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United States
Department of
Agriculture

Forest
Service

Rocky
Mountain
Region

11177 W. 8th Avenue
Box 25127
Lakewood, CO 80225-0127

Reply to: 2520/6520

Date: September 30, 1988

Subject: Emergency Burn Rehabilitation Request--Hellroaring/Storm Creek Fire

To: Regional Forester, R-1

We have received your request for emergency burn rehabilitation funding for the Hellroaring/Storm Creek Fires, Gallatin NF, along with the supplemental narrative supplied by the Forest. We have approved \$447,000 as requested.

Use the code NFFF-FW22 when expending these funds. These expenditures, not to exceed the amount of authorization, must be offset at yearend with any unobligated FFP funds. The standards for qualifying emergency actions are outlined in FSM 2523 and FSH 2509.13. Please provide a final accomplishment report, using the 2500-8 form, 30 days after completing rehabilitation actions

We commend the team for the timely and thorough analysis.

/s/Larry R. Coffelt (for)

GARY E. CARGILL
Chairman, Greater Yellowstone
Coordinating Committee

cc: W. VanScyoc, O&F w/enc
Forest Supervisor, Gallatin NF w/enc
L. Schmidt, WO w/enc
WSA w/enc

1
447
134
581

BURNED AREA REPORT

DATE: 9/28/88

PART I - TYPE OF REQUEST

1. (List as appropriate) A. Funding Request
2. B. Interim

PART II - FIRE LOCATION

1. Fire name: ~~Hellroaring~~/Storm Creek
2. Supervisors Fire Number: ~~01-11-03-043~~/01-08-02-036
3. State: Montana
4. County: ~~Park~~/Stillwater
5. Region: 1
6. Forest: Gallatin
7. Ranger District: Gardiner
8. Date Started: ~~8/15/88~~ 7/3/88
9. Date Controlled: not available at this time
10. Estimated suppression costs: ~~\$44.6~~ million (as of 9/19/88) 7/6 sc
11. Fire suppression damage repaired with FFF 102 funds:
 - a. na. . miles of firelines waterbarred (not available at this time)
 - b. na. . acres of firelines seeded (not available at this time)
 - c. . . . other (identify)
12. Fire intensity 40% low 60% medium % high

PART III - NATIONAL FOREST SYSTEM PROBLEM INVENTORY

1. Watershed Number: ~~10-07-00-01-24~~ & 22, 10-07-00-06-20
 2. NFS acres burned: 66,550 (Gallatin NF only) 36,150
 3. Water repellant soil: 5% % NFS acres burned 100%
 4. Vegetation types: riparian 15%, meadow 25%, LP,DF,ES,SF,WBP Forested 60%
 5. Geologic types: Tertiary volcanics and glacial/landslide deposits, limestone/sandstone/shale sedimentary deposits, granite } sc
 6. Soil erosion hazard rating: 20% low 30% medium 50% high
 7. Erosion potential: 5120 cu.yd./sq.mi.
 8. Miles stream channel by regional order or class: 500 miles (order 1-4)
 9. Miles FS trails: 82 system, 20 non-system
- 40 0 22

PART IV - CALCULATED RISK AND CLIMATIC EVALUATION

1. Est. veg. recovery period: 5 years
2. Chance of success desired by management: 80%
3. Equivalent design recurrence: 25 years
4. Related design storm duration: 6 hours
5. Related design storm magnitude: 1.6 inches
5. Related design flow: 21 cfs
7. Estimated reduction in infiltration: 10%
8. Adjusted related design flow: 23 cfs

PART V SUMMARY OF SURVEY AND ANALYSIS

1. Skills represented on burned area survey team (list as appropriate):
fisheries, hydrology, geology, wildlife, engineering, silviculture/ecology,
cultural resources.
2. Describe emergency: Hellroaring/Storm Creek fires burned 66,550 acres in
Hellroaring/Buffalo Fork/Slough Creek/Soda Butte/Clark Fork drainages, about
38,600 acres of which has considerable reduction in protective ground cover
which could result in accelerated erosion and sedimentation if not treated.
The burned area has an extensive network of trails, which if not stabilized,
could further accelerate erosion and sedimentation. These drainages have about
170 miles of fishery streams (within the Gallatin NF) which could be damaged.
These watersheds are in the Absaroka-Beartooth Wilderness and are tributary to
the Yellowstone River in Yellowstone National Park.
3. Emergency rehabilitation objective: Reduce erosion and sedimentation
associated with vegetative damage. The primary emphasis would be emergency
stabilization (drainage) of trails, seeding adjacent to riparian areas, and
construction of log erosion barriers, particularly in areas where protective
ground cover is gone.
4. Probability of completing treatment prior to first major damage producing
storm:
Land 80% Channel % Roads % Other-trails 80%
5. Net Environmental-quality benefit index: significant
6. Net Social-well-being benefit: significant
7. Benefit/cost ratio: 4.8:1
8. Net benefits: \$2,945,900
9. Cost effectiveness index (choose one): a. x I b. II c. III d. IV

PART IV

ELIGIBLE EMERGENCY REHABILITATION MEASURES OR TREATMENTS AND SOURCE OF FUNDS

(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 LAND				total \$
	Units	Unit cost	units #	FFF 092 \$	other \$	units #	federal \$	non-fed \$	
A. LAND	.	.	.	.	.	.	.	.	.
Seeding	.	.	.	.	.	.	.	.	.
Storm Cr. .Acres.	26.	2450.	63,000.	.	150.	4,000.	.	.	87,000
Hellroaring Acres	26	820	20,000.	.	.	.	.	.	.
Log Erosion	.	.	.	.	.	.	.	.	.
Barriers	.	.	.	.	.	.	.	.	.
Storm Cr. .Acres.	130.	350.	45,000.	.	50.	7,000.	.	.	52,000
B. TRAILS	.	.	.	.	.	.	.	.	.
Storm Cr. .Miles.	3967.	61.	242,000.	.	.	.	.	.	.
Hellroaring Miles.	.	60.	52,000.	.	.	.	.	.	.
Approved	.	.	(134,000)	.	.	.	.	.	428,000
C. OTHER	.	.	.	.	.	.	.	.	.
Survey Team	.	.	25,000.	.	.	.	.	.	25,000
D. TOTAL	.	.	.	581,000	.	.	.	.	592,000
E. PREVIOUSLY APPROVED	.	.	.	134,000	.	.	.	.	.
F. TOTAL ADDITIONAL (this request)	.	.	.	447,000	.	.	.	.	.

PART VII - APPROVALS

Forest Supervisor approval and date: /s/ ..ROBERT S. GIBSON...9/28/88...
For: RF - Region 1

Regional Forester approval and date: /s/ ..JOHN HUGHES 9/28/88.....

Chairman, Greater Yellowstone Coord-

inating Committee approval and date: /s/ ..LARRY R. COFFELT...9/30/88
For: RF - Region 2

HELLROARING/STORM CREEK FIRES
GALLATIN NATIONAL FOREST
NARRATIVE FOR REHABILITATION REPORT

This emergency fire rehabilitation proposal includes watershed rehabilitation for Gallatin National Forest lands damaged by the Hellroaring/Storm Creek fires. This report updates a previous report prepared for the Hellroaring drainage portion of the Hellroaring fire which was funded for \$134,000 of trail/watershed stabilization.

The Hellroaring/Storm Creek fires burned (within an approximate 200,000 acre perimeter) National Forest lands (Gallatin and Custer NF's), National Park Service lands (Yellowstone NP), and private lands. Of the burned acres, approximately 58,900 are located in the Hellroaring/Buffalo Fork/Slough Creek drainages in the southern portion of the 927,374 acre Absaroka-Beartooth Wilderness in southwestern Montana, approximately 3,900 around Silvergate and Cooke City within the Soda Butte Creek drainage which flows into Yellowstone National Park, and approximately 3,750 in the upper reaches of the Clarks Fork of the Yellowstone River.

The burned area ranges from 6,500 to 9,800 feet in elevation. Predominant forest canopy is lodgepole pine, Engleman spruce, subalpine fir, and whitebark pine. These drainages are very scenic, with a well established recreation resource of Yellowstone cutthroat trout fishing and elk hunting. The area includes prime grizzly bear habitat. The Silvergate and Cooke City areas provide motorized recreation, mining activity, and a variety of multiple-use activities. Much of the area affected by the Hellroaring/Storm Creek fires has an extensive network of well used trails.

Most of the burned areas have moderate to high erosion hazard soils with many slopes that exceed 40%, therefore accelerated erosion, sedimentation, and damage to the trail system is expected to be significant without emergency rehabilitation. Many of these trails are very incised into the terrain, and would be expected to be severely eroded without stabilization, resulting in additional erosion and sedimentation unless emergency rehabilitation actions are taken (waterbars, and drainage).

Several stream zone and adjacent side slope areas were moderately burned, with little residual vegetative sediment filtration. The hillsides north of Silvergate and Cooke City burned with moderate fire intensity, with potential damage to downslope property on private lands.

Potential sediment increase could damage Yellowstone cutthroat trout habitat in the four drainages entering Yellowstone National Park.

Five alternatives were evaluated including: 1) no action; 2) seeding of slopes adjacent to riparian areas that were burned, and seed the burned slopes above Silvergate and Cooke City; 3) trail/watershed stabilization; 4) seeding and trail/watershed stabilization; 5) seeding, trail/watershed stabilization, and installation of erosion barriers above Silvergate and Cooke City.

Alternative 5 was selected. This alternative provides treatment for the burned riparian/hillside areas (seeding with a cereal rye 400 feet each side of the stream channel), prevents accelerated erosion and sedimentation of the trail system, and log erosion barriers on 400 acres above Silvergate and Cooke City provide protection of private property and the Cooke City water system. The USDA Soil Conservation Service cooperated in this analysis and will submit a funding request for the seeding and log erosion barrier treatments on private lands as shown in Part IV.

Seed mixture information includes:

Hellroaring fire (all Wilderness)

20# cereal rye/acre

725 acres

Storm Creek fire
Wilderness

20# cereal rye/acre
on 2075 acres

Non-Wilderness

20# cereal rye/acre
on 200 acres

20# cereal rye/acre
5# mountain brome/acre
1# hard fescue/acre
3# orchard grass/acre
1# white dutch clover
on 400 acres