United States Department of Agriculture | Forest Service | Coronado National Forest | 300 W. Congress
Tucson, AZ 85701
FAX: (520) 670-4567
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File Code: 2520-3/6520 Date: February 3, 1997

Subject: Clark Peak Fire, Burned-Area Emergency Rehabilitation

To: Regional Forester, R3

Enclosed is the Burned Area Rehabilitation completion report for the Clark Peak Fire.

for JOHN M. MCGEE
Forest Supervisor

Enclosure

cc:
PDB
C.Souders:R03F06A

USDA-FOREST SERVICE Date of Report: 2/3/97

BURNED-AREA REPORT
(Reference FSH 2509.13, Report FS-2500-8)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated EFFS-FW22 funds
[X] 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 and design analysis
[ ] Status of accomplishments to-date

[X] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Clark Peak B. Fire Number: AZ-CNF-047

C. State: Arizona D. County: Graham
E. Region: Southwestern (R-3) F. Forest: Coronado
G. District: Safford

H. Date Fire Started: 04/24/96 I. Date Fire Controlled: No estimate
J. Suppression Cost: $ 7.3 million by 5/13/96 Contained: 05/08/96
Estimated 7.9 total cost

K. Fire Suppression Damages Repaired with EFFS-PF12 Funds:
1. Fireline waterbarred (miles) 28
2. Fireline seeded (miles) 12 Cat. line
3. Other (identify) Spike camp and campgrounds, culvert cleaning and repair.

L. Watershed Number: 1504000543 15050201

M. NFS Acres Burned: 6,317 Total Acres Burned: 6,317
Ownership type:
( )State ( )BLM ( )PVT ( )____ _____

N. Vegetation Types: Covers six life zones from Douglas Fir/Southwestern White Pine/Engleman Spruce, high elevation meadows and cienagas, Ponderosa Pine/Southwestern White Pine, Chihuahua Pine/ Ponderosa Pine, Oak/Juniper Woodlands, and Chaparal

O. Dominant Soils: Typic Cryoboralfs, loamy-skeletal, mixed
Typic Ustorthents, loamy-skeletal, mixed, non-acid, frigid

P. Geologic Types: Granite and Gniess

Q. Miles of Stream Channels by Order or Class:
Order 1: 15.3 Order 2: 8.4 _____ _____

R. Transportation System:
Trails: 13.7 (miles) Roads: --- (miles)

PART III - WATERSHED CONDITION

A. Fire Intensity (Acres): 3917 (low) 600 (moderate) 1800 (high)

B. Water Repellant Soil (Acres): 900

C. Soil Erosion Hazard Rating (Acres):
130 (low) 4887 (moderate) 1300 (high)

D. Erosion Potential: 30 tons/acre

E. Sediment Potential: 4,900 (assume 35% del.ratio) cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 8 years for treated area.
B. Design Chance of Success: 80 percent.
C. Equivalent Design Recurrence Interval: 6 years.
D. Design Storm Duration: 2 hours.
E. Design Storm Magnitude: 1.8 inches.
F. Design Flow: 5 cfsm.
G. Estimated Reduction in Infiltration: 20 percent.
H. Adjusted Design Flow: 80 cfsm.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency:

The Clark Peak Fire started on 4/24/96. To date it has burned a total of 6,317 total acres and was contained on 05/8/96. The fire started southwest of Riggs Lake and burned east toward Mt. Graham. Several days had hot dry windy conditions and hot burning periods. The fire burned through high elevation Spruce Fir Forests down to Chaparal Woodlands. A portion of the fire is critical habitat for the endangered Mt. Graham Red Squirrel and all of the fire area is in critical habitat for the threatened Mexican Spotted Owl. The western portion of the fire contains a large Research Natural Area.

There are several perennial streams within the fire area which are Grant Creek, Post Creek, and Soldier Creek. They are fish habitat to rainbow trout. There is a danger of a deterioration of water quality, loss of water control, and sedimentation into the streams. Soldier Creek, Grant Creek, and Post Creeks are used for a water supply for Fort Grant Prison which is located south of the fire. The prison does have an alternative to pump ground water for its water supply.

Riggs Lake is near the western portion of the fire and is approximately 20 acres in size. The lake is a popular fishing and recreation area. The entire watershed above the lake burned with approximately 40-50% of the watershed burned in the medium-hot burn class. There is a danger of a deterioration of water quality and quantity and sedimentation into the lake from the burned area.

Much of the medium-hot burned areas have steep slopes with an average slope of 50%+ and are on granite soils. Using the Universal Soil Loss Equation Program there will be an estimated 30 tons/acre soil loss and the area has an average soil tolerance value of 3 tons/acre. There is a high potential to lose soil and site productivity in this scarce southern Arizona timberland and critical habitat for the Mt. Graham Red Squirrel and Mexican Spotted Owl.

B. Emergency Treatment Objectives:

The objectives of the proposed treatments are to prevent soil loss, loss of onsite productivity, loss of water control, and deterioration of water quality. The proposed treatments are considered viable and consistent with the long term goals of the area. Much of the fire is within an Ecosystem Management Area. Some of the burned trees may be harvested in the future by salvage harvest.

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

Land 95 % Channel --- % Roads/Trails 95 % Structures 95 %

D. Probability of Treatment Success

	<----Years after treatment-----> 1	3	5
Land	90	95	100
Channel	80	90	95
Roads and Trails	80	90	95
Other			

E. Cost of No-Action (Including Loss): $ 3,208,000

F. Cost of Selected Alternative (Including Loss): $ 1,084,650

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range
[X] Timber	[X] Wildlife	[X] Fire Mgmt.	[ ] Engineering
[ ] Contracting	[X] Ecology	[ ] Research	[X] Archaeology
[ ] _____	[ ] _____	[ ] _____	[ ] _____

Team Leader: Charles E. Souders
Phone: 505-388-8242 DG Address: C.Souders:R03F06A

H. Treatment Narrative:

Treat approximately 500 acres of the hot/medium burn intensity area which has moderate to steep slopes and is near the top of the mountain. The total hot/medium burn intensity area has approximately 2400 acres. The extremely steep rocky areas mainly on the south aspects of the fire will not be treated due to safety and feasibility standpoints. The only treatment within this area will be work done on trails.

The treatment on the 500 acre block will be to contour fall burned trees

under 9 inches DBH, seed the area, and straw mulch. Contour falling trees will be done to help hold the soil and seeding in place. As the slope increases there will be more trees fallen and put on the slopes. The trees will be limbed, placed on the contour, and cut into shorter lengths to insure that the tree is in contact with the ground. The minimum length of the logs should be 10 feet. Soil above the tree may need to be trenched to insure there is contact with the tree and the ground. When cutting the trees the stumps will be left high enough to help hold the contour fallen trees in place. Some trees may also need to be pinned to the ground to insure they stay in place.

The straw mulch will be applied to provide immediate ground cover to the burned areas and to provide a micro-climate to help the success of the seeding. Two wire straw bales will be purchased. The straw will be as weed free as possible. Incidental seed included in the straw is not expected to grow at the high elevation of the treatment area. A minimum of 1 ton/acre of straw will be scattered by hand across the high priority treatment area. Straw bales will have to be hauled on trailers or short bed trucks due to the type of road to the treatment area.

The area will be seeded with a beardless barley, an annual which will provide cover during the first year and should not compete with the natural grass species. This species was also chosen due to the area having a Research Natural Area. Approximately 115 pounds of seed per acre will be applied which is about 30 PLS per square foot. There are approximately 12,000 seeds per pound. **(Amended by RF to 20 PLS sf or 75 lbs per acre.)** The seed will be applied aerially using a helicopter and seed bucket.

2. During the field investigation several old channel structures were found in the Peters Flat area. The structures were old wire, log, and rock structures. The logs that provided most of the structural integrity for the structures were burned. The sediment that was stored behind these structures is now available to be carried downstream. About 20 structures will need to be repaired using either logs or rocks.

Straw bale structures were considered for the rehabilitation efforts but were not felt necessary with the other treatments being done.

3. There are several trails within the fire which were not used for fireline and will not be treated from the fire suppression rehabilitation effort. The trails are Jesus/Goudy Trail, Grant Creek Trail, Goudy Trail, Riggs, Lake Ridge Trail, and Jesus Trail which have 13.5 total miles. Additional water drainage features need to be built on these trails. Higher than normal water runoff onto the trails may occur due to loss of ground cover and hydrophobic soils. If this is not done there may be high soil loss on the trails and the trails may wash out or concentrate channel flow and form gullies.

4. All of the culverts along the roads within the fire were inspected. The culverts were to be cleaned using fire suppression rehabilitation money. There are also 4 culverts along a heavily used road which need to be replaced with larger-sized culverts. This is being done due to the watershed above the culverts being burned and expected flows will be higher than the design of the existing culverts.

Priority areas to treat will be the watershed above Riggs Lake and areas near perennial streams. A portion of the treated area is critical habitat to the Mt. Graham Red Squirrel and all of the area is critical habitat to

the Mexican Spotted Owl. These rehabilitation efforts will help insure that soil productivity of the area is maintained. The effort will also prevent some of the soil and ash from eroding into the streams. The extremely steep rocky areas are not being seeded due to the lack of success in having the seed stay on the slopes and grow. Past experience has shown that during high rainfall events the seed is washed off extremely steep slopes.

This area is an Ecosystem Management Area and the proposed treatment is consistent with the goals set for the area. Emergency consultation with US Fish and Wildlife Service on the effects of the proposed rehab activities on T&E species has been initiated.

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

NOTE: Emergency rehabilitation is work done promptly following a wildfire and is not to solve watershed problems that existed prior to the wildfire.

			NFS Lands			Other Lands			All
Line Items	Units	Unit Cost $	Number of Units	EFFS-FW22 $	Other $ ident.	Number of Units	Fed $ ident.	Non-Fed $ ident.	Total $
A. LAND TREATMENTS									
Seed/aerial applica.	acres	20	500	9,986					16,000
Straw mulch/applica.	acres	246	300	73,661					100,000
Contour fall trees	acres	59	350	20,505					30,000
B. CHANNEL TREATMENTS									
Repair burned log/rock check dams	each	167	12	2,000					10,000
C. ROADS AND TRAILS									
Trail drainage	miles	779	13.5	10,513					6,750
Remove/replace culverts	each	1,784	4	7,137					6,900
D. STRUCTURES									
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
Project design and supervision	days	~~525~~ 180	~~50~~ 150	27,000					27,000
F. TOTALS				150,802					196,650

actual?

proposed?

PART VII - APPROVALS

1. Randall A Smith — 2-4-97

JOHN M. MCGEE Forest Supervisor — Date

acting for

2. _____ _____

CHARLES W. CARTWRIGHT, JR. Regional Forester — Date

MESSAGE DISPLAY FOR PENNY LUEHRING

To P.Luehring:R03a

From: Reggie A. Fletcher
Postmark: Jun 28,96 7:27 AM Delivered: Jun 28,96 7:27 AM

Subject: Forwarded: Reply to a reply: rain

Comments:
From: Reggie A. Fletcher:R03A
Date: Jun 28,96 7:27 AM

Previous comments:
From: BOB LEFEVRE:R03F05A
Date: Jun 27,96 5:34 PM
I want to emphasize that in item 6. the "other grasses" appear to be preexisting, that is, were not brought in with the mulch but are native to the site.

Message:
From: PAUL GREGORY:R03F05D04A
Date: Jun 27,96 4:18 PM
BOB LEFEVRE AND I INSPECTED SEVERAL AREAS THAT WERE SEEDED AND MULCHED UNDER THE CLARK PEAK EMERGENCY REHAB PROJECT. WE VISITED THE SEVERE BURN AREAS AT PETERS FLAT AND THE AREAS ALONG THE ROAD TO THE SCOPES. WE FOUND THE FOLLOWING: 1.THE BARLEY HAS GERMINATED AND IS ABOUT 2 INCHES TALL IN THE AREAS THAT WERE SEEDED FIRST AND THEN MULCHED. 2. THE BARLEY SEED THAT WAS NOT COVERED WITH MULCH HAD NOT GERMINATED. 3.AREAS THAT WERE MULCHED THEN SEEDED DID NOT HAVE AS MUCH BARLEY GERMINATION AS THE SEEDED THEN MULCHED AREAS. 4. IN SOME AREAS THE SEED WAS SPREAD TOO THIN BUT DURING THE SEEDING OPERATION THIS WAS CORRECTED. 5. RECENT RAINS, HEAVY AT TIMES, DID NOT MOVE THE MULCH AND THE SOIL MOISTURE IS HIGH PROVIDING FAVORABLE GROWING CONDITIONS FOR THE BARLEY AND NATIVE SEEDS IN THE AREA. 6. OTHER GRASSES WERE ALSO COMING UP THROUGH THE MULCH.

From: Thomas Skinner:
Date: Jun 27,96 3:49 PM
It was great to have you visit. Yes, we got rain, but not evenly across the mountain (as per usual). In some areas, it came down hard with hail that accumulated on the ground (East of Columbine) but heard that over near Goudy Canyon, rainfall was very light. Paul Gregory and Bob Lefevre went up today and Paul offered to send a quick dg message report to you i.e. no movement of straw noted,

-------========X========--------

MESSAGE DISPLAY FOR PENNY LUEHRING

To P.LUEHRING:R03A

From: BOB LEFEVRE:R03F05A
Postmark: May 22,96 1:05 PM Delivered: May 22,96 2:01 PM
Status: Previously read
Subject: Forwarded: Reply to: Fire Rehab

Comments:
From: BOB LEFEVRE:R03F05A
Date: May 22,96 1:05 PM

Previous comments:
From: LARRY ALLEN:R03F05A
Date: May 22,96 11:21 AM

Previous comments:
From: JOHN MCGEE:R03F05A
Date: May 17,96 5:06 PM
Can we affect the rehab plan for the Clark Peak Fire at this point along the lines of what you say here? If so, lets.

Message:
From: LARRY ALLEN
Date: May 16,96 9:52 AM
I continue to be frustrated with the fact that we seem determined to never plant any seed that is likely to stabalize the watershed. It is hard for me to rationalize how an exotic grain crop from Europe is more environmentally acceptable than a native grass from a couple of hundred miles north.
The USDA has Plant Materials Centers throughout the US, whose mission is to develop plant materials for various uses. One of the major centers is in Tucson. Bruce Munda and his predecessors have studied the subject of establishing vegetation in SE Arizona for several decades. They are the USDA experts.
Dan Robinette of NRCS in Tucson is probably the most experienced arid lands manager in Arizona. He has done extensive seeding trials with native grasses.
Jerry Conner and I are the most experienced folks on the Coronado in prescribing seed mixes for specific sites.
I recommend that you convene a meeting of Bruce, Dan, Jerry, Rich and me to discuss appropriate seed mixes for the Coronado.

----------X----------

MESSAGE DISPLAY FOR PENNY LUEHRING

To Penny Luehring

From: Reggie A. Fletcher
Postmark: May 08,96 7:58 AM Delivered: May 08,96 7:58 AM
Status: Previously read
Subject: Reply to: burned area rehab

Reply text:
From: Reggie A. Fletcher:R03A
Date: May 08,96 7:58 AM
Both said and meant in context of those areas where orchard grass is already ubiquitious. However; my preference by far is to use seeding after these fires only where political pressure mandates it. Looking at large burns like the Coffeepot and Rattlesnake, the diversity from lack of seeding is many times what it would be with seeding. I continue to promote structural actions like contour felling of trees over seeding. Unless we are trying to feed livestock or elk I think we either waste our money or do more harm than good with seeding. Hope that puts my comment into context. Thoughts?

Preceding message:
From: Penny Luehring
Date: May 07,96 3:41 PM
Tom Skinner- acting DR at Safford- called me today and mentioned an old conversation he had with you. At that time, your feeling was that if we aren't able to obtain grass seed from locally derived genetic stock, we would be better off to plant a non-native like orchard grass. 1. did you say this? 2. did you mean it? 3. what is your opinion on this subject today? thanks- Penny

-------========X========-------

MESSAGE DISPLAY FOR PENNY LUEHRING

To BOB LEFEVRE:R03F05A
CC c.duncan:r03f05d04a
CC j.acree
CC c.kirkpatrick
BC Penny Luehring

From: Penny Luehring
Postmark: Sep 30,96 12:32 PM Delivered: Sep 30,96 12:32 PM

Subject: Reply to: Forwarded: Reply to: Forwarded: BAER final accomplishment

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Reply text:
From: Penny Luehring:R03A
Date: Sep 30,96 12:32 PM
After discussion with Chuck, it appears that only a small amount of the 13.5 miles is left to do (approx. .5 miles). Much time was spent this past summer in re-installing water bars that, for various reasons, weren't installed properly- thus the reason for the delay in the project accomplishment. Chuck feels that the work will be complete in about 2 weeks. Continue with the work as planned- making sure that you are still operating within the preventative objectives of your BAER authority and not repairing flood damage. Chuck will also see if there is some way to pay the corrections facility for oversight and transportation they provided to the inmate crews who did the BAER work. Submit a final 2500-8 when all costs are in. A short paragraph describing any cost underruns or savings will be very helpful for future planning. Penny

Preceding message:
From: BOB LEFEVRE:R03F05A
Date: Sep 30,96 10:37 AM
Apparently we're not ready to send the final report yet, and they want to carry over some money. Please call Chuck Duncan at (520)670-5462. Thanks!

Previous comments:
From: CHUCK DUNCAN:R03F05D04A
Date: Sep 30,96 10:19 AM
We still have some trail work to finish, we have completed 500 acres of seeding, approximately 300 acres mulched, and contour fell trees. We had 13.5 miles of trail to reconstruct. This is what we are working on now. Most of the trail work has been completed

----------X----------

MESSAGE DISPLAY FOR PENNY LUEHRING

To Penny
CC Doug

From: Art Briggs
Postmark: May 08,96 9:04 AM Delivered: May 08,96 9:04 AM
Status: Previously read
Subject: Forwarded: REHAB

Comments:
From: Art Briggs:R03A
Date: May 08,96 9:04 AM
fyi

Previous comments:
From: Reggie A. Fletcher:R03A
Date: May 08,96 7:53 AM
fyi

Message:
From: Thomas Skinner:R03F05D04A
Date: May 07,96 8:32 PM
I talked with Reggie Fletcher tonight, trying to get his opinion on seed mix. First he cautioned that, no matter what we do, we can anticipate major loss of soil down the watershed, unless we create structures to stop the loss. Seeding will not do the trick. Thus, the idea we are pursuing of felling trees across the slope is an idea he strongly recommends. Back to seeding: he said he has found a surprising array of rare species coming up in the Chiricahuas after the fire and believes the fact that not much seeding was done there resulted in lessened competition for nutrients, etc. to the advantage of the rare natives. Next, he noted that if we decide to seed in the vicinity of the RNA, its value as an RNA may change. Finally, if we feel the political pressure to seed, he does endorse the beardless barley (sterile) that Gregory and LeFevre suggest, says to use as much as we want. As far as orchardgrass, I think he still prefers it to, say, some of the brome grasses, because of concerns about seed sources harvested elsewhere that may contaminate local bromes genetically, but, again, cautions against any widespread seeding. He recognizes the downsteam impact i.e. on Ft. Grant but sees the soil loss as inevitable unless we can put trees, etc. on the ground in the way. Please consider these thoughts. Thanks for your help.

----------X----------