

**Missouri Breaks Fire Complex (F176,F205,F207,F216)
BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION (ESR) PLAN**

AGENCY/UNIT: Charles M. Russell National Wildlife Refuge

LOCATION: Jordan, Garfield County, Montana

DATE: September 4, 2003

PREPARED BY: Paul Pallas, Assistant Fire Management Officer

Submitted By: _____ Date: _____
Mike Hedrick, Project Leader

REVIEW AND APPROVAL

Charles M. Russell National Wildlife Refuge

I. Suppression Operations Funding Approval (check one box below):

- * Approved
- * Approved with Revision (see attached)
- * Disapproved

Mike Hedrick, Project Leader, Date

II. Burned Area Rehabilitation (9262) Funding Approval (check one box below):

- * Approved
- * Approved with Revision (see attached)
- * Disapproved

Title Date

Regional Fire Management Coordinator concurrence that the plan fits the technical definition for use of Burned Area Rehabilitation finding. *(U.S. Fish and Wildlife Service Only)*

Regional Fire Management Coordinator, Region Date

III. Agency Operational Base Funding Approval (check one box below):

- * Approved
- * Approved with Revision (see attached)
- * Disapproved

Title

Date

III. Burned Area Rehabilitation Funding Approval (check one box below):

- * Approved
- * Approved with Revision (see attached)
- * Disapproved

Title

Date

EXECUTIVE SUMMARY

Introduction

This plan has been prepared in accordance with US Fish and Wildlife Service policy. This plan provides Burned Area Emergency Stabilization and Rehabilitation (ESR) recommendations for lands burned within the Missouri Breaks Complex. This complex included the following fires; Germaine, Indian, Big Coulee, Ghost Coulee fires perimeters and downstream impact areas. The primary objectives of the Missouri Break Complex ESR Plan are:

Emergency Stabilization

- " To prescribe cost effective post-fire stabilization measures necessary to protect human life, property, and critical cultural and natural resources.
- " To promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter or downstream impact areas and mitigate damages caused by fire suppression operations in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

Rehabilitation

- " To repair or improve lands unlikely to recover naturally from severe wildland fire damage by emulating historic or pre-fire ecosystem structure, function, diversity, and dynamics according to approved land management plans.
- " Restore or establish healthy, stable ecosystems, even if these ecosystems cannot fully emulate historic or pre-fire conditions as specified in approved land management plans.

This plan addresses emergency stabilization and rehabilitation of fire suppression and fire damages.

The burned area has been surveyed for resource damage. The team has determined that natural regeneration should adequately reclaim the affected areas if damaged fences are immediately replace/repared. This will allow resting of the burned areas from grazing which will promote natural regeneration. All damaged fences have been identified. Specifics are found in the attached document (Inventory of fire damaged fences on the CMR NWR within the Missouri Breaks fire Complex).

The ESR team consisted of Paul Pallas - AFMO; Nathan Hawkaluk - Range Technician; Steve Henry - GIS Coordinator/Ecologist; Randy Matchett - Complex Biologist; and Tim Miller - Refuge Operation Specialist. The areas burned include riparian areas along the Missouri River, grass-savanna ridges, ponderosa pine juniper-forest and the sagebrush-grass zones.

The team found extensive damage to the ponderosa-juniper areas. Other zones had quick moving short duration fires or moderate intensity backing fires. Natural regeneration will likely occur.

A summary of the costs by jurisdictions is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains the Fence inventory and map.

Fire Background

The Missouri Breaks Complex is comprised of the Germaine, Indian, Big Coulee and Ghost Coulee fires. The fires were ignited by a dry lightning storm which came through the area on July 12. The fire made large sustained runs for the next few days and a Type II Incident Management team took over the fires on July 14. Extreme fire behavior was fueled by 100 degree temperatures low relative humidity and high winds. When the weather pattern changed, suppression resources were able to get the upper hand on the fires.

Many resources were involved with the suppression of the fires from hand crews to aircraft. During the early days of the fires, many primary structures were threatened and protection of those homes was priority.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

Numerous fences were damaged by burn out operations during suppression activities. These damages are as follows:

- 1 Mussellshell enclosure,
- 2 Sherman-Germaine Coulee fence,
- 3 North Germaine Coulee Fence and
- 4 Anderson point-Squaw creek fence.
- 5 Devils creek Recreation Area
- 6 Southwest Devils Creek

The following fences were damaged by the fire and were not the result of suppression activities:

- 7 Herman Ridge and
- 8 7-Blackfoot

An attached inventory of fence damage is in Appendix II.

Charles M. Russell National Wildlife Refuge Management Requirements

The area lies within the CMR National Wildlife Refuge and is adjacent to an important recreational area (Devils creek boat ramp and camp ground). The site is popular for boating and is used by tourists and local residents alike.

Emergency Stabilization

Guidance for rehabilitation of wildfire areas is provided by the U.S. Fish and Wildlife Service Fire Management Handbook (Release: 7/17/00) and 095 FW3 (2/00). Guidance limits the use of fire rehabilitation funds to stabilize soils and biotic communities no later than 2 growing seasons, or a maximum of 3 years after initial plan approval. The stabilization of biotic communities should minimize unacceptable changes to ecosystem structure and function resulting from wildfire. Such stabilization allows for the establishment of shrubs, forbs, grasses, and trees if demonstrated to meet project

objectives. Also allowed are efforts to minimize the establishment of non-native invasive species to prevent burned area degradation.

Rehabilitation

The following statements in approved Charles M. Russell National Wildlife Refuge management plans justify the proposed burned area rehabilitation treatments funded with Burned Area Rehabilitation funds.

Habitat analysis indicates deciduous shrub communities are in short supply on the refuge, and historical accounts indicate shrubs were once more abundant than they are today. A combination of actions would be taken to improve the present situation.

Management actions would probably be adjustment in grazing, burning, and planting, in that order. Shrubs would be planted to reestablish a seed source for natural revegetation. (Charles M. Russell Final Environmental Impact Statement; Galen Buterbaugh, Regional Director, Region 6; August 1985.)

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PART A - FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Missouri Complex
Fire Number	F176,F205,F206,F216
Agency Unit	61520
Region	6
State	MT
County(s)	Garfield
Ignition Date/Cause	7/12/2003 Lightning
Zone	
Date Controlled	7/27/2003
Total Acres	131,000 acres
Charles M. Russell National Wildlife Refuge	Jordan Wildlife Station
Refuge Acres	15,200
Date Contained	7/23/2003

PART B - NATURE OF PLAN

I. Type of Plan (check one box below)

<input checked="" type="checkbox"/>	Emergency Stabilization
<input type="checkbox"/>	Rehabilitation
<input type="checkbox"/>	Both Emergency Stabilization and Rehabilitation

II. Type of Action (check one box below)

<input checked="" type="checkbox"/>	Initial Submission
<input type="checkbox"/>	Updating or Revising the Initial Submission
<input type="checkbox"/>	Supplying Information of Accomplishment to Date on Work
<input type="checkbox"/>	Different Phase of Project
<input type="checkbox"/>	Final Accomplishment Report (To Comply with the Closure of the 9262 Account)

PART C - EMERGENCY STABILIZATION AND REHABILITATION ASSESSMENT

Emergency Stabilization Objectives

- " re-establish native shrubs and trees to prevent excess erosion and site degredation

Rehabilitation Objectives

- " Prevent aggressive regrowth and re-establishment of undesirable exotic plant species such as Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*) and Russian knapweed (*Acroptilon repens*).
- " Reestablishment of native plant community.

PART D - TEAM ORGANIZATION, MEMBERS, AND RESOURCE ADVISORS

I. Approval Authorities

Activities Requiring Regional/State/Headquarters Approval Emergency Stabilization and Rehabilitation (charged to BAR)	Status	Cost
	P	\$86454
Subtotal		\$86454

Status: C=Completed,; O=Ongoing; P=Planned

Total Emergency Stabilization and Rehabilitation Costs	\$86454
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II. Burned Area Emergency Stabilization and Rehabilitation (ESR)Team Members:

Position	Team Member (Agency)
Team Leader	Paul Pallas
Operations	Nathan Hawkaluk
Vegetation Specialist	Robert Skinner
Wildlife Biologist	Randy Matchett
GIS Specialist	Steve Henry
Photographer	Tim Miller
<i>Other Technical Specialists</i>	

III. Resource Advisor

Name	Affiliation
Mike Hedrick	Charles M. Russell National Wildlife Refuge NWR, Project Leader

PART E - SUMMARY OF ACTIVITIES AND COSTS

The summary of activities and cost table below identifies emergency stabilization and rehabilitation costs charged or proposed for funding from Suppression Operations, Burned Area Rehabilitation, agency operation, and other funding sources. Expenditures are displayed in the total cost column. They are coded with the appropriate cost authority. The total cost of the rehabilitation effort to date, excluding the costs absorbed by the fire account (fire crews, labor, and associated overhead) is displayed as either Suppression Operations (F), Burned Area Rehabilitation (BAR), Emergency Watershed Protection (EWP), or Agency Operations/Other (O/OP) or other.

Fire Name: Missouri Breaks Complex

As of. 09/04/2003

Specification Cost Summary

Account	Dollars	Dollars
Fire Suppression Activity Damage Rehabilitation (F)		\$0
Burned Area Rehabilitation (BAR)		\$86,454
Emergency Stabilization		
Rehabilitation	\$	\$86,454
Emergency Watershed Protection (EWP)		\$0
Agency Operations/Other (OP/O)		\$0
Funding Summary - Estimated Total		\$86,454

**PART E - SUMMARY OF REHABILITATION ACTIVITIES - COST SUMMARY TABLE -
Rocky Point Fire**

Spec #	Title	Unit	Unit Cost	# of Units	Cost by Funding Source		Implementation Method	Specification Total
					BAR	OP/O		
	Set post 19.17 miles	ea	\$ 10.06	575.1	\$ 5,786	\$	P,C	\$ 5,786
	brace post	ea	\$ 5.88	383.4	\$ 2,254	\$	P,C	\$ 2,254
	steel post	ea	\$ 1.85	8051	\$ 14,895	\$	P,C	\$ 14,895
	roll of wire	roll	\$ 28.85	307	\$ 8,857	\$	P,C	\$ 8,857
	wire clips bag of 100	bag	\$ 4.00	249	\$ 996	\$	P,C	\$ 996
	stays	ea	\$ 0.24	6134	\$ 1,472	\$	P,C	\$ 1,472
	miscellaneous supplies		\$ 250.00	19	\$ 4,750	\$	P,C	\$ 4,750
			\$		\$		P,C	\$
	Americorp crew 8 person	week	\$ 3,000.00	15	\$ 45,000	\$	C	\$ 45,000
	fence 7&8 1.36 miles	ea	\$ 10.06	30	\$ 301		P,C	\$ 301
	set post							
	brace post	ea	\$ 5.88	15	\$ 88		P,C	\$ 88
	steel post	ea	\$ 1.85	55	\$ 1,034		P,C	\$ 1,034
	rolls wire	ea	\$ 28.85	21	\$ 606		P,C	\$ 606
	stays	ea	\$ 0.24	320	\$ 77		P,C	\$ 77
	bags of clips	bag	\$ 4.00	22	\$ 88		P,C	\$ 88
	miscellaneous supplies	ea	\$ 250.00	1	\$ 250		P,C	\$ 250
TOTAL COST					\$ 86,454	\$ 0		\$ 86,454
COST: BAR=Burned Area Rehabilitation, OP/O=Agency Operations Funding, Other METHOD: FC=Crew Assigned to Fire, C=Contract, EFC=Emergency Fire Contract, P=Agency Personnel								

PART F - INDIVIDUAL TREATMENT SPECIFICATIONS

SPECIFICATION TITLE:	Habitat Unit Fence Reconstruction	AGENCY:	FWS
PART E LINE ITEM:		FISCAL YEAR(S) (list each year):	2004

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

<p>Number and Describe Each Task: Rebuild all fence damaged by suppression activities within the Missouri Breaks Complex. Those fence are referred to as # s 1,2,3,4,5,6 in the attachment in Appendix II</p> <p>A. General Description: see attached maps of fences</p> <p>B. Location/(Suitable) Sites: see attached maps of fences</p> <p>C. Design/Construction Specifications:</p> <ol style="list-style-type: none"> Place fences as close to original location as possible. Build fence as directed by CMR representative, specification will be for a four wire Antelope fence. <p>D. Purpose of Treatment Specifications: Fence will re-establish habitat management units. Without repaired fences, livestock (bovine, bison) will move freely throughout the burn units. Impacts will be detrimental to the natural establishment of native vegetation. Currently 250 bison are freely moving throughout the burn unit. These animals will easily revert back to the wild and have the potential to become a major management/political nightmare if the situation is not rectified.</p> <p>E. Treatment Effectiveness Monitoring Proposed: Photos and on site observation.</p>
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II. LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	COST/ITEM
GS-6 for 80 hours for 2 years	\$3,500
TOTAL PERSONNEL SERVICE COST	\$3,500
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	COST/ITEM
1 mile of fence supplies x 19.17 miles	\$41,454
TOTAL MATERIALS AND SUPPLY COST	\$41,454
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	COST/ITEM
	\$0
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST/ITEM
AMERI-CORP crew for 15 weeks	\$45,000
TOTAL CONTRACT COST	\$45,000

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNITS COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
FY_04_	Missouri Complex	\$86,454.00	1.0	\$86,454	BAR	P,C
FY__						
FY__						
FY__						
FY__						
TOTAL		\$86,454.00	1.0	\$86,454	BAR	P,C

FUNDING SOURCE

- F** - Suppression Operations
- BAR** - Burned Area Rehabilitation
- EWP** - Emergency Watershed Protection
- OP/O** - Agency Operations/Other

METHODS

- P** - Agency Personnel Services
- C** - Contract (long-term)
- EFC** - Emergency Fire Contract (short-term)
- FC** - Incident Management Crew Assignment

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	X
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, E = Equipment M = Materials/Supplies, T = Travel, C = Contract, F = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within ESR Plan Accomplishment Report (for Rehabilitation treatments quote (include page number, approving officials name, and date approved for review and auditing purposes) pertinent passages from approved land management plans:

PART G - POST-REHABILITATION REQUIREMENT¹

The following are post-rehabilitation, implementation, operation, maintenance, monitoring, and evaluation actions beyond three years to ensure the effectiveness of initial investments. Estimated annual cost and funding source is indicated.

Emergency Stabilization and Rehabilitation

1. Long-term Monitoring

- A. Monitor riparian vegetation recovery (\$1,000 - OP/O)

¹ Non-9262 funding

APPENDIX I - ESR BURNED AREA ASSESSMENT REPORTS

Missouri Breaks Complex Resource Damage Assessment Report

I. Objectives

To assess the damage to CMR resources during the Missouri Breaks Complex fire. It was found that 20.5 miles of fence were damaged by the fire or suppression activities.

II. Observations

A. Background Information

On July 16-27, 2003 the Missouri Break Complex fires burned approximately 131,000 acres of FWS, BLM, State and private lands. Of which, 15,200 acres were on CMR. Several fences were burned on the refuge as a result of suppression actions (backfiring off of major roads). Cooperators have already begun the rehabilitation process. The CMR ESR team has determined fence reconstruction is the only rehabilitation the units will require. Fences are a critical element to the natural regeneration of the burned areas. Fences allow managers the latitude to rest areas from livestock grazing from one to three years following a fire. This is key to promoting natural regeneration of native grass, shrubs and forbs. This process is already taking place thus seeding will not be required.

B. Reconnaissance Method

Helicopter flights were used to map and survey the fences within the Complex. On site evaluations were also performed.

C. Findings

The area will naturally regenerate, dependent upon fence re-construction.

III. Recommendations

A. Management

Rebuild damaged fences and rest units from livestock grazing from 1-3 years.

B. Specification Monitoring

Evaluate the areas after fences have been replaced to see how regeneration is progressing. Any additional rehabilitation will be determined upon further evaluation, one and two years after the burn.

IV. Consultations

CMR Staff

V. References

Charles M. Russell NWR Environmental Impact Statement, 1985.

APPENDIX II - ENVIRONMENTAL COMPLIANCE

Federal, State, and Private Lands Environmental Compliance Responsibilities

All projects proposed in the Missouri Breaks Fire Complex ESR Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); U.S. Fish and Wildlife Service Fire Management Handbook (Release 7/17/00) and 095 FW3, 3.9 B,C.. This Appendix documents the ESR Team considerations of NEPA compliance requirements for prescribed rehabilitation and monitoring actions described in this plan for all jurisdictions affected by the Missouri Breaks Fire Complex burned area emergency.

Related Plans and Cumulative Impact Analysis

Charles M. Russell National Wildlife Refuge Environmental Impact Statement (1985) was reviewed and it was determined that actions proposed in the Missouri Breaks Fire Complex ESR Plan within the boundary of the Charles M. Russell National Wildlife Refuge are consistent with the management objectives established in the FEIS.

Cumulative Impact Analysis

Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The emergency protection and rehabilitation treatments for areas affected by the Missouri Breaks Fire Complex, as proposed in the Missouri Breaks Fire Complex ESR Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

Applicable and Relevant Categorical Exclusions

The individual actions proposed in this plan for rehabilitation of the Missouri Breaks Fire Complex are Categorically Excluded from further environmental analysis as provided for in DM 516, DM 6, Appendix 1, 1.4 (4), (5), (6), (9), and (11).

Statement of Compliance for the Missouri Breaks Complex Fire Burned Area Emergency Stabilization and Rehabilitation Plan.

This section documents consideration given to the requirements of specific environmental laws in the development of the Missouri Breaks Fire Complex ESR Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Missouri Breaks Fire Complex ESR Plan:

- " National Historic Preservation Act (NHPA).
- " Executive Order 11988. Floodplain Management.
- " Executive Order 11990. Protection of Wetlands.
- " Executive Order 12372. Intergovernmental Review.
- " Executive Order 12892. Federal Actions to Address Environmental Justice in Minority and Low-income Populations.
- " Endangered Species Act.
- " Secretarial Order 3127. Federal Contaminated
- " Clean Water Act.
- " Clean Air Act.

NEPA Checklist: If any of the following exception applies, the ESR Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)

- Adversely affect Public Health and Safety
- Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
- Have highly controversial environmental effects.
- Have highly uncertain environmental effects or involve unique or unknown environmental risks.
- Establish a precedent resulting in significant environmental effects.
- Relates to other actions with individually insignificant but cumulatively significant environmental effects.
- Adversely effects properties listed or eligible for listing in the National Register of Historic Places
- Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
- Threaten to violate any laws or requirements imposed for the "protection of the environment" such as Executive Order 1 1 988 (Floodplain Management) or Executive Order 1 1 990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

- None
- Ground disturbance did occur and an archeologist survey, required under section 110 of the NHPA will be prepared. A report will be prepared under contract as specified by the ESR Plan.

A NHPA Clearance Form:

- Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106.
- Is not required because the ESR Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes) (No)

- Does the ESR Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
- Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted.

I have reviewed the proposals in the Missouri Breaks Fire Complex Burned Area Emergency Stabilization and Rehabilitation Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore it is categorically

excluded from further environmental (NEPA) review and documentation. ESR Team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

ESR Team Environmental Protection Specialist

Date

Project Leader, Charles M. Russell National Wildlife Refuge

Date

**APPENDIX I FENCE INVENTORY
INVENTORY OF FIRE-DAMAGED FENCES
ON THE CHARLES M. RUSSELL NWR
WITHIN MISSOURI BREAKS FIRE COMPLEX
JULY, 2003**

On August 1, 2003, Tim Miller (Jordan) and Randy Matchett (Lewistown) inventoried fire-damaged fences in the July, 2003 Missouri River Breaks Complex of fires in northwestern Garfield County, MT via helicopter and GPS-mapping. Table 1 summarizes structure damage and should be considered a minimum inventory as only remaining wood structures could be tallied. Single wood posts were not tallied. Wood structures on fences within burned areas, but with no visible damage were not tallied, but may still need replacement upon closer inspection. No assessment of wire or steel post damage could be made, but the accompanying maps show sections of fence within burned areas.

Fence #1: Mussellshell Exclosure. Burning was scattered and relatively cool, but many structures were damaged. The area around the building near the mouth of Sherman Coulee was burned, but fence damage was not assessed.

Fence #2: Sherman-Germaine Coulee Fence. Fire was more intense with substantial damage in some sections.

Fence #3: North Germaine Coulee Fence. Variable fire intensity with substantial damage in some sections.

Fence #4: Anderson Point - Squaw Creek Fence. Variable fire intensity with substantial damage in some sections. Portions of this fence were in extremely steep terrain and other routes may need to be considered.

Fence #5: Devils Creek Recreation Area. Light fire intensity, but at least 4 structures need replacement.

Fence #6: Southwest Devils Creek. Much of this fence looked to be old, mostly cedar posts and only sections could be found. The entire section needs replacing and re-routing should be considered. Very few wood structures could be seen.

Fence #7: Herman Ridge. Much of this fence appears as natural breaks and the section on the map was the only section located. Again, it was old, all cedar posts and could not be traced more than mapped. The entire section needs re-evaluating/replacing. There is no burned area to the west-northwest from the ridge top at the end of the road to the lake.

Fence #8: 7-Blackfoot. Fire intensity was much less than in other areas, but several structures were damaged. In re-building, should consider a legal survey and re-routing to exclude private land, but according to approximate aerial map, fence already excludes private ... check later.

Table 1. Summary of fire-damaged fence in the Missouri River Breaks Complex of fires, Charles M. Russell National Wildlife Refuge, northwest Garfield County, Montana, August 1, 2003.

FENCE NO.	FENCE NAME	MILES	FEET	2-POSTS	3-POSTS	4-POSTS	5-POSTS	WIRE GATES	CATTLE GUARDS
1	Mussellshell Exclosure	2.58	13,597	4	5	11	3	2	0
2	Sherman - Germaine Coulee	2.69	14,216	5	12	0	1	2	0
3	North Germaine	1.23	6,508	1	7	0	0	1	0
4	Anderson Pt-Squaw Cr.	8.98	47,484	10	41	2	6	8	1
5	Devils Cr. Recreation Area	0.49	2,579	1	1	0	0	1	1
6	SW - Devils Creek	3.20	16,887	0	1	0	0	2	0
7	Herman Ridge	0.33	1,742	0	0	0	0	0	0
8	7-Blackfoot	1.03	5,473	2	3	0	1	1	0
	TOTAL	20.53	108486	25	73	17	16	17	2

Map legend:

DASHED BLACK = MONTANA DEPARTMENT OF TRANSPORTATION GPS - ROAD LAYER

BLUE = CMRNWR FENCES AND NATURAL BARRIERS GIS LAYER

RED = BURNED SECTIONS OF FENCE AS ESTIMATED FROM HELICOPTER SURVEY

BLACK CIRCLES = APPROXIMATE LOCATIONS OF DAMAGED WOOD STRUCTURES ON FENCE LINES

LANDOWNERSHIP: BLUE CROSSHATCHED = STATE OF MONTANA, PINK

CROSSHATCHED = PRIVATE

APPENDIX II MAPS OF FENCES



