPTION and FIRE LOCATION

A. Fire Name: Swains
B. Fire Number: P44036
C. State: Utah
D. County: Millard
E. Region: R4 / Intermountain
F. Forest: Fishlake
G. District: D1 / Fillmore
H. Date Fire Started: 08-12-2000 @ 1630
I. Date Fire Contained: 08-21-2000
J. Time Fire Contained: @ 1100

K. Suppression Costs: $ 1,980,000 ... as of 08-22-2000 according to Carol Bass / Finance

L. Fire Suppression Damages Repaired with EFFS - PF12 Funds:

- Fireline Waterbarred (miles) 18 (cat lines and hand lines)
- Fireline Re-seeded (miles) 13 (cat lines on both private and State of Utah Lands)
- Other Damages ... (identify) Helibase w/ 6 acres, 1/5 mile of fence, 2 gates, 1/4 mile of

pasture ... approximately 3 miles of cat line on BLM remains un-repaired at this time; it will be chained and seeded at a later date.

M. Watershed Number: 16030005 / Lower Sevier River

N. NFS Acres Burned: 3,140 **Total Acres Burned:** 7,809

Land Ownerships … list as follows:

(X) Private (768) (X) State of Utah (2,884) (X) USDI - BLM (1,017) ( ) Other

O. Vegetation Types:	The steep to very steep mountainsides on NFS lands supported stands of mixed conifer consisting of white fir, subalpine fir and Douglas fir along with scattered occurrences of limber pine and aspen; the upland foothill locations primarily had Gambel oak and mountain big sagebrush with a small component of curlleaf mountain mahogany, pinyon - juniper and perennial grasses while the alluvial fan terraces were mapped as seral pinyon - juniper sites with scattered oakbrush and lesser amounts of cliffrose, curlleaf mountain mahogany, birchleaf mountain mahogany, mountain big sagebrush, bitterbrush and Wyoming big sagebrush occurring at lower elevations on both the BLM and the State of Utah - Wildlife Reserve lands. A few small but distinct areas of Wide Canyon and Maple Hollow actually had riparian zones with small inclusions of wetlands; small pockets of bigtooth maple and boxelder were observed near these perennial streams.
P. Dominant Soils:	The mountainsides have soil resources classified as Typic Argicryolls, Typic Haplocryolls, Mollic Haplocryalfs and Typic Haplocryalfs occurring under mixed conifers along with a minor component of Lithic Argicryolls located along the ridgetops; the upland foothills were mapped primarily as Aridic Argixerolls and Typic Argixerolls and include a distinct example of Lithic Argixerolls found along the shoulder slopes of the foothills under scattered pinyon - juniper or curlleaf mountain mahogany type vegetation; the alluvial fan terraces consist of Xeric Petrocalcids, with a moderately deep indurated hardpan layer -- which allows for increased water retention properties within the top 25 to 30 ” of the soil profile; finally, stream terraces were located adjacent to the major drainageways in Maple Hollow and Wide Canyon have Cumulic Haploxerolls and Torrifluventic Haploxerolls occurring under Gambel oak with bigtooth maple.
Q. Geologic Types:	Both the upland foothills and mountain sideslopes occurring within the perimeter of this burned-area have soil resources formed in colluvium and residuum derived from quartzite. A few high mountain landscapes, located along the eastern part of the disturbance, have soils formed in colluvium and residuum from limestone. While the remainder of the wildland soils were formed in mixed sediments of alluvium and colluvium derived from metamorphic and sedimentary rocks -- along with mineral deposits of dolomite on the surrounding alluvial fan terraces.

R. Miles of Stream Channels by Order: (Strahler 1952 method)

1st: 6.1 2nd: -0- 3rd: 1.25 4th: -0-

S. Transportation Systems: (occurring within the fire perimeter)

Trails ... 2.5 miles

Roads ... 3.5 miles (Maintained by Millard County for the FS)
Roads ... 1.3 miles (FS / 4WD Roads)

Roads ... 8.5 miles (State of Utah)
Roads ... 2.0 miles (USDI - BLM)

PART 3 ... WATERSHED CONDITION / NFS PROBLEM INVENTORY

A1. Mapping of the Fire Intensity Zones: (total acreage occurring within the perimeter of the Swains Fire Incident)

2,185 High 3,463 Moderate 2,161 Low

A2. Mapping of the Fire Intensity Zones: (NFS lands ... acres)

1,339 High 663 Moderate 1,138 Low

B. Estimation of Water-Repellent soils occurring within the different Fire Intensity Zones:
(NFS lands ... acres)

937 High (70 %) 199 Moderate (30 %) 57 Low (5 %)

Overall Total = 1,193 acres

C. Rating Soils for Erosion Hazard Potential within the Burned-Area: (NFS lands ... acres)

Very High	High	Moderate	Low
1,256 (40 %)	628 (20 %)	471 (15 %)	785 (25 %)

D. Potential for Accelerated Erosion Losses without applying emergency rehabilitation treatments:

1st Year	2nd Year	3rd Year	4th Year
4.62 tons/acre/year	1.01 tons/acre/year	0.21 tons/acre/year	0.04 tons/acre/year

Overall Total = 18,463 tons

(additional erosion over a 48 month period -- NFS lands)

E. Average Sediment Potential: 168.8 cubic yards / mile ^{2}

PART 4 … HYDROLOGIC DESIGN FACTORS with CALCULATED RISK and CLIMATE EVALUATIONS

A. Estimated Vegetative Recovery Period: 10 to 100 years
B. Design Chance of Success: 80 percent
C. Equivalent Design Recurrence Interval: 25 year
D. Design Storm Duration: 6 hours
E. Design Storm Magnitude: 1.8 inches
F. Design Flow: 23.5 ft^3 / sec / mi^2
G. Estimated Reduction in Infiltration: 10 percent
H. Adjusted Design Flow: 25.8 ft^3 / sec / mi^2
(@ Maple Hollow near the Forest boundary)

PART 5 … SUMMARY OF SURVEY & ANALYSIS

A. Describe the Watershed Emergency:

- **LOSS OF WATERSHED FUNCTION** … Upland landscapes occurring within the Maple Hollow and Wide Springs Canyon subwatersheds were recently damaged by HIGH intensity wildfires; some of the most severely burned sites were located on the steep to very steep terrain surrounding the Johnson Canyon drainage. The direct result of this burning disturbance has been the development of pronounced water-repellent conditions occurring within the top 4 inches of the mineral soil. Previously, these sites had been important resources with respect to 1) intercepting precipitation events and 2) retaining moisture " on-site " for a relatively slow release of water into the ground throughout the spring, summer and fall growing seasons. Now, the hydrophobic properties of these recently burned-areas will affect the timing and overall flow of waters into nearby perennial streams and natural springs within these subwatershed areas. The loss of protective ground cover and vegetative canopy cover, as well as the high percentage of water-repellent soils, makes these fragile sites very susceptible to accelerated soil erosion losses across the charred mountainsides. It is imperative to re-establish a protective blanket of annual and perennial vegetation as quickly as possible in order to minimize the amount of soil erosion losses. If rills and gullies begin to develop on this steep to very steep terrain, there will be a significant loss of long-term soil productivity and hydrologic function in these subwatershed units. It should be noted ... portions of these subwatersheds show evidence of past instability with hummocky topography, pistol - butted trees and obvious soil creep on the ground. The loss of vegetation makes these sites especially vulnerable to the reactivation of mass movement -- particularly once the tree roots lose their stabilizing effect within the soil. Above all ... this is true on the mixed conifer sites -- which have very few, if any, re-sprouting species remaining on site following the burn.

- **THREATS TO HUMAN LIFE AND PROPERTY** … High intensity fires occurred on about 82 % (260 acres) of the upland hillsides above the road surface in Maple Hollow; in addition, severe fires burned about 69 % (319 acres) of the Johnson Canyon drainage above the Forest boundary. These high intensity burn-areas have moderate to strong hydrophobic conditions. In both of these areas, most of the high intensity burns were located in timbered sites on the steep, upper parts of the drainages.

  The damaged soils have no ground cover at this time and very little seed source nearby. There is a chance of debris-laden floods originating in the watersheds above Maple Hollow near the mouth of the canyon and from Johnson Canyon. A high intensity storm could result in debris flows crossing the road in Maple

Hollow and depositing material in part of the irrigation canal and into the stream channel. A small irrigation diversion is at risk of a debris flow crossing it. Although the irrigation structure is made up of small rocks and plastic sheeting to direct the flow from the main channel into the diversion, debris would need to be removed in order to open the channel and clear the diversion canal. If a debris flow occurs, the road will need to be cleared of debris (08-21-2000).

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A storm event occurred on Wednesday afternoon, August 23rd 2000 that dropped an estimated ½ inch of rainfall in about 10 minutes. The storm resulted in a significant debris flow from the burned-area that deposited soil material on the road in Maple Hollow from 1 to 4 feet deep. A debris flow crossed the irrigation diversion and deposited material in the Maple Hollow drainage. Water and sediment made its way down the Maple Hollow drainage and reached to within ¼ mile of the town of Holden. During a helicopter reconnaissance of the burned-area, Michael D. Smith, BAER Team Leader, saw several gullies that formed from the recent storm event.

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During the evening of August 29th, 2000, another rainstorm of moderate intensity occurred in the vicinity of Holden, Utah in a fairly wide band -- that included the entire burned-area of the recent Swains fire. The storm lasted some 90 minutes with an estimated 1" of rainfall. During the night, major flooding originated in at least four subwatersheds within the burned-area: Wide Canyon, Aspen Spring, Maple Hollow and Johnson Canyon. A small flow came from Wide Canyon and combined with a moderate flow from the Aspen Spring area about one mile east of I - 15. The head of water passed through a relatively small culvert under the freeway and proceeded to flood property in the north half of Holden and then continued on to the irrigated croplands located west of town. One basement was flooded and other homes received water damage too. Back on the Pahvant Range to the southeast, a major debris torrent was re-flooding into Maple Hollow and moving towards the community of Holden. These waters were fed from the steep slopes, having strongly water-repellant soils, located south of Maple Hollow. The rushing waters cut deeper the same swollen and scoured channels that had flooded just a week earlier. The road to Maple Hollow campground was severely down-cut in places ... leaving perched culverts along with soil material, rock fragments and woody debris flows up to 5 feet deep in places. The waters continued west towards Holden, crossed a irrigation ditch, and flooded the private properties just east of I-15. The water passed under the freeway through a small culvert and proceeded to flood the southern edge of Holden and then the surrounding farmland located southwest of town. The two locations where water passed under I-15 are nearly two miles apart. Johnson Canyon, the next drainage to the south, was flooding for the first time since the fire. New gullies, beginning near the top of the mountain, combined with overland flow and caused a major flood event below the mouth of the canyon. Rock fragments, mixed sediments and large woody debris covered dozens of acres with accumulations of transported material on the surrounding fan terraces. During this storm event, the alluvial fan dissipated much of the destructive force of the flood ... but some water and debris continued west toward the freeway. All of these drainages will continue to be at risk to further, and possibly more severe flooding for a period of 1 to 3 years.

No other flood events of this magnitude have occurred anywhere on the Fishlake Forest since the spring of 1983 and 1984. At that time, major scouring occurred in many drainageways along the west side of the Forest as a direct result of heavy runoff from the rapid snowmelt of a deep winter snowpack.

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The drinking water system at the Forest Service / Maple Hollow Campground has been damaged. Floodwaters covered much of the spring development with rock fragments and outwash debris, eroded another portion of the spring site, unburied pipe and broke the main pipe leading into the head-box.

During the fire ... but before the recent flood events, a field test of the drinking water at the spring actually FAILED because coliform bacteria was present in the sample. This was the first time in anyone's recollection ... that water from the spring had ever failed the test. The water in the campground tested as being fine just last month before the fire. " *Human health or safety is at risk and there are no other protection options* " (FSM 2523.03 - 2d). Since permanently closing the campground facility or designating the campground as a dry recreational site are politically unacceptable, safe drinking water is required. For the time being, in order to protect human health and safety, a backhoe will be used to remove all pipes related to both the spring development and the delivery of potable water into the Maple Hollow Campground / Picnic Area facility. The cost to complete this particular project ... was estimated at approximately $ 6,500.

- **LOSS OF LONG-TERM SOIL PRODUCTIVITY** ... In the remaining high intensity burned-areas, soil productivity will be reduced through accelerated erosion losses of the bare ground surface. On the south slopes of Wide Canyon, open areas occurring between oak stands are very rocky and somewhat unproductive as a direct result of an earlier fire. The oakbrush that (previously) burned was able to re-sprout quite quickly, but the open areas, located between the clones, have become truncated and eroded away. Broadcast seeding of this moderate fire intensity area is strongly recommended because of its potential for additional soil losses between the standing oak.

- **ISSUES RELATED TO WATER QUALITY** … Some sedimentation of the ephemeral streams is likely to occur at an accelerated rate until vegetation establishes itself and provides adequate ground cover. The burned-area puts the Maple Hollow Campground / Picnic Area drinking water source at risk of being covered by debris again. During such an event, the holding tank and vent could be damaged or the pipeline is exposed at the ground surface. (Note -- this exactly what occurred on 08-29-2000)

B. Emergency Treatment Objectives: (there is nothing here on planting trees)

Simply stated ... the objective of emergency rehabilitation is to initiate " **prompt action** " for the immediate treatment of damaged watersheds following incidents of wildfire in order to minimize the detrimental impacts of the burn. The emergency treatments being recommended by the Fishlake / BAER Team are specifically designed to achieve the following results:

- use broadcast seeding treatments in order to get revegetation growing on the ground surface which will actually protect the site and minimize soil erosion losses

- provide protection to the seeding treatments by using temporary fence

- reduce sedimentation of the drainage bottoms

- reduce the likelihood of any additional debris flows from the disturbed hillslopes occurring throughout the burned-area by applying contour felling, in-stream felling and the building of log dams

- stabilize a significant archeological site occurring on NFS lands within the burned-area using an erosion blanket

- purchase and install road closure gates and explanatory signs for both public safety and control of entry into the burned-area

- temporarily close the spring development at the Maple Hollow Campground in order to protect human health and safety -- because the potable water supply is currently contaminated

Seeding high intensity burn areas will increase infiltration and the subsequent percolation of water downward into the soil profile and meet the guidelines listed in the R4 / Soil Quality Standards. In addition the Fishlake BAER Team recommends that the areas being treated with land, channel or roading treatments be monitored for a period of up to 3 years in order to determine the overall effectiveness of these emergency measures.

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

Land ... 75 % Channel ... 75 % Roads ... 0 % Other ... N/A

D. Probability of Accomplishing Treatment Success:

< ---------- Years after Treatment ---------- >

	1	3	5
♦ **Land**	**70 %**	**80 %**	**90 %**
♦ **Channel**	**80 %**	**75 %**	**70 %**
♦ **Roads**	**75 %**	**75 %**	**75 %**
♦ **Archeology**	**80 %**	**85 %**	**90 %**

E. Cost of Taking No-Action: (including loss) $ 5,280,000 ... (approximated w/ District Staff 08-22-2000)

F. Cost of Selected Alternative: (including loss) $ 560,000

G. Skills Represented on <u>both</u> the Initial and Interim Burned-Area Survey Teams:

(X) Soils (3)	**(X) RIFC-Zone FMO**	**(X) Timber (4)**	**(X) TES - Plants**
(X) Hydrology (2)	**(X) Range**	**(X) TES - Wildlife**	**(X) Fire Management**
(X) Ecology (2)	**(X) Recreation**	**(X) Research**	**(X) Archeology (2)**
(X) GIS Staff (2)	**(X) USDI – BLM**	**(X) District Staff (3)**	**(X) Engineering (3)**
(X) Contracting	**(X) USDA – NRCS**	**(X) Utah - DWR**	**(X) Biological Tech.**

Team Leader: Michael D. Smith / Soil Scientist

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Fishlake BAER Team

Rationale for Requesting Additional WFSU - SULT Funds

03-29-2002

~~Previously, the Fishlake National Forest submitted an Interim BAER Report up to Jeff Bruggink (R4 / Soils Program Leader and BAER Coordinator) on 02-20-2002 which requested $ 74,510 in additional WFSU – SULT funds to be used while implementing additional (and necessary) land treatments in the Maple Hollow area of the Swains Fire; simply stated … our request was denied due to insufficient information. In a phone call with the Intermountain Regional Office on 03-11-2002, it was stated by Jeff Bruggink to Fishlake / BAER Team Leader – Michael D. Smith that … most, perhaps all, of the previously recommended treatments could be funded for emergency watershed stabilization and fire rehabilitation work – if, the Fishlake Forest would provide additional clarification which explained " **HOW** " the treatments would be appropriate under the existing authorization to spend BAER funds.~~

~~Although our previous request to acquire the temporary services of retired Botanist / Mr. Steve Monsen was actually denied with respect to his visiting the Maple Hollow drainage along with writing a brief report to document his observations and specific treatment recommendations … Mr. Monsen did work in cooperation with Fishlake National Forest / Ecologist – Bob Campbell a few weeks ago on designing another seed mix to quickly stabilize the burned area. With all due respect, the Forest Service commonly spends millions of dollars each calendar year in our attempts to stabilize severely burned conditions occurring on NFS lands disturbed by unwanted wildland fires; however, in this particular instance … it seems we couldn't authorize a total of $ 750 to compensate Mr. Monsen for his travel and consultation on this on-going project. Since Mr. Monsen has both family and friends residing in the Millard County area, and, since he was well aware of the impacts this fire incident has had upon the residents of Holden, Utah – he agreed to assist us in our continuing assessment of the conditions in Maple Hollow at no charge to the government.~~

Aerial Seeding Treatments

The seed mixture currently being proposed for the Swains Fire was designed by a dedicated group of resource specialists; it is intended for broadcast application on steep to very steep mountainsides receiving precipitation in the range of 24 to 28 inches / year having northwest facing slopes located directly above the FS / Maple Hollow campground facility. The new mix was specifically developed for EMERGENCY REHABILITATION TREATMENTS within the context of Forest Service Manual Amendment No. 2500-2000-2 (05/25/2000) which states: " Seeding or planting of grass, forbs, shrubs or trees is approved when needed to prevent unacceptable erosion, to prevent permanent impairment to ecosystem structure and function or to prevent detrimental invasion by non-native plants. " The specialists feel … this seed mix is " of species known to be effective for erosion control, will be adapted to the target area and remains compatible with future management objectives " (FSH 2509.13,20 p. 13). This seed mix will 1) provide structural diversity, 2) help to restore ecosystem function and 3) maintain long-term soil productivity (FSM 2523.02) on severely burned landscapes.

The mix contains a balanced complement, by weight, of both native and introduced species. In light of Executive Order 13112 (02/03/1999) on invasive species, we considered and determined that the introduced species included in this mix will not be " … likely to cause economic or environmental harm or harm to human health. " We also cite from the work of Robichaud, Beyers and Neary (2000) on " *Evaluating the Effectiveness of Post-Fire Rehabilitation Treatments* " (RMRS GTR - 63). " Several respondents noted disappointing results from seeding with relatively expensive native species … and would not use them again."

Increased diversity of species in this seed mix will increase the chances of successful germination and establishment. Keep in mind, one plant species might do quite well within one particular microsite condition while another species will excel in a different seedbed within the same seeded unit.

Native or Introduced	Grass, Forb and Shrub Species	N /A	Seed Mix for 24-28" MAP Zone	N / A
		< ---------- **Pounds / Acre (PLS)** ---------- >		
N	Mountain bromegrass "Bromar"	N /A	4	N / A
N	Sandberg bluegrass		2	
N	Slender wheatgrass "San Luis"		3	
I	Orchardgrass "Potomac"		2	
I	Timothy "Climax, Mohawk or Patomic"		2	
I	Alfalfa "Ladak"		2	
	Total Pounds / Acre	N /A	15	N / A
	Estimated Seed Cost / Acre		$ 30.00	
	Estimated Cost Seed Mix / Pound		$ 2.00	

The seed purchased will be certified to the variety claimed. Also, the mixes will be certified that NO noxious weed seeds are present. Pure live seed equals the percent of purity times the percent total germination (PLS = % P x % TG). It is highly recommended that the seed be purchased and delivered in separate bags by individual species. The cost of mixing and delivering the seed should be included in any quotes that are obtained. (why the quote for mixing if you are getting them by separate species?)

This seed mix was designed to achieve the FSM objectives listed above and includes the recommendations of Dr. Alma Winward (Regional Ecologist) from August 25th, 2000 along with suggestions from both District and Forest specialists. **Bob Campbell and Steve Monsen discussed the original seed mix on March 8th, 2002 and dropped the fescues and annual ryegrass and added Sandberg bluegrass. Their preference would have been to use muttongrass (a native bluegrass) and Columbia needlegrass (also native). However, a representative of Granite Seed Company indicated that, though commonly requested, seed for those species is currently unavailable.** We also referred to seed mixes previously used on the Forest (particularly, the BAER seeding projects for the Pole Creek Fire – 1996 and Mourning Dove Fire – 2000), the Tushar-Pahvant-Canyon Soil Survey Manuscript (draft) and the Interagency Forage and Conservation Planting Guide for Utah, from Utah State University Cooperative Extension Service. Specific ecological attributes valued for the recommended species include the following:

Mountain bromegrass — " ... quick cover…recommended sites include openings…and timber burns "
Sandberg bluegrass — " ... considered and important range grass for soil stabilization "
Slender wheatgrass — " ... valuable in erosion control because of its rapid development "
Orchardgrass — " ... is used in erosion-control mixes for cut-over or burned timberland "
Timothy — " ... used as a ground cover and to control erosion on cut-over or burned-over timberland "
Alfalfa — " ... a perennial legume that fixes nitrogen in the soil "

There may be opportunities to add other species to the seed mix. We suggest that Fillmore District personnel contact the Utah Division of Wildlife Resources prior to actual purchase and mixing of the seed. Depending

on seed availability and time of seeding, the Division may have seed for forb and browse species that could be added to the seed mix that would enhance both wildlife habitat and diversity in the area. Species that would be appropriate to add to the mix include antelope bitterbrush, cliffrose, globemallow, Rocky Mountain penstemon, beeplant, sunflower, Lewis flax, showy goldeneye and forage kochia. Suggested UDWR contacts are Bruce Bonebrake in Cedar City (435) - 865 - 6100 and Scott Walker in Ephraim (435) - 283 - 4441. It would also be well to check with Brent Olsen, UDWR Resource Advisor / Conservation Officer and Sean Kelly, UDWR / Wildlife Biologist -- both in the Fillmore area.

~~Since our request to acquire additional BAER funding for broadcast seeding was denied a few weeks after we submitted our last Interim Report on 02-20-2002 … it's going to cost additional dollars to conduct the land treatment at this time. Simply stated … we have lost our opportunity to utilize the Type III helicopters that would have been located in close proximity to Richfield, Utah for the Aerial Ignition Workshop scheduled for the 2nd week of April right here in south central Utah. Since this project would probably be implemented prior to the BLM and Fishlake Forest securing the services of our Initial Attack Helicopter starting on 06-01-2002 … we're going to have to arrange for another Call-When-Needed (CWN) helicopter contract to apply the seed upon the severely damaged mountainsides occurring within Maple Hollow. The best information I have at this time suggests ... we would pay the inflated rate of $ 940 / hour for flight time -- and, NOT have to pay the daily availability fee of approximately $ 1,200 to secure the services of the aircraft. Secondly, the Procurement Center in Salt Lake City has informed me that our exemption for non-competitive BAER purchases has expired as of 12-31-2001; meaning, since we want to acquire a commercial item (~ 3,900 lbs. of seed) … then, we need to solicit for competitive bids a minimum of 20 calendar days in the form of fax quotes in order to award the seeding contract to a local vendor (Jo Lippire, Supervisory Contract Specialist - Northern Utah Procurement Center - GSC / 03-26-2002). And ... it will probably take another week or so to have the seed mixed, re-bagged and delivered down to the Fishlake National Forest.~~

(Dr. Alma Winward, Regional Ecologist; Bob Campbell, Ecologist; Steve Monsen, Botanist; Del Barnhurst and Lynn Findlay, Rangeland Management Specialists along with Michael D. Smith and James T. Bayer, Soil Scientists)

Contour Raking

~~I need to start this paragraph by thanking Jeff Bruggink for the thoughts and comments he shared with me during a recent phone call that actually got me ... thinking outside the box and recognizing the different opportunities our Forest has with respect to implementing BAER treatments. Steve Monsen, Bob Campbell, Dale Deiter and I are all in " common agreement " that t~~The land treatment of contour raking would help to stabilize watershed conditions currently occurring within the Maple Hollow drainage by 1) promoting surface infiltration and allowing for the subsequent percolation of water into the ground after mixing the top 1 to 5" of soil material and 2) assist with our efforts for vegetative recovery by mixing the grass and forb seeds into the topsoil horizon following our aerial seeding treatment. By covering the seed with 1 to 2 " of soil material, our potential for success will be enhanced by allowing for more water retention in the ground surrounding the seeds at the time of germination. Earlier this morning, BLM / Zone FMO - Walter (Tooter) Burdick Jr. agreed to assist the Fishlake National Forest by allowing some of the Richfield Interagency firefighters to participate during the contour raking -- if funds are authorized for this treatment. Approximately 150 acres would be treated on the hillsides and mountainsides within the Maple Hollow drainage; there is no need to treat the severely burned landscapes within Johnson Canyon -- because, we don't have the same values-at-risk associated with threats to human life and property in that subwatershed area. The treatment would take place towards the end of May in 2002, following spring snowmelt, and continue for approximately 1 pay period with a 10 to 12 person crew. FYI, we have enough McLeods here on the Forest to accomplish the raking treatment. Although 260 acres were severely burned within the Maple Hollow drainage ... only 150 acres will be treated with raking because some areas are too steep, too rocky, too remote or simply have too much large woody debris occurring at the ground surface to make contour raking an effective treatment. Our overall goal is to reduce the volume of overland flows coming off the fire-damaged hillsides in areas surrounding the FS / Maple Hollow Recreational Facility and Road # 098 -- sites of high economic value.

Tree and Shrub Planting

~~Last week, I took a brief opportunity to download the different presentations made throughout the recent **BAER Team Leader – Refresher** training session given in Reno, NV during April of 2001. Once again, here is a summary of the information currently posted on the WO / BAER website pertaining to " **Tree and Shrub Planting … what can and can't be done using BAER Funding** " since the FSM 2520 Amendment of May 2000.~~

- ~~Current Direction and Sideboards state … the planting of trees, shrubs and other plants are valid BAER treatment options; prior to CY 2000, only grasses and forbs were considered as being appropriate to establish a " quick " vegetative cover.~~

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- Two specific objectives for this type of emergency land treatment include 1) preventing unacceptable erosion losses and 2) preventing permanent impairment of ecosystem structure and function.

- In areas of **HIGH** severity burns, the native seed bank in the soil is usually destroyed … tree and shrub planting should be considered under these circumstances! This is exactly what happened to the Uinta National Forest during 1989 on their Middle Slide Canyon Fire -- which occurred just east of Spanish Fork, Utah; in distinct areas of white fir, Douglas fir and subalpine fir ... the native seed bank in the soil was completely destroyed and very little, if any, natural regeneration of these trees has occurred during the last 13 years. It should be noted, some reforestation efforts did occur in this area -- but, it was all planted back to Englemann spruce with very marginal results (Chad Hermandorfer, Hydrologist and Marlene DePietro, Forest Planner - Uinta National Forest / 03-27-2002). The lesson to be learned is ... severely burned landscapes need to be re-planted with the same species that occurred on the site prior to the burning disturbance -- which is the strategy the Fishlake Forest has recently proposed for the Swains Fire. We want to prevent ecosystem impairment by re-establishing mixed conifer trees back on the site once again.

- ~~Simply stated … tree planting can be used for 1) biological **and** ecological reasons **or** 2) as a pilot or demonstration project.~~

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- The reason(s) tree planting is considered necessary in areas of **HIGH** severity burns include 1) it's the only way to get trees back on the site, 2) it will speed-up the process of natural succession and 3) tree roots will be established more quickly to replace those rotting away – to prevent slumps and landslides. It should be noted, Soil Scientists / Jim Bayer and Mike Smith both observed and documented obvious signs of soil creep while mapping fire severity zones within the Maple Hollow drainage during CY 2000.

Planted trees would not be exposed to the rigors of the site to be restocked until they have successfully passed the critical stages of germination and early development. Containerized stock would be used to improve the survival and growth rate of the tree seedlings. The species selected will be adapted to the site with respect to climate, soil and the biotic environment. Our specific objectives, will be to artificially create a structure and function of trees that allow for the stability of the fire damaged landscapes within areas of high economic value.

The Fishlake / Silviculturists expect that somewhere between 50 to 75 % of the planted trees would survive into the 3rd year after implementing this ecosystem-based treatment. In time, the planting will actually stabilize, rehabilitate and eventually restore both the ecological and watershed conditions along with the hydrologic function occurring within the Maple Hollow burned-area – which matches our expectation for proposing, planning and hopefully implementing the treatment.

Part of our request for tree planting is associated with slope stability problems ... the remainder of our request is directly linked to preventing the permanent impairment of ecological structure and function on forested

landscapes within the Maple Hollow drainage and immediately surrounding the FS / Maple Hollow Recreational Facility.

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~~♦The PowerPoint presentation makes a point to explain … trees and shrubs require vast amounts of time to become established! There is no specific direction or suggestion that the tree planting efforts must be effective within a 2 year period of time. In talking with our Timber Staff here on the Fishlake Forest, it was communicated to me -- that trees planted from containerized stock are generally well established and past transplant shock when surviving at least 2 years after the treatment has occurred on the ground. Meaning … the necessary objectives of 1) preventing unacceptable erosion losses and 2) preventing permanent impairment of ecosystem structure and function ARE being addressed in a timely manner.~~

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♦ Recommendations … 1) Silviculturists must be on the BAER Planning Teams (please see page # 7 of this report) when tree planting is an option; 2) the action must be consistent with the Forest Plan and take place outside the commercial timber base on NFS lands (see American Forest Wildfire ReLeaf / Project Proposal attached to this updated report); 3) monitoring should be done to determine project effectiveness (discussed in previous report submitted on 02-20-2002) and 4) BAER plantations should not be overstocked (we suggested 400 trees / acre in our reforestation proposal; perhaps, we need to adjust this number down to match the existing BAER guidelines for tree and shrub planting). Keep in mind, our Silviculturists thought the mortality rate of using containerized stock may approach 35 % during the 1st year following the implementation of this project.

~~♦Fishlake Budget … we have had no TSI dollars in our budget during FY '01 or '02; most of our reforestation dollars are coded to NFVW funds -- which is National Forest Vegetation Management. Here on the Fishlake Forest, our NFVW funds have been used for both Noxious Weed treatments and salaries for the Fishlake / Resource Specialists working on the Ecosystem Stewardship Team -- folks like myself, addressing issues pertaining to range and forest vegetation. There have been few remaining funds available for tree planting activities. Our Forest has been receiving ~ $ 20,000 to $ 22,000 / Year in RTRT funds -- which is our Reforestation Trust Account. But, all of the funds received in FY '02 and the funds planned for FY '03 have all been programmed into treating other fire damaged landscapes associated with the Hens Peak and Pole Creek Fires of CY 1996. Simply stated, our Forest has no remaining funds in the budget … and, no funds available to re-program in order to address our reforestation needs connected with the Swains Fire of CY 2000.~~

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♦ Monitoring discussion … by allowing the Fishlake Forest to conduct a limited amount of tree planting on ~ 100 acres of severely burned landscapes within the Maple Hollow drainage, a genuine opportunity exists to conduct monitoring related to both the implementation and effectiveness of this BAER treatment. Currently, our Interim BAER Report (from 02-20-2002) had requested $ 7,000 for monitoring Erosion Control within the perimeter of the Swains Fire. Included with the monitoring are requests for FS / BAER Team supplies (film and processing, ink cartridges and paper) which would be used to prepare the monitoring report. The Forest would continue to conduct monitoring activities on all treatments implemented during the past 18 months – as well as, monitoring any new treatments that would be implemented during CY 2002.

♦

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Other Treatments

♦ ~~Other treatments … t~~The Fishlake / BAER Team discussed a variety of land treatments that might be considered as being appropriate for attempting to stabilize the existing soil conditions within the Maple Hollow drainage. ~~As you know, a~~A limited amount of broadcast seeding is being proposed in this report. Additional log erosion barriers (LEBs) were deemed unnecessary -- because, we don't want to interfere

with the LEBs already in place that are working just fine. The Fillmore Ranger District does **NOT** want us to use mulching or straw bombs as a land treatment -- because, they have genuine concerns about clogging up the water delivery system that supports the irrigated croplands surrounding the community of Holden, Utah. Approximately 150 acres of contour raking or mixing of the soil surface using McLeods is being proposed in this report for nonstony and high economic value areas. The BAER Team did not consider channel treatments to be appropriate at this time; all of the check-dams built last April and May of CY 2001 were washed out by the flood events of last summer. Additional channel treatments are really not a valid option ... until, the soil conditions on the surrounding hillsides become more stable. ~~Simply stated ... a~~A ½ mile segment of the Maple Hollow Road is gone -- covered with 8 to 12 feet of assorted debris associated with the 2000 and 2001 floods. If available, NFN3 funds will be used to re-locate the road over to the north side of the Maple Hollow drainage so local residents can eventually access the FS / Recreational Facility.

~~Planted trees would not be exposed to the rigors of the site to be restocked until they have successfully passed the critical stages of germination and early development. Containerized stock would be used to improve the survival and growth rate of the tree seedlings. The species selected will be adapted to the site with respect to climate, soil and the biotic environment. Our specific objectives, will be to artificially create a structure and function of trees that allow for the stability of the fire damaged landscapes within areas of high economic value.~~

~~I understand our request for BAER funds related to tree planting activities needs to be reviewed and approved by the Washington Office / BAER Program Leader – Max Copenhagen in order to implement the treatment; I think everyone involved with this project working on behalf of the Fishlake National Forest is comfortable with Max and his Director making the decision about our request for funds which exceeds $ 25,000. While our request for funds may actually push the envelope of the Burned Area Emergency Rehabilitation authority ... it is still within the concept of BAER as currently described in the Forest Service Manual (FSM 2523), in the literature, as presented at National Training Sessions and as posted on the FS / BAER website~~.

~~Reason(s) for re-submitting this Interim BAER Report~~

~~During a phone call a few weeks ago (Monday – March 11th), R4 – Regional BAER Coordinator / Jeff Bruggink encouraged me to modify and re-submit this Interim BAER Report which requests additional funds for the Swains Fire Incident. Specifically … Jeff asked for more clarification from the Fishlake Forest on both the planned species and application rates for the broadcast seeding treatment. Secondly, we briefly discussed some additional land treatments that might be proposed on the severely burned landscapes occurring with the Maple Hollow drainage; our recent conversation prompted the Fishlake / BAER Team to recommend the treatment of contour raking on ~ 150 acres of strongly hydrophobic soils located in close proximity to the FS / Maple Hollow Recreational Facility. Jeff went on to explain ... that we needed to list several compelling reasons that supported our need to plant mixed conifer trees on unstable landscapes in order to acquire funds for reforestation purposes. Well, in my mind, since many of the trees **WOULD BE** getting established on the damaged mountainsides within the first 2 years after the planting takes place … the treatment **IS** proving to be effective and successful in a timely manner! The Fishlake / Silviculturists expect that somewhere between 50 to 75 % of the planted trees would survive into the 3rd year after implementing this ecosystem-based treatment. In contrast, all of our channel structures (~ 65 log check dams) have been washed away by episodes of flooding. In time, the planting will actually stabilize, rehabilitate and eventually restore both the ecological and watershed conditions along with the hydrologic function occurring within the Maple Hollow burned area – which matches our expectation for proposing, planning and hopefully implementing the treatment. It should be noted, our Forest would continue to conduct monitoring activities on all treatments implemented during the past 18 months – as well as, monitoring any new treatments that would be implemented during CY 2002. FYI … we submitted a detailed monitoring plan for the Swains Fire with our Initial BAER Report that was sent to the Intermountain Regional Office during August of 2000~~.

In a letter (electronically) mailed to the Fishlake National Forest on Thursday – March 7th, our request for funds to be used for reforestation activities was denied because it was considered outside the scope of FSM 2523.21.5; well, I took a moment to review the Manual myself … and I found the following information:

- FSM 2523.02.2 / Objectives … **Burned-Area Emergency Rehabilitation** – is used to alleviate emergency conditions following wildfire to help stabilize the soil; to control water, sediment and debris movement; to prevent permanent impairment of ecosystem structure and function; and to mitigate significant threats to health, safety, property or downstream values.

- FSM 2523.03.2 / Policy … **Plant Materials** – Seeding or planting of grass, forbs, shrubs or trees when needed to prevent unacceptable erosion, to prevent permanent impairment to ecosystem structure and function, or to prevent detrimental invasion by non-native plants.

- FSM 2523.03.4 / Policy … **Compatibility with Forest Plans** – Ensure that treatments do not conflict with desired conditions or with ecosystem health and biological diversity. Include native plant materials when possible to meet the objectives of the burned-area emergency rehabilitation. When practical, use seeds and plants in BAER projects that originate from genetically local sources of native species. (this is exactly the approach our Forest will be taking with respect to planning and conducting the tree planting activities)

- FSM 2523.21.5 / **NFS Lands** – Tree planting can be included only for biological / ecological reasons and as a pilot or demonstration.

-

Well, only part of our request for tree planting is associated with slope stability problems … the remainder of our request is directly linked to preventing the permanent impairment of ecological structure and function on forested landscapes within the Maple Hollow drainage and immediately surrounding the FS / Maple Hollow Recreational Facility. Simply stated … we don't want to end up with a hillside that resembles the Middle Slide Canyon Fire of 1989.

Probably the best way to review this document … is to incorporate the new script presented on pages 8 through 14 with the treatments listed on the financial table; then, go back and review the remainder of this report in order to track some of the assessments that have been made on this fire since CY 2000.

Michael D. Smith
Soil Scientist / BAER Team Leader

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02-20-2002

Current Conditions … (Information previously submitted by the Fishlake Forest)

Simply stated ... in the 1½ years since its Type II / Incident Command Team labeled the Swains Fire as being contained and controlled, we still have a series of fire-damaged hillsides with unstable ground conditions existing in both Maple Hollow and Johnson Canyon. As a matter of quick review, in the first week following containment of the fire ... two significant episodes of flooding affected 1) the community of Holden, Utah, 2) the transportation surface leading into Maple Hollow and 3) the developed spring site supporting our FS / Maple Hollow Recreational Facility. Land and channel treatments were implemented in the area as part of our attempt to quickly stabilize the severely burned terrain. Our initial BAER authorization included funds for broadcast seeding treatments, log erosion barriers and channel structures for grade control. All of the emergency treatments were completed in a timely manner. During May of 2001, our Fishlake - Engineering Staff used a D6 - Cat in order to re-open a debris damaged segment of the FS / Maple Hollow Road for administrative purposes; this action allowed our Richfield Interagency Fire Crew to have better access into the burned-area for working on constructing the log erosion barriers. It should be noted, a road closure gate had been purchased and installed for both public safety and control of entry into the upper Maple Hollow area. A few weeks after the work was completed ... another three episodes of flooding destroyed the temporary road surface once again and delivered another round of damaging flood waters into the community of Holden, Utah. The broadcast seeding that had been applied the previous year had not established itself by July of 2001; thus, the treatment did little to minimize hydrophobic conditions, provide protective ground cover or allow for the infiltration of rainwater upon the Maple Hollow hillsides. The log barriers worked as they were intended to by acting as physical structures upon the moderately steep to very steep slopes; the LEBs trapped sediment that otherwise would have been transported into the Maple Hollow drainage. This years flood events removed all of the channel structures that had been built by the Fire Crews during May of 2001. Dale Deiter (Hydrologist) and I monitored the burned-area to determine both the persistence and location of water repellent conditions during April, May, June and July of 2001; while some healing has occurred on the low to moderate intensity burn zones, the HIGH intensity -- severely burned hillsides remain just that ... fire damaged landscapes. Actually, the work that has been completed, as part of our on-going effort to stabilize the Swains burned-area, includes an investment of both BAER funds and NFP / IN-THE-BLACK dollars. Last November, the

The severely burned hillsides in Maple Hollow remain unstable at this time

Several episodes of flooding have left debris on the Maple Hollow

The community of Holden, Utah has been impacted by 2 floods during the past 18 months

developed spring site which supported the FS / Maple Hollow Recreational Facility was re-built using a series of gabion baskets. Secondly, the water delivery system draining from the spring site into the day use / campground area was re-constructed to allow for increased flows -- preparing for bigger demands by our recreational public in the future. Approximately 2 miles of new fence was built along the FS / BLM administrative boundary with BLACK funds. This year ... NFP / KP2 dollars will be used to finance the following types of rehabilitation
and restoration activities:

Erect a new fence surrounding the re-built Maple Hollow Spring Site

Construct new Sanitary Facilities at the FS / Maple Hollow Recreational Site

Inventory and Eradicate Noxious Weeds from inside the Swains Fire perimeter

Replace the existing Cattleguard along the FS / BLM boundary on the Maple Hollow Road

Re-locate a segment of the Maple Hollow Road -- damaged by the 2000 / 2001 flood events

The total expenditures to date by the~~If you look at the response of the~~ Forest Service, Bureau of Land Management and State of Utah - Division of Wildlife Resources with respect to implementing emergency treatments within the entire Swains burned-area are~~...~~ approximately $ 850,000~~. has been spent at this time.~~ While many of the fire rehabilitation treatments have been quite successful, ~~I think~~ the residents of Holden, Utah and our counterparts working for other Federal and State agencies remain quite concerned because ... the steep to very steep slopes occurring on NFS lands within the Swains perimeter remain unstable. ~~Just to give you a little better perspective here, t~~The burned-area has experienced 6 different floods during the past 18 months. On at least 2 occasions, the dirty water has flowed across the alluvial fan terraces into Holden, Utah -- located some 5 to 6 miles NW of the burn. Each time that happens, the local Millard County inmates are mobilized and put to work filling sand bags and constructing temporary barriers to divert the flows of runoff waters. Still ... property damages occur in the form of flooded basements, damage to building site developments, deposition of sediment on irrigated croplands and the filling of culverts with mud under I - 15. ~~Currently, the USDA -- NRCS / State Office in Salt Lake City, Utah is embroiled in controversy because the residents of Holden, Utah don't feel as if this agency responded in a timely and responsible manner while making their EWP assessments and recommendations regarding potential flooding hazards in their small town.~~

What needs to be Done ... Recommended Treatments

The Fishlake National Forest would like to implement another round of land treatments in the form of re-seeding and reforestation in order to stabilize the fire - damaged landscapes within Maple Hollow. ~~Please understand, t~~There remains a significant ~~is still a genuine~~ threat to human life and property associated with this CY 2000 fire incident; in addition, the Fishlake / BAER Team has concerns related to maintaining long-term soil productivity, re-establishing vegetative structure and function on the hillsides and issues surrounding water quality in the immediate area. The FS will be making another considerable investment of NFP / BLACK dollars to re-build many of our facilities, transportation surfaces and fences damaged by the burn -- items outside the scope of BAER funding.

During the late fall season of CY 2000, we used a Type III / helicopter to apply broadcast seeding on ~ 1,489 acres of the burned-area; the BAER Team would like to re-seed another 260 acres of severely burned landscapes occurring on NFS lands within the Maple Hollow drainage. This seeding would occur during April of 2002. Specifically, it would be applied to the hillsides considered to be most at-risk to continued episodes of flooding. These are the same hillsides that continue to pose a potential threat to the values-at-risk on NFS, BLM, State of Utah and private lands located in the vicinity of Holden, Utah. ~~In addition, we're asking for BAER funds to involve Mr. Steve Monsen (retired Botanist, FS -- Rocky Mountain Research Station) to come out and visit the site in order to make specific recommendations towards establishing a quick~~

vegetative cover on the hillsides within Maple Hollow. We are **NOT** requesting additional WFSU - SULT funds for re-seeding activities in Johnson Canyon. The values-at-risk occurring in close proximity to this canyon simply do not warrant the need to solicit additional BAER dollars at this time.

(**NOTE**) -- The Richfield Interagency Fire Organization will be conducting prescribed fire activities in south-central Utah using a group of Type III / helicopters to accomplish aerial ignitions (plastic spheres) during early April of 2002. The ships are going to be located in close proximity to Richfield, Utah. The fire organization will be paying for the transport time on these helicopters using a Call - When - Needed (CWN) contract. In addition, several members of the Payette NF will be assisting the Richfield folks with the upcoming prescribed fire treatments; to my understanding, the R4 / seeding bucket is currently in McCall, Idaho. It could easily be transported down to Richfield, Utah and made available for another re-seeding treatment over at the Swains Fire.

(**NOTE**) -- In talking with Reese Pope a few days ago at the Civil Right Training in Salt Lake City, I was told the Uinta NF still has a seeding bucket in storage in Provo, Utah -- about 115 miles down the road from Richfield, Utah.

Seems to me ... with the additional funding, some timely cooperation by the folks in contracting, a good dose of teamwork between the Fillmore Ranger District, the Fishlake / BAER Team and our local RIFC / Helibase Staff -- we can make this seeding treatment happen sometime in the next several weeks. Especially, if we already have the good fortune to have the seeding bucket, helicopters and support personnel in place to accomplish the task at hand!

****

I went ahead and reviewed a White Paper entitled " **Tree and Shrub Planting using BAER Funding** " that I located on the internet under **http://fsweb.gsc.wo.fs.fed.us/baer/assessment/guildelines.htm -- which is from the FS / WO - National BAER Homepage for Treatment Guidelines.** At this time, I would like to quote from a few passages contained in the funding report from March 19th, 2001.

" Tree planting should be done only to stabilize ecosystems or to prevent mass stability problems in areas where natural regeneration is not feasible. Planting must be compatible with the local Forest Plan. Tree planting must be done only outside the commercial base on National Forest System Lands. Tree and shrub plantings should be monitored to determine effectiveness. If this monitoring shows a failure, planting or seeding can be redone with BAER funding within 3 years following a wildfire. Currently, many types of vegetation are appropriate forms of a BAER treatment. These treatment options are available to prevent unacceptable erosion, to prevent permanent impairment of ecosystem structure and function etc. "

Alright, in the friendly spirit of this White Paper, which is posted on the website developed and maintained by the Forest Service ... the Fishlake Forest requests a limited amount of BAER funding for reforestation in the Maple Hollow drainage. This action is necessary to replant and establish trees; it will speed up the process of root development -- which will limit or prevent mass failures from occurring in the future. Even though the policy dictates that planting efforts be effective within a two - year period of time, it should be appropriate under these circumstances. At this time, please review the following proposal that was submitted by the Fishlake Forest to the R4 / Timber Staff on 2-13-2002.

*** American Forest Wildfire ReLeaf / Project Proposal ***

(**NOTE**) -- Jeff, this project would be a 50 / 50 cost share using BAER funds and matching funds provided by the American Forest Wildfire ReLeaf (AFWR) organization; this proposal was mailed to both Brian

~~Ferguson and Terry Padilla at the R4 / Regional Office on 02-13-2002. The deadline for receiving this proposal was 02-14-2002. Either Brian or Terry will be responsible for collecting the information and getting the R4 proposals forwarded on to the AFWR group for their consideration.~~

The following proposal was submitted by the Fishlake National Forest on 2/13/02 for reforestation of the Swains fire area.

Region: **R4 / Intermountain -- 02/11/2002**

National Forest: **Fishlake**

District: **D1 / Fillmore Ranger District**

Primary Project Contact Name: **Michael D. Smith / Soil Scientist - BAER Team Leader**

Primary Contact Telephone: **(435) - 896 - 9233 / ext. # 1071**

Name of Project: **Swains Fire / Maple Hollow Reforestation**

Fiscal Year of Implementation: **FY '03 ... planting in May of 2003**

Type of Project 1/: **Fire Rehabilitation**

Acres: **~ 100 acres**

Geographic Area / Legal Description / GPS coordinates: **5 miles SE of Holden, Utah in Millard County; S. 21 and 22, T. 20S., R. 3 W. SLM; 39° 44' 19" N and -112° 25' 86" W.**

Species To Be Planted: **Subalpine fir, Douglas fir and white fir along with minor amounts of Ponderosa Pine on the toeslopes and Englemann Spruce along the higher elevation mountainsides and ridgetop areas - north aspects**

Number of Trees to be Planted (nearest thousand): **Using containerized stock ... 40,000**

Potential Partners and Roles: **DWR - Dedicated Hunters Program, Boy Scouts of America (Eagle Scout Projects) and inmates of the Millard County Correctional Facility would all assist in the planting of these trees at different times**

Project Cost: **~ $ 50,000 which is about $ 500 / acre (and, could be less -- depending on how many local volunteers actually assist our Forest with the project)**

Project Description: **The Maple Hollow drainage was disturbed by a severe burn during CY 2000. Today, all that remains of the once forested area ... is a hillside of standing-dead skeletons. The seed source for the trees is completely gone; and, since there was very little aspen in this area prior to the wildfire -- there is little, if any, aspen re-generation taking place on-the-ground at this time. Trees would be planted in scattered areas of the hillside -- where the soils have good depth and water retention properties. Some of the trees were felled for log erosion barriers. The Forest Service, BLM and State of Utah have collectively spent approximately $ 850,000 in treatments intended to stabilize the burned-area. Additional funds will be spent this year on re-locating the damaged Maple Hollow Road (½ mile segment) to allow for travel back into the popular FS / Maple Hollow Recreational Facility. In addition, the Recreational Site will have its sanitary facilities replaced along with making several repairs or upgrades to the existing picnic tables, fire rings and Group Sites.**

Major Project Benefits: **Planting mixed conifers upon the burned hillsides surrounding the Maple Hollow drainage will directly benefit the area by contributing to the long-term restoration of its fire damaged slopes. This project will be highly visible by the general public as the FS / Maple Hollow Recreational Facility is quite popular with local residents for family gatherings, Boy Scout activities and church functions. The species being selected for the planting effort reflect the same type of trees that were on the site prior to the burn. Planting the trees is necessary to establish conifers in close proximity to the day use / campground area, within the Maple Hollow drainage and as a potential seed source for**

Johnson Canyon -- another forested site that was heavily damaged by the fire incident. Basically ... this high severity fire 1) killed all the trees and shrubs and 2) destroyed the natural seed bank in the soil. Experience in this country has shown that once roots break down, the area could be prone to mass failures moving large amounts of sediment into the nearby Maple Hollow drainage. FYI, the Maple Hollow Creek provides irrigation waters to local ranchers and is the secondary water supply for the community of Holden, Utah. Although the cost associated with this proposed project exceeds $0.70 / seedling ... it's a very good, high profile project that -- if implemented, would really add to the immediate stabilization, rehabilitation and overall restoration of the fire-damaged Maple Hollow subwatershed.

(NOTE) -- The action of planting of these tree seedlings would NOT be the equivalent of establishing another timber plantation upon NFS lands ... because the Fishlake National Forest would not list this particular drainage as part of its suitable timber base. According to our Forest Plan, this area is NOT considered 1) available, 2) capable or 3) appropriate for timber harvesting activities. The treatment is simply intended for fire rehabilitation on a series of severely burned hillsides.

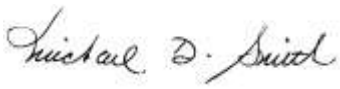
1/ Fire rehabilitation, Watershed restoration

Monitoring ~~the Disturbance / Final Comments~~

~~As a reminder, a~~A detailed monitoring plan was included in our Initial BAER Report that was submitted for the Swains Fire; it discussed topics such as 1) why monitor, 2) overall monitoring objectives, 3) implementation monitoring, 4) effectiveness monitoring, 5) data collection procedures, 6) specific data to be collected, 7) interim evaluations, 8) noxious weeds and invasive species, 9) monitoring reports and 10) annual financial requirements. ~~I'll be honest and upfront with you Jeff ... did we monitor the Swains Fire during FY '01 -- Yes. Did we complete all our monitoring activities that were planned for FY '01 -- No. It's just hard to monitor fire effects here on the Fishlake when you're off participating on BAER assignments with the Uinta National Forest related to their Nebo Creek, Y -- Mountain, Mollie and Birch Fires. Anyways, the current strategy is to take more time this year either making observations or taking photographs of the burned areas occurring within Maple Hollow and Johnson Canyon.~~

All of the treatments being recommended in this Interim Report are the suggestions of the entire Fishlake / BAER Team. Other treatments that were discussed, but are not being suggested by the Team at this time include 1) mulching, 2) dropping straw bombs, 3) installing re-enforced silt fences, 4) re-seeding more acres within the burn and 5) re-building channel structures lost to the floods. ~~All we want to do here is what makes sense on the ground ... which means, stabilizing the severely burned areas within Maple Hollow and selecting treatments that have a good chance for success on NFS lands.~~

~~Call me at (435) - 896 - 9233 / ext. # 1071 if you have any ???s. Thanks Jeff. Later .....~~



Michael D. Smith
Soil Scientist / BAER Team Leader

PART 6 … EMERGENCY REHABILITATION TREATMENTS & SOURCE OF FUNDS BY LAND OWNERSHIP(s)

(Interim Report # 2 ... Swains Fire)

A. Primary Land Treatments … Broadcast Seeding, Contour Raking and Explanatory Signs

			NFS Lands			Other Lands			
Line Items	**Units**	**Unit Cost $**	**Number of Units**	**WFSU - SULT $**	**AFWR Proposal**	**Number of Units**	**Fed $**	**Non – Fed $**	**Total $**
Purchase Seed (for soil stabilization)	Acre	$ 30	260	$ 7,800					$ 7,800
Type III Helicopter (to support seeding – using a CWN contract prior to 6-1-2002)	Hour	$ 940	12	$ 11,280					$ 11,280
Helitack Crew (to support seeding)	Day	$ 750	1¾	$ 1,312					$ 1,312
Ground Support (to support seeding)	Day	$ 600	1¾	$ 1,050					$ 1,050
Contour Raking (to promote infiltration and enhance seeding)	Acre	$ 185	150	$ 27,750					$ 27,750
Explanatory Signs (for public safety and control of access into treatment areas)	Each	$ 450	2	$ 900					$ 900
Subtotal # 1				**$ 50,092**					**$ 50,092**

B. Channel Treatments … None

N/A				$ -0-					$ -0-

C. Roads, Trails and Other Treatments … None

N/A				$ -0-					$ -0-

D. Stabilize Ecosystems ... Tree Planting on Unstable Hillsides where Natural Regeneration is not Feasible to Prevent Permanent Impairment of Ecosystem Structure and Function; action is compatible with our Forest Plan; treatment area is outside our commercial timber base here on the Fishlake NF.

Tree Planting (see AFWR proposal)	Project	$ 50,000	1	$ 25,000	$ 25,000				$ 50,000
Establish Helispots	Site	$ 750	2	$ 1,500					$ 1,500
Type III Helicopter (drop sling loads – using a CWN contract prior to 6-1-2003)	Hour	$ 975	10	$ 9,750					$ 9,750
Subtotal # 2				**$ 36,250**	**$ 25,000**				**$ 61,250**

E. Initial and Interim BAER Evaluations / Monitoring / Administrative Support Services

FS / BAER Team (M.Smith - salary)	Day	$ 325	12	$ 3,900					$ 3,900
FS / BAER Team (supplies)	Misc.	$ 250	1	$ 250					$ 250
Type III Helicopter (reconnaissance flights … during our exclusive use period)	Hour	$ 575	3	$ 1,725					$ 1,725
Technical Support Services (for implementation of BAER treatments)	Day	$ 750	12	$ 9,000					$ 9,000
Subtotal # 3				**$ 14,875**					**$ 14,875**
(Forest Service ... Implementation and Effectiveness Monitoring - Year 2 of 3)									
1) Soil & Hydrology	Year 2	$ 3,500	1	$ 3,500					$ 3,500
2) Erosion Control	Year 2	$ 7,000	1	$ 7,000					$ 7,000
3) Road Treatments	Year 2	$ 625	1	$ 625					$ 625
4) Invasive Plants	Year 2	$ 1,000	1	$ 1,000					$ 1,000
Subtotal # 4				**$ 12,125**					**$ 12,125**
Jeff ... in some instances, our request for monitoring dollars was adjusted up from what was originally shown in the Initial BAER Report to allow for additional monitoring on another seeding treatment along with the proposed tree planting project									

F. TOTALS	**---**	**---**	**---**	**$ 113,342**	**$ 25,000**	**---**	**$ -0-**	**$ -0-**	**$ 138,342**

Swains BAER fund code ... SUBR03

(**NOTE**) -- Originally, the BAER fund code for this fire incident was **P49073** during the 4th quarter of

CY 2000; later, it was changed to **SULT03** at the request of our Regional Office in an IBM message dated 04/2001. Currently, the code is **SUBR03** based upon the advice given to our Fishlake / Budget & Finance office as part of the new direction for the FY'02 - Program & Cost Activities.

Not sure where the advice came from for use of the SUBR03. The fire staff wants us to use H codes for BAETR and we should establish one for the Swains. Call on this.

PART 7 … APPROVALS

1. **Forest Supervisor:** **/s/ Mary C. Erickson** **Date:** **April 1st, 2002**

2. **Regional Forester:** _____ **Date:** _____