Date of Report: XX/XX/XXXX

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization 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: Hunter Peak

B. Fire Number: WYSHF000428

C. State: WY

D. County: Park

E. Region: 2

F. Forest: Shoshone

G. District: Crandall

H. Fire Incident Job Code: P2KLM416

I. Date Fire Started: August 9, 2016

J. Date Fire Contained: 10/6/2016

K. Suppression Cost: $ 7,133,179

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: 2
2. **Fireline seeded (miles):** 2
3. **Other (identify):** Rehabilitation and reseeding of ICP and fire camp (Approximately 23 acres).

M. Watershed Number:

HUC6_NM	HUC6_12	Acres	Acres burned	Percent of Watershed
Muddy Ck Composite	100700060106	22715	625	2.8%
North Fork Crandall Creek	100700060204	29293	3480	11.9%
Lower Crandall Creek Composite	100700060203	10603	141	1.3%

N. Total Acres Burned:
[4,246] NFS Acres [ ] Other Federal [ ] State [ ] Private

O. Vegetation Types: Vegetation communities within the burned area include Douglas-fir and lodge pole in the upper elevations while lower areas are characterized as forb lands, grasslands and sedge meadows.

P. Dominant Soils: Storm-Sigbird-Cuberant families, complex, mountain slopes (32.5%); Maurice-Thornburgh families-Rock outcrop complex, mountain slopes (22.7%); Arrowpeak-Midfork-Poin families, complex, mountain slopes (18.8%); Storm-Cuberant-Needleton families, complex, mountain slopes (12.1%).

Q. Geologic Types: The burn area is characterized buy a variety of Quatenary surficial depostions of till and outwash along Triasic-aged volcanic formations and Cretaceous limestone deposits.

R. Miles of Stream Channels by Order or Class: Perennial – 13.9 miles Intermittent – 12.8 miles

S. Transportation System
Trails: 5.2 **miles** **Roads:** 0.3 **miles**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1,295 **(low)** 1,242 **(moderate)** 786 **(high)**
***Note:** The remaining acres within the burned area perimeter are comprised of unburned or very low intensity burned area

B. Water-Repellent Soil (acres): 2028

C. Soil Erosion Hazard Rating (acres): 2,898 **(low)** 699 **(moderate)** 0 **(high)**

D. Erosion Potential: 8.0 **tons/acre**

E. Sediment Potential: 3,351 **cubic yards / square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	3 to 7
B. Design Chance of Success, (percent):	80%
C. Equivalent Design Recurrence Interval, (years):	10
D. Design Storm Duration, (hours):	1
E. Design Storm Magnitude, (inches):	0.7
F. Design Flow, (cubic feet / second/ square mile):	0.6
G. Estimated Reduction in Infiltration, (percent):	60%
H. Adjusted Design Flow, (cfs per square mile):	36.5

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative):

HUMAN LIFE AND SAFETY

Debris Flow Hazard: Road users on County Road XUX will likely be exposed to increased risk of flooding and debris flows over the road in an isolated area. There is one location where structures and roads are located on an upper terrace at the confluence of North Crandall Creek and Crandall Creek where in the flood prone area of the river there is a possible probability for risk of debris and flood flows.
The debris flow hazard is expected to increase in the years following the fire. An emergency for debris flows was not determined for the following resasons:

- Debris across the XUX road in the area could result in people being cut off from emergency services for short periods of time.
- The risk to life and property are minimized based on the building location being on a terrace.

Probability of Loss or Damage: **POSSIBLE**
Magnitude of Consequences: **MODERATE**
Risk: **INTERMEDIATE**

Falling Snag Hazard. Snags will be present throughout the burned area presenting a likely threat to members of the public utilizing the North Crandall and Squaw Creek Trails.

Probability of Loss or Damage: **POSSIBLE**
Magnitude of Consequences: **MAJOR**
Risk: **HIGH**

Flood Hazard: The flood hazard is predicted to increase within all the modeled drainages leading to increased flood risk within the main tributaries of and to North Crandall Creek, especially those with hugh precentages of moderate to high soil severity burn. An emergency for flood hazard was determined for the following reasons:

- Runoff is predicted to increase significantly following the fire
- The trail network is used heavily by the public.
- There is some risk to life and property as a result of the increased flood risk.

Probability of Loss or Damage: **POSSIBLE**
Magnitude of Consequences: **MODERATE**
Risk: **INTERMEDIATE**

PROPERTY

National Forest System Trails: Within the fire perimeter there are 5.2 miles of high use non-motorize trails impacted by the Hunter Peak Fire. The values at risk include the trail infrastructure, water quality, and public and Forest personnel safety. Anticipated increased flows associated with fire effects will potentially cause erosion as well as cut slope and fill slope failures. In addition to resource damage, the trails would likely become difficult and even dangerous for travel. In some cases damage, such as washouts, would likely render the trail impassable. Trails within the burned area are at risk from impacts from increased water, sediment and/or debris. Impacts include damage to the trail tread as well as overwhelming the existing waterbars and drainage structures.

Probability of Loss or Damage: **VERY LIKELY**
Magnitude of Consequences: **MAJOR**
Risk: **VERY HIGH**

NATURAL RESOURCES

Water Quality Degradation. The cumulative effect of increased peak flows and sediment laden flows from the burned areas increases the risk for various downstream values at risk, particularly effects on fisheries. Soil erosion and subsequent large sediment increases are predicted throughout and downstream of the burn area. Large sediment increases are expected. These increases will be of short-term duration, recovering to pre-fire conditions over time with the worst impacts occurring over the next three years. During this time there is likely potential for degradation of water quality for fisheries and water related recreation in moderate to high severity burn areas. This is expected to be a short-term effect.

Probability of Loss or Damage: **LIKELY**
Magnitude of Consequences: **MINOR**
Risk: **LOW**

Water Quality & Soil Degradation. The effect of decreased forage in the increases the risk for soil, water and vegetation reestablishment within the allotments in the burned area.

Probability of Loss or Damage: **LIKELY**
Magnitude of Consequences: **MODERATE**
Risk: **HIGH**

Acquatics. Within the burned area the occurrence of R2 sensitive amphibians is uncommon and R2 sensitive fish species do not occur. Minor impacts to water quality downstream that would potentially impact R2 sensitive amphibians and fish species may occur, however those impacts are expected to be minor and undetecatble at the population scale.

Probability of Loss or Damage: **POSSIBLE**
Magnitude of Consequences: **MINOR**
Risk: **LOW**

Native Plant Communities. Prior to the fire, much of the burned area had low levels of noxious weeds present. The Hunter Peak Fire change vegetative conditions within the perimeter, putting native plant communities, a critical value, at very high risk of impacts from non-native invasive plants (NNIP). The short-term lack of competition will create very favorable conditions for NNIP spread into the burned area. Left unchecked, NNIP can have sever consequences to the ecosystem.

Probability of Loss or Damage: **VERY LIKELY**
Magnitude of Consequences: **MAJOR**
Risk: **VERY HIGH**

CULTURAL AND HERITAGE RESOURCES

Cultural and Heritage Resource Sites. Cultural resource sites are nonrenewable resources that generally prove to be susceptible to effects from both fire, and post-fire erosion. Cultural resource sites are also static resources, in that they are anchored to discrete landscape locations. The sites themselves, and the information contained therein, have the ability to shed light on the struggles and accomplishments of past human societies. While no site had been previously identified and none were discovered during the rapid assessment of the burned area, there is still a pontential for unknow sites to be exposed as a result of the fire's impact.

Probability of Loss or Damage: **LIKELY**
Magnitude of Consequences: **MODERATE**
Risk: **HIGH**

B. Emergency Treatment Objectives (narrative):

- Hazardous Conditions Warning Signs – Inform the public of the dangers present within the burned area to reduce the risk of injury or death resulting from an increase in hazard trees throughout the area.
- EDRR for Invasives Species & Noxious Weeds – Prevent the spread of noxious plant species into previously unoccupied locations. Reduce the risk from expansion of existing weed seed beds into the burned area and to allow burned plant communities to recover more rapidly.

- Trail Stabilization –To protect the trail tread and natural resources from the expected increase in erosion and runoff produced in the burned area.
- Herritage Resources – Survey areas not previously covered to determine if there are sites that could suffer irretrievable damage from a debris flow or looting.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land 75% **Channel** N/A **Roads/Trails** 80% **Protection/Safety** 90%

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	80	80
Channel	N/A	N/A	N/A
Roads/Trails	80	90	100
Protection/Safety	80	90	100

E. Cost of No-Action (Including Loss): $550,000

HUMAN LIFE AND SAFETY

Use of trails or user created trails, legal or not, that have safety hazards could likely result in injury or death. This is extremely difficult to put a cost on but would be reasonable to consider the potential consequences of. However, new trail construction and rehab work needed on the existing trails and/or newly created unauthorized trails could easily approach $500,000 in the next year. In addition, there would be a potential loss of wilderness character associated with user created trails. This is extremely difficult to put a cost on but would be reasonable to consider the potential consequences of.

NATURAL RESOURCES

Non-Native Invasive Plants

The cost of eradicating a NNIP infestation could easily exceed ten times the cost of detection in this report or $50,000. There is also the cost of the potential loss of wilderness character and ecological function due to a significant infestation of NNIP. This is extremely difficult to put a cost on but would be reasonable to consider the potential consequences of.

CULTURAL AND HERITAGE RESOURCES

To estimate costs associate with the loss of artifacts would be extremely difficult because a loss of these resources would be irreplaceable.

F. Cost of Selected Alternative (Including Loss): $60,350

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Casey McQuiston

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Team Members:

Shawn Anderson – Aquatics
Wayne Baxter – GIS
Zach Blain – Recreation
Karri Cary – Hydrology
Joe Hicks - Invasives
Dave Marr - Soils
Jason Pindell – Invasives (trainee)
Ashley Ross – Recreation (trainee)
Kassy Skeen – Soils (trainee)
Kyle Wright – Archaeology

H. Treatment Narrative:

Land Treatments:

Primary treatment on noxious weeds will be application of herbicide to the specific plants or infested areas. Depending on access these applications will be completed by Pickup, ATV, horseback or backpack mounted spray units.

Based on GPS/GIS mapping of the affected areas and the associated application methods the following are the anticipated **annual cost** for the next **three to five years**:

a. Pickup or ATV mounted sprayer – 1 day at $800/day = $800.
b. Horseback or Backpack mounted sprayer – 3 days at $1000/day = $3000.
c. Inventory and effectiveness monitoring – 2 days at $250/day = $500.
d. Total Cost of Treatment and Monitoring = $4,300/year.

Cultural and Heritage Resource Inventory: Inventory the burned area not previously covered to determine if there is a potential irretrievable threat to cultural and heritage resources with in the Hunter Peak Fire perimeter.

Channel Treatments: No treatements proposed.

Roads and Trail Treatments:

Proposed trail treatments to those areas of high and moderate burn severity include:

- Hazard Tree Removal: limited hazard tree felling for risk reduction of both the rehab crew during trail re-stabilization, and the subsequent public usage.
- Log out (clear downfall): provide access for site preparation where trail stabilization projects will provide drainage and stability to reduce further trail damage. Provide ability to utilize pack support, reducing logistical concerns.
- Drainage structure: waterbar and retainer log installation to minimize the increased runoff and erosion.
- Tread stabilization: removal of sloughed material created by post fire runoff preventing further degradation to the trail system.

North Crandall Trail #609 (Hi-use Secondary, 16.4 miles)

- Estimated 1.7 miles of tread resurfacing (slough and berm removal)
- Estimated 20 waterbars/mile (40 waterbars total)
- Estimated 600 feet of retainer log
- Hazard tree and log-out not complete

Feature	Water-bars	Re-tread Slough & Berm	Retainer Logs	Hazard Tree 100/mile	Log-out
Needed Work	40	1.7 miles	600 ft	1.7 miles 170 trees	1.7 miles
Contract Price	$225.00 / each	$275.00 / mile	$15.00 / ft	$100.00 / each	$240.00 / mile
Item Total	$9,000	$467.50	$9,000	$17,000	$408
Total Cost	**$35,875.50**				

Squaw Creek Trail #610 (Secondary, 4.1 miles)

- Estimated 0.8 miles of tread resurfacing (slough and berm removal)
- Estimated 20 waterbars/mile (20 waterbars total)
- Estimated 400 feet of retainer log
- Hazard tree and log-out not complete

Feature	Water-bars	Re-tread Slough & Berm	Retainer Logs	Hazard Tree 100/mile	Log-out
Needed Work	20	0.8	400 ft	0.8 miles 80 trees	0.8 miles
Contract Price	$225.00 / each	$275.00 / mile	$15.00 / ft	$100.00 / each	$240.00 / mile
Item Total	$4,500	$220	$6,000	$8,000	$192
Total Cost	**$18,912**				

Summary Estimated Trail Costs

Feature	Water-bars	Re-tread Slough & Berm	Retainer Logs	Hazard Tree 100/mile	Log-out
Needed Work	60	2.5 miles	1,000 ft	2.5 miles 250 trees	2.5 miles
Contract Price	$225.00 / each	$275.00 / mile	$15.00 / ft	$100.00 / each	$240.00 / mile
Item Total	$13,500	$687.50	$15,000	$25,000	$600
Total Cost	**$54,787.50**				

Note: Estimates are based on 2014 contract prices. Contract prices are generally slightly higher than the cost of equivalent work done by Forest Service crews. However, the Shoshone NF North Zone trails program does not have the capacity to complete all work in a timely manner. Contractors will have to be used.

All trail work shall be according to EM-7720-102, Standard Specification for Construction of Trails.

Protection/Safety Treatments:

Warning Signs: Post hazard signs at the North Crandall and Squaw Creek Trailheads to notify the public of post-fire hazards. The signs will address the threats of hazard trees as well as flood and debris flow potential.

I. Monitoring Narrative:

Implementation monitoring is proposed and will occur as the treatments are installed or appliled. District staff (Range for weed treatments and Trails) will monitor all treatments to ensure proper implementation. The cost of the implementation monitoring is included in the treatment costs.

To monitor the effectiveness herbicide treatments, crews will re-visit 25% – 50% of treated sites later in the FY17 field season to determine if the treatment was effective. The "percent kill" (i.e. fraction of each weed population effectively treated) for each species at each site will be recorded. Effectiveness of NNIP BAER treatments will be monitored with appropriated funds in FY18 as directed by BAER directive.

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

			NFS Lands				Ot	All
		Unit	# of		Other	#	e	Total
Line Items	Units	Cost	Units	BAER $	$	n	$	$
A. Land Treatments								
NNIP Treatments				$0	$0			$0
Pickup or ATV Mounted Sprayer	days	800	1	$800				$800
Horseback or Backpack Mounted Sprayer	days	1000	3	$3,000				$3,000
Effectiveness Monitoring	days	250	2	$500	$0			$500
Cultural and Heritage								
Forest Archeologist Survey	days	400	1	$400				$400
Insert new items above this line!				$0	$0			$0
Subtotal Land Treatments				$4,700	$0			$4,700
B. Channel Treatments								
Insert new items above this line!				$0	$0			$0
Subtotal Channel Treat.				$0	$0			$0
C. Road and Trails								
Trail Stabilization				$0	$0			$0
Waterbars	each	225	60	$13,500	$0			$13,500
Re-tread Slough & Berm	miles	275	2.5	$688				$688
Retainer Logs	foot	15	1000	$15,000				$15,000
Hazard tree removal	100/mile	10000	2.5	$25,000				$25,000
Log-out	miles	240	2.5	$600				$600
Insert new items above this line!				$0	$0			$0
Subtotal Road & Trails				$54,788	$0			$54,788
D. Protection/Safety								
Warning Signs		423.25	2	$847	$0			$847
Insert new items above this line!				$0	$0			$0
Subtotal Structures				$847	$0			$847
E. BAER Evaluation								
				$7,788				$0
Insert new items above this line!				---	$0			$0
Subtotal Evaluation				---	$0			$0
F. Monitoring								
Insert new items above this line!				$0	$0			$0
Subtotal Monitoring				$0	$0			$0
G. Totals				$60,334	$0			**$60,334**
Previously approved								
Total for this request				**$60,334**				

PART VII - APPROVALS

1. _____ 11-1-16
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date