



United States  
Department of  
Agriculture

Forest  
Service

Northern Region

200 E. Broadway  
P.O. Box 7669  
Missoula, MT 59807

---

**File Code:** 6520/2520-3

**Date:** September 22, 2000

**Route To:**

**Subject:** Blacktail Fire, Burned Area Emergency Rehabilitation (BAER)

**To:** Forest Supervisor, Dakota Prairie Grasslands

Enclosed is the approved Initial Burned Area Rehabilitation (BAER) for the Blacktail Fire. You are authorized to spend up to \$52,000 for the assessment, land and road treatment and monitoring activities shown in Part VI of the report. Should there be a need for out year monitoring, you must submit an interim request that describes monitoring needs based on the previous year's results.

The SULT job code for this action is P10080. Please provide me with your Final Accomplishment Report (FS 2500-8), describing actual costs and accomplishments, within 60 days of project completion. Based on your monitoring schedule, a monitoring report is due by September 15, 2001. Contact Bruce Sims (406)-329-3447 if you have any questions.

*/s/ Kathleen A. McAllister*

DALE N. BOSWORTH  
Regional Forester

Enclosure









Date of Report: 8/30/2000

**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 DESCRIPTION**A. Fire Name: Blacktail ComplexB. Fire Number: P19002C. State: North DakotaD. County: BillingsE. Region: 01F. Forest: Dakota Prairie GrasslandsG. District: Medora Ranger DistrictH. Date Fire Started: 08/26/2000I. Date Fire Contained: 8/31/2000J. Suppression Cost: \$285,000

## K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 1 mile  
2. Fireline seeded (miles): 6.2 miles  
3. Other (identify): dozer lines water bars 5.2

L. Watershed Numbers: Blacktail Creek 101102030321  
Ranch Creek 101302020201  
Paddock Creek 101102030312  
Andrews Creek 101102030310  
Magpie Creek 101102050104

M. Total Acres Burned: 2973

NFS Acres(2297 ) Other Federal (278 ) State ( ) Private (398 )

N. Vegetation Types: Grasslands:

Agropyron smithii-Stipa comata

Agropyron smithii-Stipa viridula

Agropyron smithii-Stipa viridula-Bouteloua gracilis

Stipa comata-Carex filifolia

Shrublands:

Artemisia cana-Agropyron smithii

Atriplex confertifolia

Juniperous horizontalis-Andropogon scoparius

Rhus aromatica-Muhlenbergia cuspidata

Symphoricarpos occidentalis

Woodlands

Fraxinus pennsylvanica / Prunus virginiana

Juniperous scopulorum / Oryzopsis micrantha

O. Dominant Soils: The soils are Cheyenne gravelly loam, Badlands rough and broken lands, Scoria, Bainesville clay loam, and Morton loam with slopes >40%.

P. Geologic Types: The topography includes a dissected plateau of high plains under lain mainly by stratified layers of shales and clays, sandstones, siltstone and interspersed lignite coal beds of the Fort Union Formation of the Tertiary period.

Q. Miles of Stream Channels by Order or Class: Intermittent = 11 miles NFS

R. Transportation System

Trails: 0 miles

Roads: 11 miles NFS

**PART III - WATERSHED CONDITION**

A. NFS Burn Severity (acres): 1331 (low) 400 (moderate) 1242 (high)

B. NFS Water-Repellent Soil (acres): 1242

C. NFS Soil Erosion Hazard Rating (acres): 1219 (low) 618 (moderate) 1136 (high)

D. Erosion Potential: 15 tons/acre

E. Sediment Potential: 20 cubic yards / square mile

**PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years): 3 - 5

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years):	<u>100</u>
D. Design Storm Duration, (hours):	<u>6</u>
E. Design Storm Magnitude, (inches):	<u>.5 – 5</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>18 cfs</u>
G. Estimated Reduction in Infiltration, (percent):	<u>70%</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>8.8 to 20.9 depending on location</u>

## **PART V - SUMMARY OF ANALYSIS**

A. Describe Watershed Emergency: The Blacktail complex fire included fires burning often simultaneously in 5 different watersheds that are not in proximity to one another. They all appear to be a result of lighting strikes. The vegetation, shrubs and woodies in the Blacktail, Square Butte and Magpie Creek watersheds burned at a high intensity on 38% of the acreage. In those areas the soil was left bare with decreased infiltration and in some areas the soil exhibited hydrophobic properties. Most of soils were located on 20-30% slopes and they are highly erodible soils. Rehabilitation is needed immediately in those areas located adjacent to roads and streams. The streams are intermittent and extremely sensitive to any form of overland flow or increased water quantities caused by short duration high intensity storms characteristic of the climate. Runoff from the anticipated high intensity storms will over top existing road drainage facilities. Some suppression activities were not adequate and some additional fireline rehabilitation/fence repair will be conducted using BAER funding.

Threats to Life and Property: The tree snags along the roads need to be cut due to the danger it presents to those working in the area and recreationist (hunting season). Damage to roads become a safety and property issue in the Blacktail Fire because of the heavy use of the road by the local residents and the oil well complex companies operating within the area.

Threats to Water Quality: The threat to water quality is high due to the increased runoff and erosion from the burn area.

Threats to Long-term Soil Productivity and Ecosystem Integrity: Field reviews within the burn area indicate there are serious threats to soil productivity and ecosystem integrity. Erosion will also cause increased sediment within the streams which may change the plant community composition and place some areas at risk for invasive species. Wildlife will also be affected by the lack of cover that had been provided by the woody areas.

### Threats to Heritage Resources:

Square Butte & Magpie Fires: There was minimal ground disturbance. These fires did not damage any developed or dispersed recreation sites.

Blacktail Fire: Topography consists of largely Badlands. Vegetation consists of little blue stem, western juniper and green ash/choke cherry components on the slopes, Blue gamma and western wheatgrass. A review of DPG records indicate approximately 15 previous archaeological surveys that covered a large part of the area. No previously recorded archaeological sites were in the vicinity and the fire was in an area of low probability. Ground disturbed by the fire activity was inspected by walking some areas and driving around others. It was noted that most of the catlines were restricted to existing roads. Neither the archaeological review of records nor the survey work uncovered any cultural resources at risk.

Talkington Fire: Topography consists of largely rolling prairie. Vegetation consists of Blue gamma, western wheatgrass and Crested wheatgrass. DPG records showed no previously recorded archaeological sites. The

remains of a homestead had been burned over and this information was recorded in archaeological records although this site had been previously determined to be insignificant.

**B. Emergency Treatment Objectives:** A variety of emergency treatments are recommended to significantly reduce the risk of emergency watershed conditions and threats to public health and safety. Treatment objectives are also designed to minimize soil loss, maintain soil productivity and reduce runoff and dissipate stream energy as a result of storm events and increases in peak streamflows.

We will perform the following treatments:

- 1) replace undersized and damaged culverts and install a sediment cache to prevent damage to the road;
- 2) design and construct waterbars in areas above water developments and stream channels at risk of receiving increased sediment flow;
- 3) seed those areas where all woody debris has been removed due to the high intensity of the burn to decrease erosion;
- 4) cut down snags along the roads and in areas where there may be human activity to insure safety;
- 5) cut and fell snags on slopes to aid in the dissipation of energy caused by storms to slow erosion and the flow of sediment into adjacent streams.
- 6) place signs in locations that may be used by the public warning of unsafe conditions
- 7) rehab firelines and re-splice fence lines where suppression crews efforts are not adequate

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

Land 95 % Channel 95 % Roads 95 % Other    %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	65%	85%	90%
Channel	75%	85%	95%
Roads	90%	100%	100%
Other			

E. Cost of No-Action (Including Loss):

F. Cost of Selected Alternative (Including Loss):

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

Team Leader: Sharon M. Ross

Email: sross@fs.fed.us

Phone: (701) 250-4443

FAX: (701) 250-4454



## **H. Treatment Narrative:**

### Land Treatments:

Magpie and Square Butte Fires: The fires at Magpie and Square Butte will not require any rehabilitation.

Talkington Fire: The Talkington Fire had been disked around Riparian areas for approximately 20 acres. The treatment is to drill or broadcast seed the area with native species (erodibility of the soil prohibits broadcasting) revegetating the area to reduce erosion and provide vegetation in the Spring in those areas with high intensity fires and hydrophobic soils. Water bars are placed strategically on slopes near water reservoirs to prevent overland flow and increased sediment into the nearby water reservoirs. Fell burned trees parallel to the contour of the hill sides to assist with decreased erosion.

Blacktail Fire: Fell burned trees parallel to the slopes to reduce erosion into the adjacent streams and culverts. Install water bars to prevent erosion into the nearby streams, culverts and onto the roads. Remove hazardous trees from the road side as well as those areas where rehab activities will take place. Monitor water bars after first rain event.

Monitor all areas for invasive species and to insure that all suppression activities have been mitigated. Drill or broadcast seed all areas where all woody debris has been removed due to the high intensity of the burn to decrease erosion caused by the snow melt in the Spring.

### Channel Treatments:

Magpie and Square Butte Fires: No adjacent water developments or streams.

Blacktail Fire: Construct water bars in two areas. Cut and fell snags parallel to the slopes adjacent to Blacktail Creek and the 2 water developments. This will aid in the dissipation of energy caused by storms and the flow of sediment into adjacent streams that would decrease water quality and quantity. Replace 3 smaller culverts with a larger design to prevent the gulying of the adjacent road. Add a sediment catch above the stream near the road to prevent the destruction of the low water crossing in Blacktail Creek.

Talkington Fire: No stream channels

### Roads and Trail Treatments:

Blacktail: Cut down all snags along the roads and in areas where there may be human activity to insure safety and place signs along corridors to warn the public of safety issues.

### Structures:

Magpie, Square Butte, and Blacktail: no structures

Talkington: Replace cattle guard destroyed by the fire for safety reasons.

## **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.)

A report documenting qualitative review of treatments will be conducted during August 2001 to determine overall effectiveness. Photos of treatments will be included in the report.

#### 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											
drill seed	acre	280	25	\$7,000				\$0		\$0	\$7,000
contour falling	tree	10	40	\$400				\$0		\$0	\$400
rehab handline	mile	1300	1	\$1,300				\$0		\$0	\$1,300
broadcast seed	acre	480	20	\$9,600				\$0		\$0	\$9,600
Subtotal Land Treatments				\$18,300				\$0		\$0	\$18,300
B. Channel Treatments											
sediment dams	ea	500	3	\$1,500				\$0		\$0	\$1,500
contour falling	acre	400	4	\$1,600				\$0		\$0	\$1,600
				\$0				\$0		\$0	\$0
				\$0				\$0		\$0	\$0
Subtotal Channel Treat.				\$3,100				\$0		\$0	\$3,100
C. Road and Trails											
culvert upsize	ea	1700	2	\$3,400				\$0		\$0	\$3,400
remove hazard trees	job	400	1	\$400				\$0		\$0	\$400
road patrol	mile	300	3	\$900				\$0		\$0	\$900
water bars	each	50	15	\$750				\$0		\$0	\$750
Subtotal Road & Trails				\$5,450				\$0		\$0	\$5,450
D. Structures											
cattle guard base	ea	2000	1	\$2,000				\$0		\$0	\$2,000
fence breaks	ea	250	7	\$1,750				\$0		\$0	\$1,750
closure signs	ea	200	25	\$5,000				\$0		\$0	\$5,000
				\$0				\$0		\$0	\$0
Subtotal Structures				\$8,750				\$0		\$0	\$8,750
E. BAER Evaluation											
salaries	team	14,000	1	\$14,000				\$0		\$0	\$14,000
travel & per diem	team	1400	1	\$1,400				\$0		\$0	\$1,400
F. Monitoring	report	1000	1	\$1,000				\$0		\$0	\$1,000
G. Totals				\$52,000				\$0		\$0	\$52,000

#### PART VII - APPROVALS

1. /s/ Jim Wickel Acting  
Forest Supervisor (signature)

9/18/2000  
Date

2. /s/ Kathleen A. McAllister  
Regional Forester (signature)

09/22/00  
Date