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

Date of Report: 8/26/2009

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

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

B. Type of Action

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

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

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

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Taylor

B. Fire Number: AZ-COF-099 (P3E5CH)

C. State: AZ

D. County: Coconino

E. Region: 03

F. Forest: Coconino

G. District: Peaks and Red Rock

H. Date Fire Started: 08/16/2009

I. Date Fire Controlled: 08/22/2009 (containment)

J. Suppression Cost: $2,700,000 (as of 08/22/2009)

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 2.7
2. Fireline seeded (miles): 0 miles. 3.9 miles were rehabbed by pulling organic debris over line.
3. Other (identify): Level 3 (improved roads) and some areas of unimproved roads (level 2) have hazard tree removal.

L. Watershed Number: 5th HUC – 1506020204 (Grindstone Wash Upper Verde River) and 6th HUCS include portions of the following in descending order by area; Secret Canyon, West Fork of Oak Creek, Middle Sycamore Creek and Spring Creek.

M. Total Acres Burned: 3545
NFS Acres(100%) Other Federal ( ) State ( ) Private ( )

N. Vegetation Types: Ponderosa Pine, Gambel Oak, minor areas of Douglas Fir and turbinella oak, mountain mohagony and shrubs on steep slopes.

O. Dominant Soils: Typic Argiborolls and Mollic Eutroboralfs, moderately deep to deep, fine, montmorillonitic, very cobbly and very stony loams. Minor areas of Typic Dystrochrepts, moderately deep, very stony loams and Rock Outcrop and minor areas of Typic Ustochrepts, moderately deep, very stony fine sandy loams and Rock Outcrop

P. Geologic Types: Quaternary/Tertiary basalt and small area of Kaibab limestone

Q. Miles of Stream Channels by Order or Class: No perennial streams. 2.5 miles are intermittent. The remander are ephemeral. No riparian areas present within or close to burned area.

Class I - 8.1 miles
Class II - 3.2 miles
Class III- 0 miles

R. Transportation System

Trails:0 miles Roads:8.9 miles 4.6 miles are open and 5.3 miles closed. All open miles are proposed to stay open in TMR.

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1955 or 56% (low). 1377 or 38% (moderate). 213 or 6% (high)

B. Water-Repellent Soil (acres): 1590 or 44%

C. Soil Erosion Hazard Rating (acres):
1463 (slight) 248 acres (moderate) 1607 acres (severe)

Acres in high burn severity class on moderate or severe erosion hazards = 150 acres.

D. Erosion Potential: 1.06 tons/acre on fire overall

E. Sediment Potential: 536 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5 for natural recovery

B. Design Chance of Success, (percent): No hillslope treatments proposed. Hazard tree removal success and signage should be 75-100% effective within 1-2 months and 50% for road drainage.

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

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 2.6

F. Design Flow, (cubic feet / second/ square mile): 11.1

G. Estimated Reduction in Infiltration, (percent): 35

H. Adjusted Design Flow, (cfs per square mile): 15

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency (Critical Values and Resource Threats):

The Taylor Fire was first sighted on August 16, 2009. The cause is still under investigation but believed to be lightning caused. It is located twenty-two miles southwest of Flagstaff, Arizona in Sycamore Canyon Wilderness, and in adjacent non-wilderness areas in Coconino National Forest. The fire burned through about 3,545 acres as of August 21 when it was about 90% contained and no new growth beyond August 21. About half of acres were backburned by the Forest Service in an effort to prevent fire from spreading across FR 231A and prevent further loss of ponderosa pine forest and associated resource values. No acreas burned on private property.

About 213 acres or 6% of the fire is of high burn severity with vegetative ground cover totally consumed and mostly in TES map unit 582. About 150 of these acres are on soils with moderate or severe erosion hazard within the Secret Canyon 6th HUC watershed. These soils can be expected to have accelerated erosion and runoff downstream but only affect localized soil productivity and FR 538a infrastructure. Most of the moderate and high burned areas occurred in the Secret Canyon 6th HUC watershed but overall, comprises a minor portion of the watershed aerial extent estimated at about 10%. Sediment delivery downstream into connected watercourses will likely occur but the closest perennial stream is Spring Creek some 15-20 miles downstream and sediment is espected to be trapped enroute posing minimal risk to water quality and aquatic species present. The other two watersheds have very minor burned extent estimated at less than 5% aerial extent not posing risk to downstream water quality or aquatic species present located several miles downstream.

About 1377 or 38% of the fire has moderate burn severity. These soils have partially consumed vegetative ground covers but most trees have scorched pine needles present that will soon fall providing instant vegetative ground cover protection against accelerated erosion and runoff.

The remainder of the fire (about 1955 acres or 56%) burned in either low burn severity (generally in the western central portion of the fire) or low and unburned burn severity mosaic found generally in the eastern portions of the fire. In the burn mosaic, about 50% of the area is low and 50% is unburned. This mosaic is the result of fire suppression backburning operations. Low burn severity poses no increased risk to values present from post fire storm events due to the unaltered vegetative ground cover and low soil hydrophobicity.

The following critical values within or surrounding the fire perimenter were identified and assessed: life and property, roads, trails and culverts, safety of travelers along forest roads or walking/hunting within the fire perimeter, trails, vegetative productivity (nonnative and invasive weed threats), long-term soil productivity, stock ponds, erosion and sedimentation risk to downstream perennial streams (water quality) and aquatic species, a KV transmission line, Mexican spotted owl critical habitat and protected activity center, northern goshawk habitat, frogs (nearest known frog location is >10 miles away), and known archaelogical resources.

Potential slope instability, debris flows, landslides or loss of control of water (flash flooding) is possible within the Secret Canyon 6th HUC especially along Forest Road 538 A and 6245 which is formally closed. Vehicle travelling and hunting poses risk to life during storm events. There are steep sloped, unstable areas burned within Sycamore Canyon Wilderness Area but no trails or property are located downslope and therefore there is no risk to life or property downslope of the Wilderness Area.

The BAER Team found increased potential for hazard trees and other falling or sliding debris within the fire interior, and along highly traveled Level 2 roads roads within and along perimeter of fire. This impacts the safety of people using this area including hunters within the fire perimeter. Main use is anticipated to be Forest Service personnel, grazing permittee, and general public particularly during hunting seasons. Potential for this type of hazard to occur in the future is high. Portions of the Windmill West grazing allotment (West Barney and Lockwood Springs pastures) have been impacted by fire.

Much of Forest Road 538a is located in areas of moderate or high burn severity and currently has inadequate cross-drains (waterbars) to safely remove water from road prism without causing significant road damage, accelerated erosion and sedimentation and may present a safety hazard to Forest travellers. Proposed

reinforcement including increasing cross drain spacing and size should mitigate expected high post-storm runoff events.

There are no structures or buildings with inhabitants located within the fire perimeter or adjacent to the fire except for Turkey Butte Lookout which is staffed during the summer, and Fernow Cabin, which is a rental cabin located outside the fire perimeter. There is very low threat to life and property from post-fire storm events because loss of water control is negligible and not predicted to affect Turkey Butte, Fernow Cabin, or travellers on Forest roads because runoff is expected to be low due to low burn severity in the connected watershed. In addition, there is no threat to Turkey Butte Lookout from post-fire because it is located on a hill and hazard trees along the access road were removed during the fire. Fernow Cabin has a low threat because it is located outside the fire perimeter and is adjacent to areas within the fire that were back burned and have a low fire severity, combined with relatively gentle slopes.

Six stocktanks are located within the burn. Two may fill in from major post-storm events but do not pose significant risk to downstream water quality or wildlife or fishery habitat.

No perennial streams are present. Closest is located about 5-10 miles downstream (West Fork of Oak Creek) and head is located in low burn severity. Two other perennial sources are located more than 10 miles downstream and portions in burn are located in low to moderate burn severity areas not posing risk to downstream water quality or fisheries due to vegetation buffering (trapping) of low levels of sediment and ash deposits expected from storm run-off enroute along stream terraces and meanders.

Post-fire threats do not pose a significant risk nor would cause permanent impairment to:
adjacent northern Goshawk PFA because it is outside the fire perimeter or three nearby Mexican spotted owl PACs because they are ¾ mile away from fire perimeter.

There are about 54 acres of a Mexican spotted owl PAC within the fire where burn severity was mostly low. Consequently there is sufficient ground cover to prevent significant post fire loss of soil given a major precipitation event. Soil is key to the re-establishment of vegetation on site.

Soil productivity is not significantly threatened by post-storm events due to relatively low amount of acres in the high burn severity class coupled with high surface rock fragments documented that will serve to reduce accelerated erosion closer to tolerable levels. Almost all areas that burned in the moderate class have standing ponderosa pine trees with scorched needles that will fall and provide instant mulch protecting the soil from acclearated runoff predicted in suture storm events.

Treatments for noxious and invasive weeds are limited to new weed colonizations or existing populations made worse by the fire. There are no records of noxious or invasive weed infestations within or near the fire area prior to the fire. However, surveys for noxious or invasive weeds for the area are limited. No serious noxious or invasive weed infestations were found during the field assessment for the BAER analysis. Some scattered patches of bull thistle (*Cirsium vulgare*) and common mullein (*Verbascum thapsus*) were observed in the area of Turkey Butte and in the Lost Lake area, but no treatment is being recommended for these infestations.

B. Emergency Treatment Objectives:

- To provide for employee and public safety along open Forest roads and within the interior of the fire.
- To protect the value of Forest Road 538a infrastructure and mitigate accelerated erosion and sedimentation off-site.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm: Irrelevant and not applicable for hazard tree removal or warning signage since damage that results will not likely be due to storm runoff but due to winds and aging trees.

Land % Channel % Roads 50% Other **>90%** %

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D. Probability of Treatment Success:

	Years after Treatment		
	1	3	5
Hazard Tree Removal	>90	>90	>90
FR 538a Drainage	75%	90%	95%
Warning Signage	>90	>95	Will remove signage because trees will have already fallen

E. Cost of No-Action (Including Loss + BAER survey): **$120,000 plus possible personal injury**

F. Cost of Selected Alternative (Including Loss + BAER SUrvey): **$111,225 with life protection**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Rory Steinke

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H. **Treatment Narrative:**

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

Natural recovery of moderate and high burned areas is the preferred alternative for hillslope rehabilitation in these areas since areas are small in extent and post-fire storm runoff does not pose a significant threat to resource degradation.

1.Roadside Hazard Tree Removal: Within the Taylor Fire perimeter are 8.9 miles of system roads. Most of FR 231A and 539 are located just outside the fire perimeter but are affected by hazard tree fall as well. Within the fire perimeter, 4.6 miles are open and 5.3 miles closed. All open roads are proposed to stay open in TMR. Roads that are closed should not have hazard trees removed. Falling trees should aid in convincing users the road is not supposed to be travelled on. The following roads are currently open and proposed to stay open in TMR; FR 231A, FR, 231E, FR 538, FR 538A, FR 538B, FR 538D, FR 538H, FR 539, FR 6233, FR 6249, FR 6251, FR 9018G and FR 231. Hazard trees have already been removed along most of the perimeter on improved roads but not within the perimeter. Roads needing hazard tree removal within the fire perimeter and within moderate or high burn severity areas include the following, 538A, 538B, 538D, 538H, 6249 and 9018G totalling at least 2 miles and up to 5 miles of all open roads. Where possible, trees should be moved away from road prism and placed parallel along adjacent burned slope to aid in preventing accelarated erosion and runoff similar to log erosion barriers. Trees recognized as a hazard are those that burned and do not have needles and are expected to fall on the road sometime in the next year. Other open roads including FR 231A and FR

539 should be inspected and hazard trees removed if needed. Experience in past fires has shown that many fire killed trees along these roads will come down over the next few months creating a road maintenance problem and a safety hazard for both Forest employees and the public. Hazard tree removal is prescribed to reduce the potential for damage or injury to Forest users including Forest staff.

Access to areas within the fire perimeter is currently closed under an administrative closure order until hazard trees are removed and cautionary signage posted.

Hazard Tree Removal: 2 Miles of road and all 4.6 miles inspected: 1 week of sawyer crew at $2000/day = $10,000. (Note: this activity was not approved with BAER, the forest was provided NFN3 funds instead)

2. Signage: The entire area within the fire perimeter is frequently used for hunting big game and camping. Trees within moderate and high burn severity areas have hundreds of hazard trees that will likely fall from now until about 3-5 years. In addition, areas within the Secret Canyon and Spring Creek 6th HUC watersheds (more than half of the fire area) are susceptible to flash flooding until the watershed recovers naturally. Therefore, it is necessary to alert Forest users of the potential of injury due to hazard trees falling, rock slides and flash floods within the fire perimeter. Temporary warning signage is proposed for up to 5 locations leading into the fire.

Signage cost and posting: 5 signs at $175 each = $875 + $625 to post them = $1500

3. **Roads:** Re-enforcement and drainage improvement of FR 538a drainage. Much of Forest Road 538a is located in areas of moderate or high burn severity and currently has inadequate cross-drains (waterbars) to safely remove water from road prism without causing significant road damage, off-site sedimentation and may present a safety hazard to Forest travellers. Proposed reinforcement including increasing cross drain spacing and size should mitigate expected high post-storm runoff events. However, there is a chance a damage producing storm might erode affected road segments before implementation (50/50%).

.8 miles X $6250/mile = $5000

DOCUMENTATION AND RECORD KEEPING - Copies of BAER field data, correspondence, maps, specialist reports and assessment will be kept at the Coconino National Forest Supervisors office in both hard and electronic format under 2500 BAER files.

Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #**

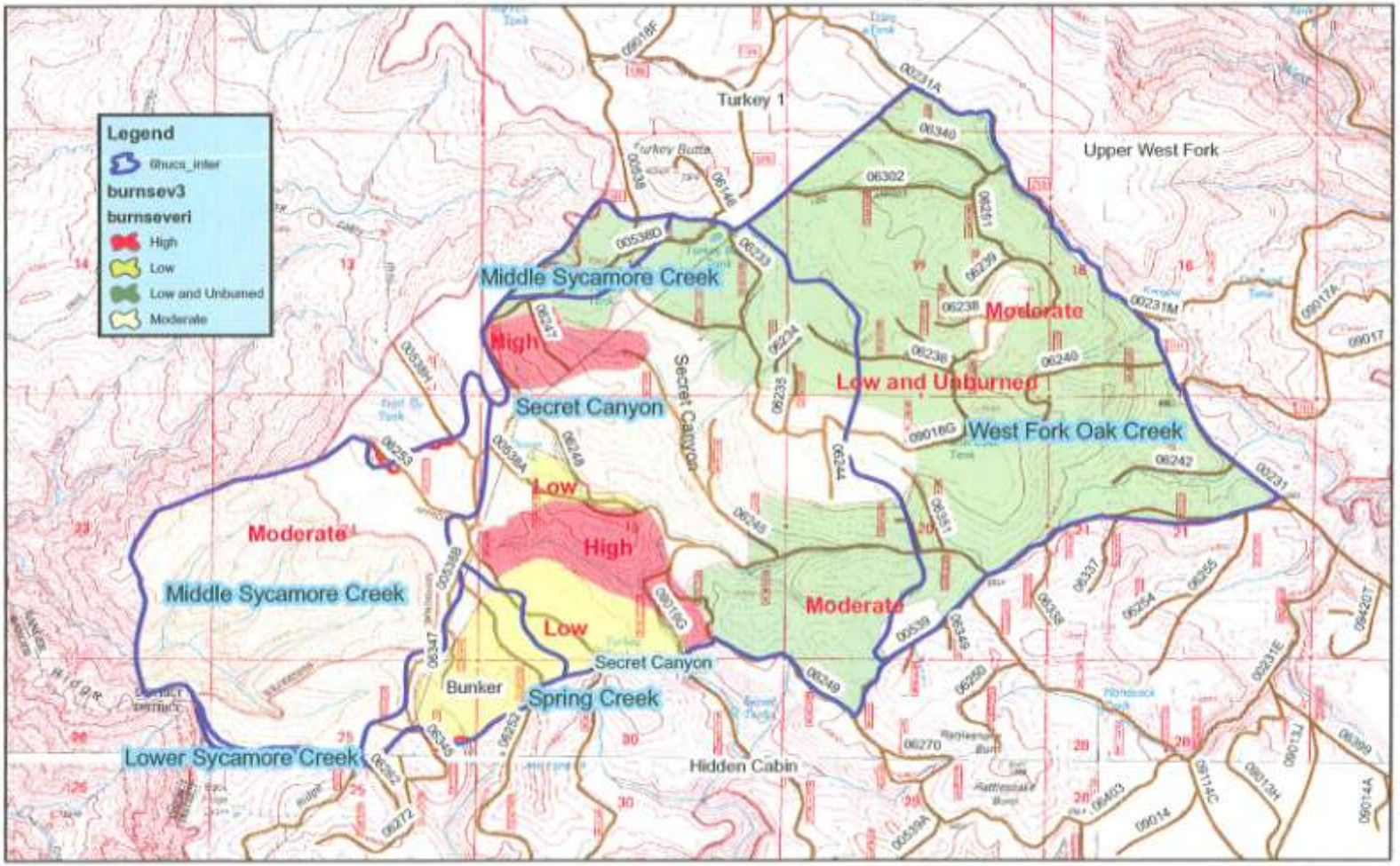
			NFS Lands				Other Lands				All
		Unit	# of		Other		# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$		units	$	Units	$	$
A. Land Treatments											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Subtotal Land Treatments				$0	$0			$0		$0	$0
B. Channel Treatments											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Subtotal Channel Treat.				$0	$0			$0		$0	$0
C. Road and Trails											
Cross-drain reinforce	miles	6250	0.8	$5,000	$0			$0		$0	$5,000
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Subtotal Road & Trails				$5,000	$0			$0		$0	$5,000
D. Protection/Safety											
Hazard tree removal	miles	2000	5	$0	$10,000			$0		$0	$10,000
Warning Signage	each	400	5	$2,000	$0			$0		$0	$2,000
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Subtotal Structures				$2,000	$10,000			$0		$0	$12,000
E. BAER Evaluation											
	pdays	15	325		$5,000			$0		$0	
Subtotal Evaluation				---	$5,000			$0		$0	
F. Monitoring											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Subtotal Monitoring				$0	$0			$0		$0	$0
G. Totals				$7,000	$15,000			**$0**		**$0**	**$17,000**
Previously approved											
Total for this request				**$7,000**							

PART VII - APPROVALS

1. /s/ Carol Boyd — 8-26-2009
   Acting Forest Supervisor — Date

2. /s/ C.L Newman, Jr. — 9/01/2009
   Regional Forester — Date

Taylor Fire Burn Severity Map



Map prepared by Rory Steinke, 8/19/2009
CNF. Metadata is Forest GIS.

1 0.5 0 1 Miles

1:38,403