

Date of Report: 2009.24.11

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

- ☒ 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) **Changes in Bold Green**

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Big Spring

B. Fire Number: NM-CIF- 000290

C. State: New Mexico

D. County: Torrance

E. Region: Southwestern

F. Forest: Cibola

G. District: Mountainair

H. Fire Incident Job Code: P3D8UG

I. Date Fire Started: 24 June 2008

J. Date Fire Contained: 2 July 2008

K. Suppression Cost: \$3,329,214 (as of 07/01/2008)

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 11.6 miles of dozer line
2. Fireline seeded (miles): 7 miles of dozer line
3. Other (identify):

M. Watershed Number: Torreon Draw (130500011104), Arroyo de Taijique (130500011102)

N. Total Acres Burned: 5,357

NFS Acres(4659) Other Federal (0) State (0) Private (698)

O. Vegetation Types: Ponderosa Pine; Pinyon-Juniper; Ponderosa Pine/Gambel Oak; Douglas fir/Ponderosa Pine.

P. Dominant Soils: Argiustolls, Argiudolls, Calciustolls

Q. Geologic Types: limestone, sandstone.

R. Miles of Stream Channels by Order:
1st – 4.8 miles, 2nd – 0.75miles, 3rd – 1.0 miles

S. Transportation System

Trails: 0 miles Roads: 4.7 miles (NFS) 3.2 miles (Other jurisdiction)

PART III - WATERSHED CONDITION

A. Burn Severity (NFS acres): 2550 (unburned/low) 509 (moderate) 1600 (high)

B. Water-Repellent Soil (acres): approximately 1850 acres of high water repellency, 536 acres of moderate to low water repellency.

C. Soil Erosion Hazard Rating (acres):
269 (slight) 3827 (moderate) 1261 (severe)

D. Erosion Potential: 5.0 tons/acre

E. Sediment Potential: 200 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3

B. Design Chance of Success, (percent): 70

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 1.4

F. Design Flow, (cubic feet / second/ square mile): 31

G. Estimated Reduction in Infiltration, (percent): 50

H. Adjusted Design Flow, (cfs per square mile): 240

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Background - The Big Spring Fire burned portions of several drainages on the east side of the Manzano mountains on the Mountainair Ranger District. Six homes and several other structures were burned by the Fire. There is now a high risk of post fire erosion and flash flooding to both public land and private land values both within and downstream of the burn, including FS road 55 and the communities of Tajique and Torreon. Portions of Forest Road 55 affected by the fire and downstream of burned areas is under Torrance County jurisdiction.

Two drainages, Canon del Novillo and Canon del Apache, were significantly impacted by the fire. Canon del Apache drains into Canon del Tajique which passes through the community of Tajique. About 74% of Canon del Apache burned at a high burn severity greatly accelerating the normally expected storm flows into Canon

del Tajique. Post burn hydrologic modeling predicts 2,100 cubic feet per second (cfs) from a 10-yr 1-hour (1.42") storm event vs the normal 164cfs. On Saturday 7/5, an approximate 0.3", 30-minute storm on only a portion of the Apache watershed resulted in 2 bridges overtopping on FS road 55 and ~100+cfs observed at the community of Tajique further downstream.

About 25% of the Canon del Novillo drainage burned at high to moderate severity. Canon del Novillo drains into Canon del Torreon which passes through the community of Torreon. The Big Spring Fire burned immediately to the north of the Trigo Fire which burned during April and May of this year. Several drainages from the Trigo Fire also impacted the Canon de Torreon drainage. The cumulative burn effects from both these fires have greatly increased the normally expected storm flows to Torreon drainage.

Risk to life and downstream property – In the Canon del Apache drainage, the crossings of FS road 55 and the proximity of much of the road to the channel puts the road and the users at great risk from elevated post-fire flows. FS road 55, which is maintained by the County, is used to access private land, including several homes, and the Inlow Youth Camp. Likewise several homes and other structures in the community of Tajique are at risk, along with private roads and State Highway 55 (not to be confused with FS road 55) which passes north to south through the community of Tajique.

In the Canon de Torreon drainage, near the town of Torreon, there is a historic acequia, several residences and drinking water wells threatened due to increased flow events as a result of the Big Spring and Trigo fires. Already the road crossing near the confluence of the Torreon drainage and Canon de las Palas on FS road 55 has been overtopped due to recent small small storm events. Approximately 65% of an earthen structure in the Novillo drainage (estimated to hold 10-15 acre feet of material) has already filled with sediment, debris and ash from the past couple of small storms.

Public Safety – The burned over watersheds are at risk to accelerated storm flow events. Standing dead trees pose a safety risk to residents in the burned area, to hikers, campers and off-road vehicles. Dead and down trees may clog and plug drainages and bridges on roads resulting in storm water flooding a road or washing out culverts, bridges, and other structures downstream. FS road 55 provides the only access to residents living in the area of the burn, provides the main access to the Manzano Mountains from Tajique and Torreon. It is also the only access to several popular campgrounds, and the Inlow youth camp. Downstream of the burn area many homes and other structures, highway 55, and the communities of Tajique and Torreon are at risk to flash flooding. Public safety and user education will be very important issues which need to be addressed. The County Emergency Services Department is currently working with other government and non-government agencies on evacuation routes and how to notify the public in the event of a probable or actual flash flood event.

Natural Resources – The soils and watersheds are at risk to increased erosion and overland flow. This could result in loss of long term productivity, particularly where there was a high severity burn. In these areas the forest has been completely destroyed and only the dead boles and branches remain. Very little viable native grass seed remains and there is a risk that these watersheds will remain in a poorly vegetated condition and subject to accelerated erosion and overland flow for many years. In addition the mineral soil is now exposed and the soils are now in a hydrophobic condition with very little water infiltrating more than an inch from precipitation events. This situation also poses a high risk to increased stormflow events including increased sediment and ash occurring in the drainages down stream.

Native Plant Communities – Native plant communities in these high and moderate burn severity areas have been damaged. Very little viable native grass seed remains and there is a risk that these communities will remain in a poorly vegetated condition for many years. There is a risk of weed species taking over in these areas where burn severity was high to moderate. Noxious and invasive plant species are not recorded within the burn area but populations of Scotch Thistle and jointed goat grass are known to occur on adjacent NFS and private land so the potential exists for these species to spread, particularly after a wildfire due to reduced vegetative competition. In addition, other noxious species may have been unintentionally transported into the burn area from suppression equipment from other areas of the country.

The burn consumed most of the vegetation and many miles of livestock allotment fence were destroyed. The vegetation coming back after the burn will take time to re-establish good health and vigor before vegetative utilization can continue. Standing dead trees pose a risk to the remaining boundary and allotment fences by eventually falling across them resulting in further damage. Without fences in place there is a risk that livestock from private lands may drift into the burned area and damage the young plants further setting back the vegetative recovery process.

Cultural Resources – Many cultural resource sites were burnt over and damaged during the fire and subsequent rainfall events and are now at further risk of erosion and disturbance from livestock and off-road vehicles. There is also an increased risk of vandalism as these sites are now more exposed.

B. Emergency Treatment Objectives:

Provide for public safety – limiting access into the burn area and into areas at greater risk of elevated post-fire runoff along with warning users of these and other hazards such as snags is an attempt to ensure their safety.

Limit damage to property – Tajique Campground, private residences, structures, water systems, and roads (including FS road 55 and Highway 55) and private driveways within and downstream of the burn area are at greater risk from runoff after the fire. Reduce the peak flows from storm events and in doing so attempt to reduce damage to property. Predicted weather patterns appear to allow for at least some germination and growth during the monsoonal thunderstorm development through July-August.

Limit damage to cultural resource sites – provide vegetation cover to minimize erosion and large barriers to minimize off-road vehicle access and possible damage

Limit loss of soil productivity – much of the fire burned at high severity and is at risk of increased post-fire erosion rates. The objective is to limit erosion and in doing so limit loss of soil productivity.

Limit damage to Tajique Campground – To help protect the campground and provide for user safety and reduce the potential of woody debris from clogging and flooding the campground.

Limit noxious and invasive species encroachment into the burn area – Find/detect any new populations within the burn area..

Protect treated and recovering areas -- Keep livestock from entering the burned area and damaging the re-establishing vegetation and BAER treatments.

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

Land 70 % Channel 70 % Roads/Trails 75 % Protection/Safety 80 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	80	70
Channel	70	70	70
Roads/Trails	n/a	n/a	n/a
Protection/Safety	85	85	85

E. Cost of No-Action (Including Loss):_ \$4,020,000

F. Cost of Selected Alternative (Including Loss):_ \$1,530,000

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archeology
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Recreation	<input checked="" type="checkbox"/> GIS

Team Leader: Ken Luckow

Email: elhuffman@fs.fed.us

Phone: 505-346-3908

FAX: 505-346-3901

H. Treatment Narrative:

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

Land Treatments:

1) Seeding – Aerial seed approximately 2000 acres of high and moderate severity burn with a mix of fast growing annual and native perennial species. Seeding rate is prescribed at 10 pounds per acre (~30 seeds per square foot). Seed mix will include the following species:

- Annual ryegrass – 5 #/acre
- Mountain brome – 2.5 #/acre
- Slender Wheatgrass – 2.5 #/acre

The intent of the seeding is to provide for erosion control and stabilize the soil (to protect downstream life and property along with cultural resource sites). This treatment should be implemented within the next couple of weeks to take advantage of monsoonal thunderstorms to improve chance of successful seed germination and greenup.

2) Mulching – apply straw mulch utilizing a helicopter on approximately 1,210 acres of high severity burn that currently has almost no ground cover and no potential for needle cast. The critical drainages to be mulched are Canon del Apache, the area immediately above the Inlow Youth Camp and private residence, the un-named drainage above the Tajique Campground, and Canon del Novillo. Slopes range from 10 to 60 percent with most areas in the 15 to 40 percent range which helps ensure greater effectiveness of mulch. Similarly ridgetops having slopes less than 15% slope, and areas with high percentages of rock are not planned to be mulched to ensure mulch is only applied to the areas where it will provide the most benefit. This treatment is intended to provide surface cover and in doing so reduce erosion, buffer soil moisture extremes, enhance the breakdown of post-fire water-repellent characteristics, reduce overland flow, aid in infiltration and improve seed germination and growth of the seeding treatment. This will help to protect life and downstream property along with cultural resources on National Forest land.

3) Rest pastures in the burned area – the Torreon and Tajique allotments would be affected by this action. Resting the burned area will allow for vegetation to recover with reduced herbivory pressure. This is prescribed for a period of 2 years after the burn, but grazing may be able to resume in fall 2009 given a readiness inspection to ensure sufficient forage and adequate plant vigor. This would allow for two complete growing seasons to occur. This “treatment” is expected to protect native forage, limit soil disturbance and limit invasion of noxious and invasive species.

4) Weed detection – survey roads within the burn area, dozer lines associated with suppression of the fire, and areas where equipment is utilized for post-fire runoff control and maintenance in early fall after summer moisture when plants would be detectable. Survey would focus on Scotch thistle and jointed goat grass but the surveyor would be free to record the presence of all non-native and invasive species of concern to the Forest Service within the survey areas outlined above. If non-native and invasive plant species are found additional funding would be requested to treat the areas. This request would be done promptly to ensure treatment within the first year following the

fire. This treatment is expected to catch any noxious and invasive plant species coming into the burn area and protect native plant communities and wildlife habitat.

5) Cross-country use closure – currently most areas on the Cibola NF are open to cross-country motorized use unless posted as closed. The District is scheduled for Travel Management collaboration and NEPA in 2009 with implementation in 2010. To limit the damage to cultural and natural resources more accessible after the fire the District Ranger will sign a closure order for the burn area. Two area closure signs will be posted. Compliance monitoring will be included to determine if additional measures are needed to enforce the closure. This treatment is expected to protect cultural and natural resources within the burn area already at elevated risk of degradation and help to provide user safety by limiting access to hazardous areas.

6) Temporary drift fence – Two miles of temporary drift fence will be constructed from dead standing trees, by hand crews using chainsaws, near the east boundary of Apache Canyon pasture. This will serve as a temporary barrier to keep unauthorized private land cattle from drifting onto the burn area and negatively impacting the vegetative re-establishment process and other BAER treatments.

11/24/2009 Significant savings were realized in the seeding and mulching contracts due to two factors. First the contracts did not specify staging areas. Staging areas were left up to the contractors who were able to identify multiple staging areas for each phase of the operation optimizing their efficiency. This resulted in the contract coming in far under budget. Second the contracts were set up as “full package deals” where the contractor supplied all materials, equipment and personnel. The agency did not need to locate and order a SEAT manager, Helitack unit, and a type 2 crew plus the travel and per diem associated with these resources. The BAER implementation lead estimates that by not using agency equipment and personnel the government was able to save nearly \$100,000.

Channel Treatments:

~~7) Trash rack – One trash rack will be installed above the Tajique Campground to help assure the campground will not be damaged due to woody debris lodging and plugging storm runoff from passing. This treatment is also expected to limit floatable debris that could move downstream and potentially damage structures on private property and the community of Tajique.~~

8) Debris Basin Cleanout – One existing large earthen basin in the Canon del Novillo drainage will be cleaned of debris as needed. The debris basin is needed to catch sediment and debris before it can impact downstream private property and the community of Torreon. Cleaning and maintaining the existing structure also limits the future potential of it breaching and causing additional downstream damage.

Protection/Safety Treatments:

9) Flood warning and hazard tree warning signs – install 2 road signs to warn Forest users about the potential hazards of driving through the burn area. These signs will be large enough with large enough lettering to be read at regular driving speeds in the area. They will be installed as soon as possible. This treatment is expected to provide for human safety through public education.

10) Implement area closures to limit access and attempt to keep users out of unsafe areas. Closures (road and area wide) will be announced and be posted to inform users coming into the area.

11) Work with NRCS and SWCD to contact landowners and residents to make them aware of the potential dangers now posed by rain and runoff events.

Coordinated Treatments on Private land - (NRCS and Soil and Water Conservation Districts)

The Forest Service, the Natural Resources Conservation Service, and Soil and Water Conservation District have been working closely on post-fire planning and assessment to coordinate treatments to provide for the protection of life, property and human safety in downstream communities. To complement the treatments on National Forest Service land, the NRCS & SWCD are working with private landowners to implement additional post-fire treatments utilizing the Emergency Watershed Protection (EWP) program. Their Damage Survey Reports (DSRs) are expected to be submitted early next week, but treatment proposals are expected to include: channel clearing, installation of trash racks, contour felling, placing jersey barriers around structures, channel alignment to avoid structures, moving debris and equipment out of floodplains, cleaning culverts and crossings, reinforcement of acequia walls, and hazardous material cleanup of burned residences. This is obviously not an all inclusive list and treatments vary by land owner.

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Implementation monitoring will be done to ensure that all treatments are implemented as planned and are in good working condition. For the vegetation implementation monitoring (seeding) plots will be used. All implementation monitoring will occur during and immediately after installation/implementation of a treatment. Effectiveness monitoring will occur during the growing season for at least the first year and up to 3 years with annual approval. Vegetation (seeding) monitoring will be coordinated with the Torrance County Soil and Water Conservation District and the NRCS. Mulching implementation monitoring will be conducted as part of the COR and resources advisor duties to ensure proper coverage. Monitoring for seeding and mulching will also include inspection for noxious and invasive plant species.

Pasture resting will be monitored administratively by the District Range Staff. The temporary drift fence implementation and effectiveness will be monitored by the District. Debris basin cleanout will be monitored by the District. Hazard warning signs, and other signs to be posted will be monitored by the people assigned to do the work.

Part VI – Emergency Stabilization Treatments and Source of Funds

 Interim # **Final**

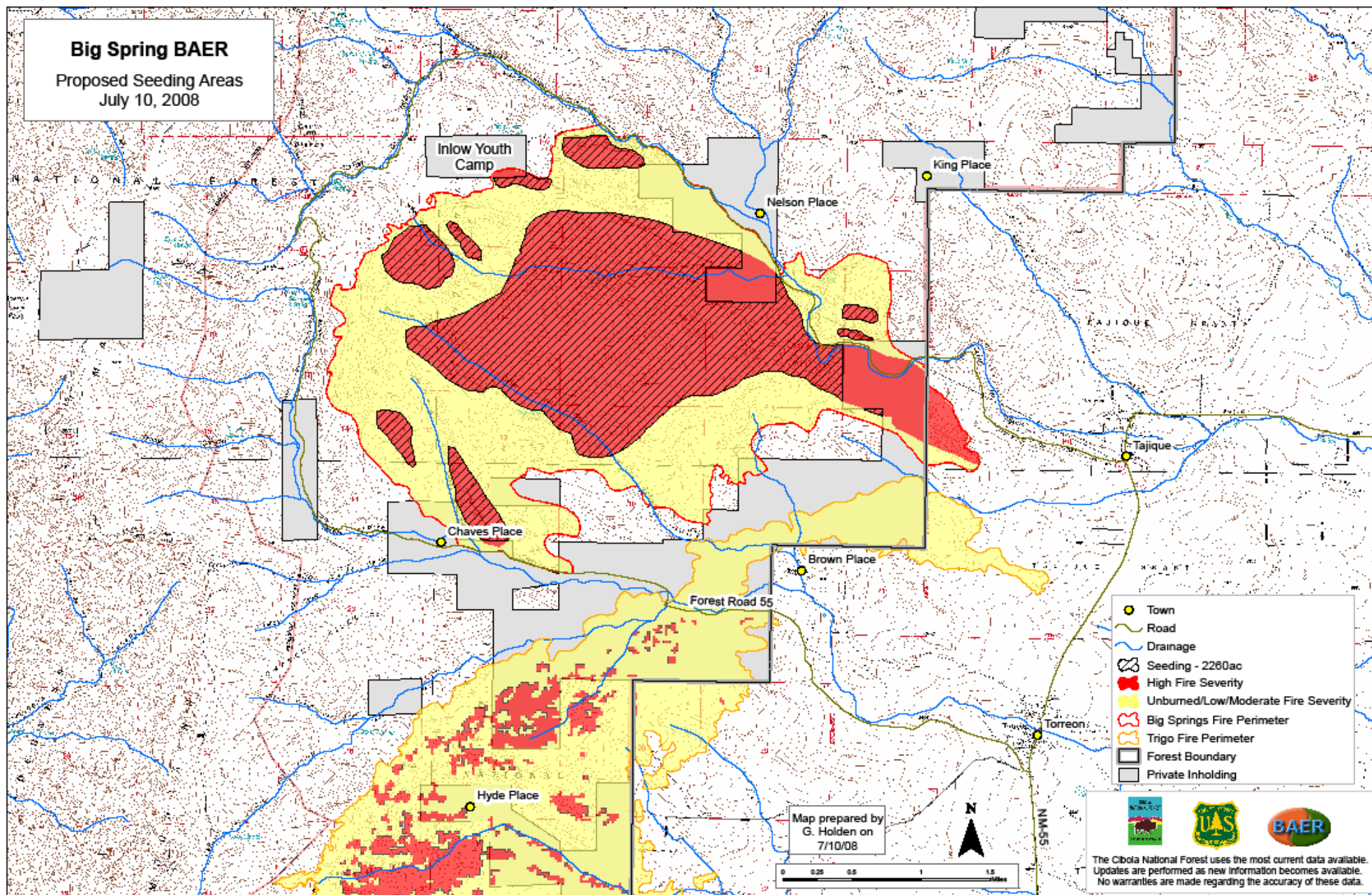
Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
Aerial Seeding	acre	40	2000	\$79,860	\$0		\$0		\$0	\$79,860
Aerial Mulching	acre	477	1210	\$577,170	\$0		\$0		\$0	\$577,170
Weed detection	each	2000	1	\$2,000	\$0		\$0		\$0	\$2,000
Temporary drift fence	miles	3000	2	\$6,000						
Cross-country closure signs	each	1000	2	\$2,000						
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				\$667,030	\$0		\$0		\$0	\$659,030
B. Channel Treatments										
Debris basin cleaning	each	3000	2	\$6,000	\$0		\$0		\$0	\$6,000
Trash rack	each	500	4	\$500						\$500
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$6,000	\$0		\$0		\$0	\$6,000
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
				\$0						
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
Flood warning signs	each	500	2	\$1,000	\$0		\$0		\$0	\$1,000
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				\$1,000	\$0		\$0		\$0	\$1,000
E. BAER Evaluation										
				---	\$27,400		\$0		\$0	\$27,400
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
<i>Subtotal Evaluation</i>				---	\$27,400		\$0		\$0	\$27,400
F. Monitoring										
Seed and mulch effective	day	300	10	\$3,000	\$0		\$0		\$0	\$3,000
Temporary drift fence	day	250	4	\$1,000	\$0		\$0		\$0	\$1,000
Debris basin cleanout	day	250	4	\$1,000	\$0					
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				\$5,000	\$0		\$0		\$0	\$4,000
G. Totals				\$679,030	\$27,400		\$0		\$0	\$697,430
Previously approved				\$893,000						
Savings				\$213,970						

PART VII - APPROVALS

1. /s/ _____
 Forest Supervisor (signature) _____
Date
2. /s/ _____
 Regional Forester (signature) _____
Date

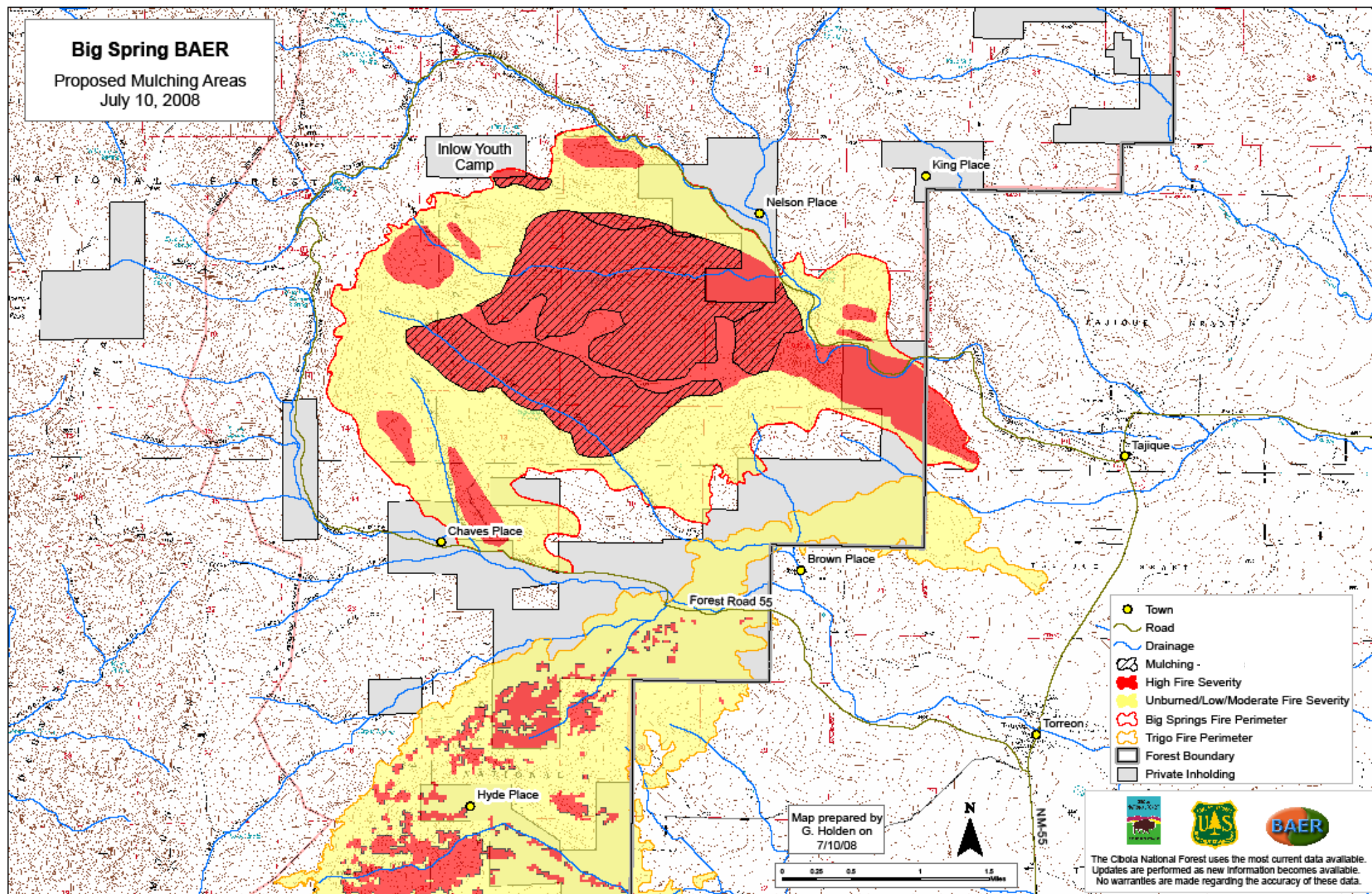
Big Spring BAER

Proposed Seeding Areas
July 10, 2008



Big Spring BAER

Proposed Mulching Areas
July 10, 2008



Big Spring BAER

Other Proposed Treatments
July 10, 2008

