

Date of Report: October 17th, 2002**USDA - FOREST SERVICE / BURNED - AREA REPORT**(**Reference FSH 2509.13**)**PART 1 ... TYPE of REQUEST****A. Type of Report**

- ☒ 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)
- ☒ 2. Interim Report ... # 1
- ☒ 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: Birch | B. Fire Number: P48158 / UT - SCS - 184 |
| C. State: Utah | D. County: Juab ... # 023 |
| E. Region: R4 / Intermountain | F. Forest: Uinta ... # 0418 |
| G. District: D3 / Spanish Fork | H. Date Fire Started: 09-27-2001 @ 1348 |
| I. Date Fire Contained: 10-09-2001 | J. Time Fire Contained: 1800 |

K. Suppression Costs: \$ 965,825 ... taken from the ICS - 209 dated 10-09-2001**L. Fire Suppression Damages Repaired with EFFE - PF12 Funds:**

- | | |
|----------------------------------|--|
| ◆ Fireline Waterbarred (miles) | 1.5 miles of dozer line and 1 mile of hand line were stabilized |
| ◆ Fireline Re-seeded (miles) | 1.5 miles of dozer line were re-seeded ... no hand line areas |
| ◆ Other Damages ... (identify) | 2 miles of fence is being re-built along the FS boundary; 2 miles of road surfaces were re-conditioned near the two drop-points; 5 |

acres of safety zones were rehabilitated within Willow Canyon

M. Watershed Number: 16020201 Utah Lake (4th field HUC)

N. NFS Acres Burned: 2,146

Total Acres Burned: 2,681

Other Land Ownerships ... list as follows:

(X) Private ... 474 acres (X) State of Utah ... 61 acres () USDI - BLM () Other

O. Vegetation Types:	The low elevation alluvial fan terraces located along the western edge of the burned-area previously supported mountain big sagebrush with both annual and perennial grasses (25 %); Gambel oak plant communities had dominated the north-facing foothills and surrounding mountainsides within the Birch Creek drainage (20 %); oakbrush with scattered Pinyon - Juniper was observed on the south-facing foothills and upon the low elevation mountainsides (20 %); mixed conifer ... especially White Fir, was mapped on the steep to very steep, high elevation, north and east facing slopes (13 %); spruce - fir forests with 60 % canopy cover were found on the moderately steep mountainsides occurring at higher elevations in the SE part of the burn (9 %); small areas of mountain brush had been intermixed throughout the burn on stony hillsides (5 %); a grass / forb mix, mountain mahogany with oakbrush and mountain mahogany - bitterbrush plant communities occupied several ridgetop areas and some steep mountainsides (5 %); both Fel Fields and Rock Outcrops remain present on the mountainsides – especially in limestone areas (1.5 %); seral aspen communities were found on east-facing mountainsides at higher elevations (1 %) and a small, but distinct, area of Pinyon - Juniper was identified near a low - elevation ridgetop (0.5 %).
P. Dominant Soils:	Most of the land resources occurring within the low elevation areas of the Birch Fire Incident are classified as being Aridic Calcixerolls ; most of the mid-elevation soils were found to be Typic Calcixerolls ; landscapes occurring at higher elevations were mapped as either Cryic Pachic Paleborolls , Pachic Cryoborolls , Argic Cryoborolls or Lithic Cryoborolls ; soils within the Birch Creek drainage were recognized as Xeric Torriorthents . (Soil Survey of Fairfield - Nephi Area, USDA - SCS, 1984)
Q. Geologic Types:	The majority of the burned-area has wildland soils formed in alluvium, colluvium and residuum derived from mixed sedimentary rocks such as limestone, siltstone, mudstone and sandstone. The remaining land resources were derived from igneous rocks such as andesite, trachyte and latite. (Geologic Map of Northwestern Utah, The College of Mines and Mineral Industries, University of Utah, 1963)

R. Miles of Stream Channels by Order: (Strahler 1952 method, within the fire perimeter)

1st: 6.1

2nd: 0.03

3rd: -0-

4th: -0-

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

Trails ... - 0 - miles (USDA - Forest Service) Roads ... 0.1 miles (USDA - Forest Service)
2.5 miles (Total FS and Private Ownership)

PART 3 ... WATERSHED CONDITION / NFS PROBLEM INVENTORY

A1. Mapping of the Burn Severity Zones: (2,681 total acres occur within the perimeter of the Birch Fire Incident)

313 High (12 %) 648 Moderate (24 %) 1,287 Low / Unburned (48 %) 433 Variable (16 %)

(**NOTE**) – The rating of **VARIABLE** was used to describe upland landscapes that are being allowed to continue burning ... much like a Prescribed Natural Fire for Resource Benefiting Function; currently, most of these locations have Unburned terrain with small areas of Low to Moderate fire intensity zones. A few distinct inclusions of High intensity burns occur as very small points-on-the-ground within these variable units. The Uinta NF / BAER Team did not have (safe) access into these actively burning areas and was unable to map their contrasting fire intensity zones from a helicopter using the 1:24,000 scale photography made available to the crew.

A2. Mapping of the Burn Severity Zones: (NFS lands ... 2,146 acres)

313 High (15 %) 604 Moderate (28 %) 796 Low / Unburned (37 %) 433 Variable (20 %)

B. Estimation of Water-Repellent soils occurring within the different Burn Severity Zones:

(NFS lands ... 2,146 acres)

219 High (70 %) 120 Moderate (20 %) 40 Low / Unburned (5 %)

Overall Total = 379 acres

C. Rating Soils for Potential Erosion Hazards within the Fire Perimeter: (NFS lands ... 2,146 acres)

Very High	High	Moderate	Low
<u>171</u> (8 %)	<u>194</u> (9 %)	<u>537</u> (25 %)	<u>1,244</u> (58 %)

D1. Potential for Accelerated Erosion Losses without applying emergency rehabilitation treatments:

<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>
22 tons/acre/year	14 tons/acre/year	3 tons/acre/year	< 1 ton/acre/year

Overall Total = 70,600 tons

(additional erosion over a 48 month period)

(**Source**) - Disturbed WEPP model ... <http://forest.moscowfsl.wsu.edu/fswepp/>

D2. Potential for Accelerated Erosion Losses without applying emergency rehabilitation treatments:

<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>
40 tons/acre/year	16 tons/acre/year	7 tons/acre/year	4 tons/acre/year

Overall Total = 117,790 tons
(additional erosion over a 48 month period)

(**Source**) - Uinta National Forest ... Nebo Soil Survey, June 1980, Carlos F. Lopez

E1. Total Sediment Potential: 2,058 tons / mile² ... according to the Disturbed WEPP Model

E2. Total Sediment Potential: 3,543 tons / mile² ... according to Nebo / LSI Project

(**NOTE**) - both sediment entries assume a 21 % delivery efficiency for a period of 4 years

**PART 4 ... HYDROLOGIC DESIGN FACTORS with
CALCULATED RISK and CLIMATE EVALUATIONS**

Birch Creek

- A. Estimated Vegetative Recovery Period: 5 to 7 years**
- B. Design Chance of Success: 75 percent**
- C. Equivalent Design Recurrence Interval: 25 year**
- D. Design Storm Duration: 1 hour**
- E. Design Storm Magnitude: 1.18 inches**
- F. Design Flow: 22.8 ft³ / sec / mi²**
- G. Estimated Reduction in Infiltration: 21 percent**
- H. Adjusted Design Flow: 207.9 ft³ / sec / mi²**

PART 5 ... SUMMARY OF SURVEY & ANALYSIS

A. Describe the Watershed Emergency:

- ♦ **LOSS OF SOIL PRODUCTIVITY** ... Issues related to long-term soil productivity are really not a concern at this time. Aerial reconnaissance flights and on-the-ground sampling of the Birch Fire have shown that soil recovery is considered satisfactory. The vegetation that has grown on the site, which includes oakbrush, aspen and maple, has started to stabilize the soils within the burned-area -- reducing erosion hazards on the hillsides.

- ◆ **THREATS TO HUMAN LIFE AND PROPERTY** ... Interstate-15 is the highest value below the Birch Fire as it is a major north-south travel corridor. However, there is no potential for debris flows to overtop the highway and threaten traffic due to the height of the road throughfill and given the capacity of the drainage culverts. The power and communication poles below the fire have cement bases so they would not likely be affected. The irrigation and domestic water diversions are the most at-risk values below the fire. However, it is much cheaper to fix damages to the sites (example unbury the headbox as was done after the July 16th debris flow) than to further reduce risks through additional slope or channel treatments, especially given the recovery that has occurred so far that is expected to continue.
- ◆ **INVASION OF EXOTIC SPECIES AND NOXIOUS WEEDS** ... A substantial amount of vegetative cover is present on-the-ground at the Birch Fire. The species that represent the majority of the vegetative cover were residual colonizers. Species that sprouted from roots (oak, maple, aspen) and those that germinated from seed (cheatgrass) were represented. Although there are no further vegetative treatments recommended for this incident, continued work on the eradication of noxious weeds along the west facing slopes of the fire is recommended.

B. Emergency Treatment Objectives:

The primary objective of the proposed emergency rehabilitation plan is to take **prompt actions** deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent unacceptable resource degradation. The emergency treatments being recommended by the Uinta NF / BAER Team are specifically designed to achieve the following results:

- 1) protect resource values occurring inside the Mt. Nebo Wilderness Area,
- 2) encourage soil stabilization and recovery of hydrophobic ground conditions through vegetative regeneration in order to maintain long-term site productivity and to meet Regional and Forest Plan standards,
- 3) reduce the potential for significant resource damage upon (private) roads as a direct result of increased fire runoff,
- 4) limit colonization and / or expansion of noxious weeds and invasive plant species upon National Forest System lands,
- 5) and, protect domestic and irrigation waters from sedimentation at the point of diversion within the Birch Creek drainage.

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

Land ... 85 %

Channel ... 90 %

Roads ... 80 %

Noxious Weeds ... 80 %

D. Probability of Accomplishing Treatment Success:

	< ----- Years after Treatment ----- >		
	1	3	5
◆ Land	75 %	80 %	85 %
◆ Channel	100 %	95 %	90 %
◆ Roads	85 %	80 %	75 %
◆ Noxious Weeds	80 %	70 %	60 %

E. Cost of Taking No-Action: (including potential loss) ... a genuine potential exists for damage to the domestic and irrigation water supplies located in both the Birch Creek drainage and Ingram Canyon; during a large storm event, some erosion could take place along the roadbase of I - 15 and around the concrete footings of the nearby power and communication line towers; high clearance / 2WD roads would be damaged on the fan terrace located along the western edge of the burned-area; runoff waters could affect irrigated croplands located north of Nephi, Utah; soil productivity would be adversely affected on the Uinta NF; large populations of exotic species and noxious weeds would definitely invade the Mt. Nebo Wilderness Area; accelerated rates of erosion would occur in proximity to the abandoned mine roads; private operators would be prevented from accessing their commercial sand and gravel pits ... \$ 1,450,000.

F. Cost of the Selected Alternative: (including loss) ... by implementing the treatments that are being recommended by the Uinta NF / BAER Team in a timely manner, there would be minimal threats to human life and property, few, if any, issues related to water quality and most of the problems associated with maintaining long-term soil productivity would be eliminated ... \$ 50,000 (for implementing all the proposed treatments).

G1. Skills Represented on the Initial / Burned-Area Survey Team:

(X) Soils (2)	() Geology	() Timber	(X) TES ... Plants
(X) Hydrology (2)	() Landscape Arch.	(X) Wildlife	(X) Fire Dispatch
(X) Plant Ecology	(X) Helicopter Crew	(X) Noxious Weeds	(X) Archeology
(X) GIS Staff	() Range Mgt.	(X) District Staff	() Engineering
() Fisheries	() USDA – NRCS	(X) Utah – DWR	(X) Lands

G2. Skills Represented on the Interim / Burned-Area Survey Team:

(X) Soils (2)	() Geology	() Timber	(X) TES ... Plants
(X) Hydrology	() Landscape Arch.	() Wildlife	(X) Fire Dispatch
(X) Plant Ecology	(X) Helicopter Crew	(X) Noxious Weeds	() Archeology
(X) GIS Staff	() Range Mgt.	() District Staff	() Engineering
() Fisheries	() USDA – NRCS	() Utah – DWR	() Lands

Team Leader: Michael D. Smith (Soil Scientist / Fishlake National Forest)

Phone: (435) - 896 – 9233 / ext. # 1071 **E-Mail:** mdsmith01@fs.fed.us **Fax:** (435) - 896 - 9347

RECOMMENDED TREATMENTS

National Forest System Lands

- ◆ **Land Treatments** ... N / A
- ◆ **Channel Treatments** ... remove destroyed V-Mesh fence material that was left in the lower Birch Creek drainage after the debris flow (\$ 1,500). **Total = \$ 1,500**
- ◆ **Roads and Trail Treatments** ... remove debris from culvert inlet FS administered land (\$ 850); place trash rack on the culvert as described in the original BAER assessment. **Total = \$ 850**
- ◆ **Structure or Ecosystem Management** ... continue noxious weed abatement on 182 acres of FS lands as described in the original BAER assessment (\$ 3,000). **Total = \$ 3,000**

(*the BAER Team identified the location of these emergency treatments on a GIS interpretive plot contained in this report*)

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

A1. Primary Land Treatments

| < ----- Recommended Treatments ----- > | < -- Suggested Treatments -- > |

NFS Lands

Other Lands

Line Items	Units	Unit Cost \$	Number Of Units	WFSU-SULT \$	Other \$	Number of Units	UDWR \$	EWP – Private \$	Total \$
N / A	---	---	---	---					---

A2. Supplemental Land Treatments

N / A	---	---	---	---					---
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B. Channel Treatments

Remove V-Mesh Fences in the lower Birch Creek drainage (failed on 07-16-02)	Job	\$ 1,500	1	\$ 1,500					\$ 1,500
Subtotal for Section B	---	---	---	\$ 1,500					\$ 1,500

C. Roads, Trails and Other Treatments

Clean Culvert Inlet (includes using a backhoe)	Job	\$ 850	1	\$ 850					\$ 850
Subtotal for Section C	---	---	---	\$ 850					\$ 850

D. Structures or Ecosystem Management

Treat Noxious Weeds (eradicate existing populations of Canada thistle, musk thistle, houndstongue and whitetop in order to prevent an increase in these weeds following the recent burning disturbance)	Job	\$ 3,000	1	\$ 3,000					\$ 3,000
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Line Items	Units	Unit Cost \$	Number Of Units	WFSU-SULT \$	Other \$	Number of Units	UDWR \$	EWP – Private \$	Total \$
Subtotal for Section D	---	---	---	\$ 3,000					\$ 3,000

E1. Interim BAER Evaluation / Administrative Support Services

BAER Team (New Survey and Interim Report)	Job	\$ 3,150	1	\$ 3,150					\$ 3,150
BAER Team (travel - 4 people)	Job	\$ 700	1	\$ 700					\$ 700
BAER Team Helicopter / Daily Availability Fee (Type III ... A-Star)	Day	\$ 2,224	1	\$ 2,224					\$ 2,224
BAER Team Low Level Helicopter Flights (Type III ... A-Star) (includes salaries for the Helitack Crew)	Hour	\$ 542	3.1	\$ 1,680					\$ 1,680
BAER Team Supplies	Misc.	\$ 125	1	\$ 125					\$ 125
Subtotal for Section E1	---	---	---	\$ 7,879					\$ 7,879

E2. Implementation and Effectiveness Monitoring Activities

(Forest Service ... Implementation and Effectiveness Monitoring – Year 2 of 3)									
<p>NOTE ... if necessary, additional monitoring dollars can be acquired by the FS during Year 3 using a Interim type BAER Report to request and secure the appropriate funding; the individual to contact at the Intermountain Regional Office is Jeff Bruggink – R4 / Soil Scientist and BAER Coordinator at (801) - 625 - 5357</p>									
1) Soil & Water	Year 2	\$ 4,050	1	\$ 4,050					\$ 4,050
2) Erosion Control Seeding	Year 2	\$ 1,400	1	\$ 1,400					\$ 1,400
3) Noxious Weeds	Year 2	\$ 700	1	\$ 700					\$ 700

Line Items	Units	Unit Cost \$	Number Of Units	WFSU-SULT \$	Other \$	Number of Units	UDWR \$	EWP – Private \$	Total \$
Subtotal for Section E2	---	---	---	\$ 6,150					\$ 6,150
F. TOTALS	-	-	-	\$ 19,379	-	-	-	-	\$ 19,379

Fund Code for Implementing Authorized BAER Treatments ... H48158

PART 7 ... APPROVALS

1. (acting) Forest Supervisor: /s/ Reese Pope

Date: October 17th, 2002

2. Regional Forester: _____

Date: _____

NARRATIVES – SPECIALIST REPORTS

Hydrologic Assessment - Birch Creek Fire

This report summarizes aerial and field observations made from October 11 to October 15, 2002. The previous initial and interim BAER assessments are incorporated into this report by reference. The purpose of this assessment is to evaluate the emergency treatments that were implemented and evaluate post-fire responses to storm events to determine if additional emergency actions are warranted. A monitoring report by Wes Christensen 2002, provides some information of the treatment implementation and effectiveness for this fire.

Summary: This fire started in late September of 2001. A debris flow of roughly 10,000 cubic yards occurred on July 16, 2002. Unfortunately, there were no precipitation gauges on the fire at the time. Most of the sediment that was bulked came from within the channel rather than from the slopes since new rill and gully development does not appear to be extensive. The debris plugged a 48-inch culvert about ¼ mile below the National Forest boundary. Sediment laden water reached Interstate-15, but the flow was only about 1-foot deep through a 5-foot diameter cement culvert under the highway. The in-channel mesh fencing was destroyed by the debris flow. Vegetative recovery varies, but overall conditions are improving. The recommended waterbars on an abandoned road in the wilderness were properly installed and are effective. Overall, the post-fire recovery is on a positive trend.

Recommendations: There are no appreciable at-risk values below the fire. No further slope or channel treatments (except for removing the failed in-channel fences) are deemed necessary at this time given the degree of vegetative recovery that has occurred so far. This recommendation is also based on the fact that there is sufficient distance from the mouth of Birch Creek to allow debris to settle before reaching the Interstate. In addition, the height of the road throughfill and culvert capacity is sufficient to safely pass sediment-laden flows. The inlet and outlet of the Birch Creek road crossing about ¼ mile below the National Forest boundary should be cleaned. Over the long-term, it would be better to replace the 48-inch culvert with a drivable armored ford.

(Dale Deiter – Hydrologist)

MONITORING PLAN

◆ Introduction: Why Monitor?

Monitoring is the periodic assessment of BAER treatments to evaluate their success and / or failure, recommend adjustments to treatments, and report on these findings to management. Forest Service Manual 2523.03 directs that the implementation and effectiveness of treatments, as well as the consequences of decisions not to treat certain areas, will be monitored. This plan will assess BAER measures taken to assist in rapid recovery of the burned sites and nearby lands and resources affected by the burned sites. Direction in this monitoring plan complies with the Uinta National Forest Land and Resource Management Plan. The Forest Service Handbook 2509.13, Section 61.1 requires that, as a minimum, the following conditions be monitored:

1. The effectiveness and proper functioning of rehabilitation measures, especially road drainage facilities and channel structures.
2. Need for re-treatment, maintenance and removal of temporary structures.
3. Quality and quantity of water leaving the burned area and the location and causes of problems.
4. Rate of recovery of vegetation.
5. Effects of resource utilization, restoration activities, and emergency rehabilitation measures on each other.

District and Supervisor's Office personnel (with any requested assistance) will be assigned by the Leadership Team to conduct the implementation and the effectiveness monitoring (FSH 2509.13 Section 61.04).

◆ Types of Monitoring Planned

Implementation Monitoring: Did the job get done correctly on-the-ground?

Determine if the following proposed treatments were implemented as outlined in the BAER report:

Interim BAER Report Recommendations

- Removal of V-mesh fence: Were the fences removed?
- Clearing of 48 " culvert and installation of trash rack at culvert inlet: Was the work performed and installed to the proper specifications?
- Replacement of Birch Creek diversion structure: Was the structure properly installed to the design specifications?
- Noxious Weed Abatement: Were weeds sprayed in the correct locations at the appropriate time of year?
- Archeological Sites: Have the required surveys been conducted prior to conducting ground disturbing activities?

Effectiveness Monitoring: Did the expected response occur?

This monitoring is specifically designed to answer the question: Did the BAER treatments provide the planned protection and rehabilitation of the burned area? Said another way, have the objectives of the treatments been met and if not, why?

Are the emergency treatments successful in:

- protecting long-term soil productivity,
- preventing the deterioration of water quality,
- reducing the threats to human life and property, and
- allowing for the management of ecosystems in their properly functioning condition?

Specific objectives of the treatments are described below:

Broadcast Seeding: Establish vegetative cover on the site quickly to:

- ✓ stabilize severely burned soils to maintain long-term productivity and meet Regional and Forest Plan standards,
- ✓ prevent production and delivery of off-site erosion to the stream channel network,
- ✓ reduce overland flow caused by rain - drop splash that seals the soil surface,
- ✓ and prevent the spread of existing noxious weed populations.

Year Two Effectiveness Monitoring:

- ◆ Has vegetation become established from broadcast seeding efforts?
- ◆ Are seeded native species able to compete with non-natives?
- ◆ Does the seeding appear to be helpful in providing ground cover and preventing erosion?

Weed Abatement: Spray weeds growing within the fire perimeter to:

- ✓ Control the spread of weeds to uninfected areas.

Year Two Effectiveness Monitoring:

- ◆ Do the weed abatement efforts appear to be working?
- ◆ Is any additional treatment needed?

Explanatory Signs: Place signs throughout the Birch Fire to:

- ✓ provide for public safety and promote fire recovery by communicating the potential flooding hazards and the need to adhere to motorized access restrictions.

Year Two Effectiveness Monitoring:

- ◆ Are the signs still in place?
- ◆ Are the signs still clear and legible?
- ◆ Have any of the signs been vandalized?
- ◆ Do any of the signs require repair or replacement?

Improve Abandoned Mining Road: Water bar existing abandoned road to:

- ✓ promote improved drainage
- ✓ and decrease erosion from the road prism.

Year Two Effectiveness Monitoring:

- ◆ Are the water bars moving water off of the road?
- ◆ Has erosion from the road prism been decreased?
- ◆ Is any additional work necessary?

Clearing of the 48 " culvert and installation of trash rack at culvert inlet: Clear culvert and install trash rack to:

- ✓ protect the integrity of the existing road prism
- ✓ and promote conveyance of flood waters off the Birch Fire.

Year Two Effectiveness Monitoring:

- ◆ Is the culvert clear of debris?
- ◆ Is the trash rack catching debris effectively?
- ◆ Is any additional work necessary?

Replacement of Birch Creek diversion structure cover: Install a new diversion structure lid to:

- ✓ protect the integrity of the structure.

Year Two Effectiveness Monitoring:

- ◆ Is the cover still in place and functioning properly?

Archeological Sites: Perform the necessary archeological evaluations prior to land disturbance to:

- ✓ insure all State of Utah and Forest Service rules and regulations regarding cultural heritage are followed.

◆ **General Data Collection Procedures**

The information to be recorded and documented will include the dates and types of emergency treatments implemented along with the total number of structures, acres and actual costs associated with these rehabilitation projects.

Photos will be taken before and after these treatments and locations will be plotted using GPS. These photo points will be established above, within, and below the various treatments. All photos will be collected using a digital camera in order to easily enter the images into interim and final monitoring reports.

Any monitoring item having a specific location will be mapped using GPS and loaded into the corporate GIS database (e.g., weed infestations).

The Implementation Team leader will ensure that all data being collected meets the established standards. Data collected for inclusion into the Forest GIS database will meet corporate standards.

For all monitoring projects, as a minimum, record:

- The dates of installation or accomplishment
- Name(s) of person(s) collecting data
- Types of equipment used
- Time for project completion (length of treatment)
- GPS location as well as a detailed map and narrative of directions to the site
- Short narrative explaining how the job was completed, any problems encountered and how they were solved
- Recommendations for continued use of the treatment on other fire rehabilitation projects considering both implementation and effectiveness concerns.

◆ **Specific Data To Be Collected**

Soils and Hydrology:

- Establish photo points
- Monitoring time frames are before, during, and immediately following large precipitation events
- Document evidence of mass wasting
- Describe and map the types of damage such as overland flow and the types of lands or resources damaged, such as rangelands, pastures, or riparian zones
- Document the persistence of hydrophobic conditions on the hillside

Erosion Control Seeding:

- What were the soil moisture conditions at the time of seed application?
- What moisture events followed the seeding?
- Was seed spread uniformly over all intended treatment sites?
- Is there between 50 and 80 % soil cover to protect the soil three years post seeding?

- Which species did well?
- Which species did poorly?
- What is the location and species of any noxious or invasive weed present?
- Are there any more effective ways of doing business (e.g., erosion blankets, straw mulching) compared with the treatment recommendations presented with the Initial Request for WFSU – SULT funds?

Six vegetation transects (each 100' long) will be installed to evaluate the amount of bare ground, seeding effectiveness and the spread of noxious weeds (see also discussion below under Invasive Plants). Burn severities will be sampled along transects to help control for variation in microsites.

◆ Noxious Weeds and Invasive Species

The District Ranger is directed (FSM 2523.04d) to “ *monitor burned areas to ensure rehabilitation treatments and other measures are functioning as planned and are effective. Monitor for the post-fire presence of invasive species. Maintain treatments to keep them functioning as designed. Use monitoring results to plan follow-up actions, including the control of invasive species.* ” The treatment of noxious weeds will prevent permanent impairment of ecosystem structure and function in compliance with FSM 2523.02.

As awareness of the problems associated with the introduction of invasive plants species increases (see Executive Order 13112 in appendix), it becomes important to immediately evaluate the magnitude of any invasions as quickly as possible and then take aggressive control action. Fire suppression activities in 2001 may have caused the introduction of some invasive species through transport by engines, dozers, and crew transport vehicles.

The suppression actions for this fire resulted in construction of about 1.5 miles of dozer line. The dozer line will provide a continuous corridor along the fire perimeter into which weeds can establish, and then move into the burn area and onto the Forest. At a minimum, these dozer lines should be monitored for the presence of invasive species each spring for 5 years. The BAER implementation team should complete coordinated surveys in 2002 through 2006.

The **Spanish Fork Ranger District** will incorporate further monitoring and treatment of any populations found on the Forest into the annual noxious weed program. Treatment methods must be evaluated to determine the most appropriate course of action. Any action must be fully compliant with the National Environmental Protection Act (NEPA). It is anticipated that any chemical treatment activities will fall under the current NEPA decisions for noxious weed control on the Uinta National Forest (USFS 1995). Any proposed deviation from the approved treatment methods will require additional NEPA, which will be the responsibility of the Forest to complete. All herbicide application activities on the Forest will be conducted by certified applicators (either contracted or Forest Service licensed personnel) as required by FSM 2154.2.

Monitoring should include the following items:

- GPS map of dozer lines constructed to contain the Birch Fire
- GPS map of travelways that cross the dozer lines and access the interior of the fire.
- Annual assessment of the magnitude of infestations, including the following information:
 - GPS map of locations and perimeters or points of infestations
 - Estimates of number of plants per square foot

- Copies of appropriate Pesticide Use Proposals and Pesticide Use Reports for treatment of target weed species
- Record of treatment activities (dates, treatment methods, chemicals used)
- Evaluation of treatment success

References:

U.S. Department of Agriculture. Forest Service. Uinta National Forest. 1995. Environmental Assessment for Control of Noxious Weeds and Other Undesirable Vegetation on the Uinta National Forest.

U.S. Department of Agriculture. Forest Service. Uinta National Forest. 1995. Environmental Assessment for Control of Noxious Weeds in Wilderness on the Uinta National Forest.

◆ **Archaeology**

- Surveys will be conducted for any ground disturbing activities for areas that are not adequately inventoried.

◆ **Interim Evaluations**

The Implementation Team Leader will conduct periodic evaluations (annually as a minimum) with the District and Forest implementation team to assess implementation progress, effectiveness monitoring, and to determine if parameters measured and sampling frequency meet the planned objectives. **The BAER Team understands that monitoring funds could be available for effectiveness monitoring in year 3 provided that the Uinta National Forest submits interim reports to request additional funding and provided that the Forest documents and shares their findings.**

◆ **Reports**

- An INTERIM REPORT will be prepared.
- The overall results will be presented in a detailed report during 2004. This report will be submitted to the Forest Supervisor, other unit District Rangers, the Regional Office, and all cooperating agencies and other interested parties.

◆ **Annual Financial Requirements**

The annual cost of monitoring is itemized in the following table. The projected cost for Year 2 is \$ 6,150 and \$ 6,150 during Year 3.

(see attached financial worksheet on the following page)

Financial Worksheet	Year 2	Year 3
Soil and Hydrology		
<u>PHOTO POINTS</u> -- 1 day to gather / download data in Years 2 and 3	\$ 375	\$ 375
<u>MONITORING</u> -- 3 storms per year—Gather data 4.5 days; write-up 1 day per year. Check culvert status and diversion structure.	\$ 1,500	\$ 1,500
<u>MONITORING</u> -- Check explanatory signs and abandoned mining road. 1 person, 1 day observation.	\$ 375	\$ 375
<u>MONITORING</u> -- Helicopter reconnaissance of the Birch Fire; 3 hours helicopter time for years 2 and 3.	\$1,800	\$1,800
Soil and Hydrology ... Subtotals	\$ 4,050	\$ 4,050
Erosion Control Seeding		
<u>MONITORING</u> -- Vegetation Transects—4 days and two people to measure in Years 2 and 3; 2 days and one person to summarize and write report each year —8 person days for Years 2 and 3)	\$ 1,400	\$ 1,400
Erosion Control Seeding ... Subtotals	\$ 1,400	\$ 1,400
Noxious Weeds		
<u>MONITORING</u> -- Noxious Weed and Shrub Assessment -- 2 field days for 2 people and 2 write-up days for 1 person. (total of 6 people days for 2 years)	\$700	\$700
Noxious Weed ... Subtotals	\$700	\$700
TOTALS	\$ 6,150	\$ 6,150

(Michael D. Smith and Claire Brecher, Soil Scientists; Chad Hermendorfer & Dale Deiter, Hydrologists; David Tait, Botanist; Tamara J. H. Bahr, Biological Technician; and Karen Hartman, Wildlife Biologist)