

Date of Report: February 1, 2001

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - 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
 - ☐ 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 DESCRIPTIONA. Fire Name: SalizB. Fire Number: P34778C. State: NMD. County: CatronE. Region: 03F. Forest: GilaG. District: Reserve and GlenwoodH. Date Fire Started: June 14, 2000I. Date Fire Controlled: June 20, 2000J. Suppression Cost: \$1.73 million

K. Fire Suppression Damages Repaired with Suppression Funds

- 1. Fire line water barred (miles): 1 mile hand line and ½ mile cat line
- 2. Fire line seeded (miles): 0
- 3. Other (identify):

L. Watershed Number: Middle San Francisco 15040004136 and Pueblo Creek 15040004135

M. Total Acres Burned:

NFS Acres (1000) Other Federal () State () Private ()

N. Vegetation Types: Ponderosa Pine/Pinyon Pine/Alligator Juniper/Gray Oak and Pinyon Pine/Alligator Juniper/Gray OakO. Dominant Soils: Typic and Lithic Ustochrepts, loamy, mixed, mesic and Typic Argiborolls, fine and clayey-skeletal, mixed. There is no Terrestrial Ecosystem Survey or soil survey in the area of the fire.

P. Geologic Types: Rhyolite and Gila conglomerate

Q. Miles of Stream Channels by Order or Class: Within the fire there are only ephemeral channels. Saliz Creek is approximately two miles east of the fire and has perennial flow. Saliz Creek drains into the San Francisco River about seven miles below the fire.

R. Transportation System

Trails: 1.0 miles Roads: 0.75 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 400 (low) 200 (moderate) 400 (high)

B. Water-Repellent Soil (acres): 600

C. Soil Erosion Hazard Rating (acres):
200 (low) 300 (moderate) 500 (high)

D. Erosion Potential: 50-75 tons/acre

E. Sediment Potential: cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 10

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

C. Equivalent Design Recurrence Interval, (years): 2

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 4.0-4.6

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

G. Estimated Reduction in Infiltration, (percent): 40-60

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

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

The fire started on June 14, 2000 along Highway 180 near the top of Saliz Pass. The fire was probably human caused and was investigated. The fire mainly burned west of the highway. It did jump the highway and burn a small area east of the highway. The fire burned approximately 1000 acres with approximately 600 acres of moderate to high intensity burns.

The high intensity burn had the entire tree canopy consumed and the entire litter layer on the soil surface burned. All of the grasses were killed. The soils were moderately hydrophobic to a 2-4 inch depth. Approximately 400 acres had high intensity burn.

The moderate intensity burn was hot enough to kill most of the tree needles, and consume most of the litter layer on the surface. The tops of the grasses were consumed and may have been killed. The soils were moderately hydrophobic to a 2-4 inch depth. Approximately 200 acres had moderate intensity burn.

The remainder of the fire had a low intensity burn and mainly burned in the understory. The top of the grasses were burned but probably not killed. The soils were not hydrophobic. Approximately 400 acres had a low intensity burn.

The main concern was the loss of ground cover and a reduction in infiltration due to hydrophobic soils. There was a potential for increased runoff, increased soil erosion, reduction in soil productivity, increased sedimentation to down stream areas and reduction in water quality. There was a threat to human life and property due to the increased potential for flooding onto the highway.

Within the fire, there was ponderosa pine/pinyon pine/ alligator juniper/gray oak vegetation on north facing slopes and pinyon pine/alligator juniper/gray oak vegetation on southern slopes. There was manzanita shrubs found in some places on the fire. Before the fire, the grass cover in the understory in many places was very sparse, especially in areas with manzanita shrubs. There probably was a very low amount of viable grass seeds in the soils.

Along Highway 180, the topography is low rolling hills. Just west of this is a very steep area with Gila conglomerate rock outcrop cliffs. Just west of these cliffs is a power line which goes to Tucson. West of the power line, the fire is within the Blue Range Wilderness. The western portion of the fire is a large mesa, which breaks off to the north and west with low hills.

None of the fire is within Mexican Spotted Owl protected activity cores. The San Francisco River, approximately seven to ten miles below the fire, has T&E species, loach minnows, and proposed listed Chiricahua leopard frog.

The fire drains into three watersheds. Approximately 100 acres in the extreme western portion of the fire drains west into Pueblo Creek. Approximately 400 acres in the middle portion of the fire drained north into Cottonwood Canyon. About two miles below the fire in Cottonwood Canyon lies Cottonwood Campground. This campground is in the flood plain and is just above a culvert which crosses Highway 180. Approximately 500 acres drains east towards Highway 180 and then into Martinez Canyon. Martinez Canyon drains into Saliz Creek which has perennial flow. Saliz Creek drains into the San Francisco River about seven miles below the fire.

One of the major concerns was the potential to impact Highway 180 with flooding from the fire. The portion of the fire, which drains toward the east, drains directly toward Highway 180. Highway 180 is the main travel route from Glenwood, New Mexico to Reserve, New Mexico. If this roadway is washed out, the alternative routes of travel are narrow and rough and not suitable for large vehicles.

B. Emergency Treatment Objectives:

One of the main objectives was to treat the watershed above Highway 180 to lessen the potential for flooding onto the roadbed. The second objective was to increase the ground cover, increase water infiltration, and reduce water runoff.

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

Land 50 % Channel 60 % Roads % Other %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Seeding	50	60	70
Contour Falling	80	70	60
Channel			
Earthen Structures	40	30	30
Straw Bale Structures	70	50	30
Roads			
Other			

E. Cost of No-Action (Including Loss): \$350,000

F. Cost of Selected Alternative (Including Loss): \$250,000

G. Skills Represented on Burned-Area Survey Team:

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

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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.)

Land Treatments:

Seeding: 250 acres with high/moderate intensity burn were seeded to help increase vegetative groundcover. No seeding of the high/moderate intensity burn area within the Blue Range Wilderness was conducted due to the potential to introduce non-native seed into the area. The seed mix was 30% blue grama, 40% annual rye, 20% smooth brome, and 10% orchardgrass. The seeding rate was approximately 35 pure live seed per square foot. Western wheatgrass was ordered in a separate seed mix. This was to be used to seed approximately 50 acres of drainages. The seeding was done using a helicopter and a seed bucket. The seed was delivered to Silver City, New Mexico on June 27, 2000 and off loaded into rental trucks. Seeding of the fire was accomplished on June 30.

The seed mixture contained 30% blue grama seed. This seed contains awns and is very light and fluffy. The seed bucket did not contain an agitator. As a result, the seed mixture would not feed through the seed bucket. The western wheatgrass was mixed into the seed mixture and 450 pounds of seed from Reserve Ranger District was added. This seed contained 40% western wheatgrass, 20% thickspike wheatgrass, 17% June grass, 9% sheep fescue, 9% sideoats grama, and 5% yellow blossom sweet clover. To increase the density,

sand was added to the mixture. After several attempts, the seed flowed through the seeder and the seeding was completed. Two to three hours of extra helicopter time was required to accomplish the seeding.

The seeding was inspected several times during the summer and fall. In September, some seed had started to grow. The fire area received very little summer precipitation. The few rains on the fire did not wet the soil enough for the seeds to sprout and grow. The hydrophobic soils may have limited the water infiltration into the soil. Hopefully, the seed remaining on the fire will grow this spring.

Contour Falling: At the southeastern portion of the fire just above the highway lies approximately 100 acres with a high/moderate intensity burn. The topography is low hills with an average slope of 25%. The plan was to fell dead trees of the 8-12 inch diameter class. They would be felled on the contour to help hold the soils in place and to increase water infiltration. None of the area lies within an owl core and there are no plans to salvage log the area. Approximately 30-40 trees per acre were to be felled. The limbs would be removed from the trees and the trunks would be cut in shorter lengths to put more of the bole in contact with the soil. Smaller material would be cut up and placed on the uphill sides of the logs.

Crews that were qualified to fall trees were hard to find due to the on-going suppression effort around the region. A twelve-man prison crew from Los Lunas, New Mexico treated the area. They camped at Pueblo Park Campground about 10 miles northwest of the fire. Meals were purchased in Reserve or Glenwood, New Mexico and driven to them each day. The crew worked from June 25-29 and treated most of the area. The temperatures during the days worked on the fire were in the high 90's. It was a hot and very dirty job due to the dry fire ash on the soil surface. The crew should have spent more time on the fire but they were only available for five days. The next day they went to the Lincoln National Forest to work on a fire there.

The area was inspected in September. Some of the logs were in contact with the soil. Some were setting on small rock fragments and water runoff had gone under the logs. The treatment would have been more effective if fewer trees were fallen and more time spent on bedding the logs. In September, ten logs were treated by digging a trench in the soil and then placing the logs in the trench. Soil was placed on the uphill side on the logs. This was done to compare the effectiveness of this type of treatment. Photographs of the treated logs were taken. These logs were close to the highway and can be easily checked on trips to Reserve.

Channel Treatments:

Earthen Structures: There was a high potential for flash flooding onto Highway 180 due to the fire. One watershed drained towards the highway and was approximately 160 acres in size. This watershed had a high intensity burn throughout the watershed. It contained low hills near the highway. The middle and west side of the watershed has very steep topography with Gila conglomerate rock outcrop and cliffs. Forest Hydrologist Pete Stewart estimated that this one watershed has the potential to have 3500-3800 cubic feet/second of flow with a 25-year 1-hour storm. The plans were to prepare approximately 1-2 acres above the old roadbed to act as a sediment catchment basin. The roadbed had two 24-inch diameter culverts underneath. Between the old roadbed and the highway lies a second 1-acre area which could be cleaned out to serve as a catchment basin. The highway at this location contains a 48-inch diameter culvert.

A Forest crawler tractor was used. The upper portion of this area was cleaned out and a small earthen dam was constructed. A spillway was added on the south side of the dam. Just below this, a small catchment basin was constructed and the culverts in the old roadbed were left open. Just above the highway another small catchment basin was constructed.

During the summer months this was monitored. The culverts on the old roadbed became plugged with small logs and debris. This was cleaned out. The upper earthen dam filled in with sediment by late August. The main culvert under the highway did not become plugged with debris and no high water flowed over the highway.

Straw Bale Structures: On the southeastern portion of the fire, just above the highway, lies 100 acres with high/moderate intensity burn. The topography was low hills with an average slope of 25%. There were several small drainages within this area and the drainages drained directly into the highway. Approximately 31 straw

bale structures were built. The bales were purchased in Silver City, New Mexico and hauled to the fire on a flat bed trailer. The straw bales were moved to the sites using four-wheelers. The straw bales were anchored into the ground using wooden stakes. All of the structures were installed by June 30th.

These structures were monitored during the summer. The area received several light rains during July and August. These rains moved a lot of the surface soils but did not wet the subsoil. This may have been due to the hydrophobic soils. By August, all of the structures were full of sediment and was over-topping the straw bale structures. Approximately five structures had one or two straw bales washed out. In August the bales were moved back into the structures and re-staked. One structure near the highway had the straw bales stolen by someone. Some of the structures could have been built wider. The water had flowed around the side of the structures. Overall, the straw bale structures worked well and prevented down cutting of the drainage.

Signs:

Two "Flash Flood" warning signs were purchased and installed along Highway 180 to warn motorists that the area had the potential for flash flooding due to the fire. The State Highway Department installed the signs. These signs were reflective and met Highway Department specifications.

It was decided to close the fire area to fuel wood harvest. Several small 2x3 foot signs were made stating that the area was closed to fuel wood harvest until the watershed recovered. These signs were placed along the highway. A sign company in Silver City made the signs. In September, it was noted that one sign had been removed near an area where many people park along the highway. The other signs were in place and had not been damaged.

Coordination and placement of the signs was done with the State Highway Department.

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.)

Several photographs were taken of the area during the treatment period. Over the summer, the fire was inspected several times. In September the treatments were inspected again and several photographs were taken. A monitoring report will be written and sent to the Regional Office in the next few months.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

			NFS Lands				Other Lands			All	
		Unit	# of	WFSU	Other		# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	SULT \$	\$		units	\$	Units	\$	\$
A. Land Treatments											
Seeding	Acres	80	250	\$20,000				\$0		\$0	\$20,000
Contour Falling	Acres	100	100	\$10,000				\$0			\$10,000
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
Subtotal Land Treatments				\$30,000				\$0		\$0	\$30,000
B. Channel Treatments											
Earhen Structures	Each	500	3	\$1,500				\$0		\$0	\$1,500
Straw Bale Structures	Each	169.35	31	\$5,250				\$0		\$0	\$5,250
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
Subtotal Channel Treat.				\$6,750				\$0		\$0	\$6,750
C. Road and Trails											
Signs and Installation	Each	250	9	\$2,250				\$0		\$0	\$2,250
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
Subtotal Road & Trails				\$2,250				\$0		\$0	\$2,250
D. Structures											
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
Subtotal Structures				\$0				\$0		\$0	\$0
E. BAER Evaluation											
Administration				\$5,250				\$0		\$0	\$5,250
				\$0				\$0		\$0	\$0
G. Monitoring Cost				\$2,600				\$0		\$0	\$2,600
H. Totals				\$46,850				\$0		\$0	\$46,850

PART VII - APPROVALS

1. /s/Delbert J. Griego
for

Forest Supervisor (signature)

02/02/01
Date

2. _____
Regional Forester (signature)

Date