Date of Report: September 22, 2012

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization 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: Dutch

B. Fire Number: MCD-858

C. State: Montana

D. County: Powder River

E. Region: Northern (1)

F. Forest: Custer

G. District: Ashland

H. Fire Incident Job Code: PDG73U override 1502

I. Date Fire Started: 9/10/2012

J. Date Fire Contained: 9/11/2012

K. Suppression Cost: TOTAL: $200,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): Handline 0; Dozerline - 3
2. Fireline seeded (miles): 0
3. Other (identify): 0

M. Watershed Numbers:

6th HUC	HUC Name	Acres within FS ownership	Acres outside FS ownership
100907070206	Bloom Creek	4385.8	966.8
100902070204	Powder River-Plum Creek	5347.6	6890.9
100902070201	Powder River-Trail Creek	89.6	1552.6

N. Burned acres by Ownership

Ownership	Total Dutch Fire Acres
Private	7,122 (37%)
State	2,173 (11%)
BLM	40 (<1%)
Forest Service	9,899 (51%)
Total Acres	**19,234 ……..**

O. VegetationTypes: Ponderosa pine, juniper, and grassland ecotypes.

Burned NFS Acres by Vegetation Type

Vegetation Type	Burned NFS Acres	% of Burn
Grass	7776	70%
Shrub	135	1%
Forested	2713	24%
Sparsely Vegetated	352	3%
	11146	

P. Dominant Soils: Dominant parent materials are slope alluvium and colluvium over residuum derived from softly consolidated interbedded silt, clay and sandy shales. Dominant soils are classified at the family level as Clayey/fine-silty/loamy/loamy skeletal over fragmental, frigid Typic Ustorthents/Haplustolls/Argiborolls with channery loam to silt/clay loam surface textures. Surface rock fragments range from 10 to 30 percent and vary in size from gravels to channers.

Q. Geologic Types: Tongue River Member of Fort Union Formation (Tftr)—Yellowish orange sandstone, sandy and silty carbonaceous shale, and coal.

R. Miles of Stream Channels by flow regime:

Perennial	Ephemeral	Total
0.6	81.0	81.6

S. Transportation System (NFS only):

There are 4.5 miles of system and administrative routes within and intersecting the fire perimeter. This includes 2.7 miles administrative and 4.5 miles of motorized trail. Adjacent to the fire are 4.4 miles of the Bloom Creek Road (state jurisdiction) and 4.5 miles of the Powder River road (Powder River County jurisdiction).

PART III - WATERSHED CONDITION

A. Burn Severity (NFS acres ONLY):

Soil Burn Severity Area Estimates by Ownership (acres)

Ownership	Unburned	Low Severity	Moderate Severity	High Severity	Total	Percent High/Mod by Owner
Montana State Trust Lands	127	1013	811	212	2164	18%
Private Land	577	4243	2032	338	7189	41%
US Bureau of Land Management	0	16	24		40	1%
US Forest Service	598	6906	2075	242	9821	40%
Totals	1302	12178	4942	792	19214	
Severity Class Percent of Total Fire	7%	63%	26%	4%		

B. Water-Repellent Soil (acres): On FS land only: assuming moderate to high burn severity acreage all displays moderate to strong hydrophobicity: 2,317 ac

C. Soil Erosion Hazard Rating (acres)
- Not rated: 1,085 ac
- Slight: 1,502 ac
- Moderate: 10,761 ac
- Severe: 856 ac
- Very severe: 5,019 ac

D. Erosion Potential: 3.9 ton/ac (ERMiT results for moderate severity)

E. Sediment Potential 6.7 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	1-5
B. Design Chance of Success, (percent):	80
C. Equivalent Design Recurrence Interval, (years):	5
D. Design Storm Duration, (hours/minutes):	6 hour/30 minutes
E. Design Storm Magnitude, (inches):	1.4 inches/0.8 inches
F. Design Flow, (cubic feet / second/ square mile):	3.5 cfs/mi^2
G. Estimated Reduction in Infiltration, (percent):	28
H. Adjusted Design Flow, (cfs per square mile):	61 cfs/mi^2 [1]

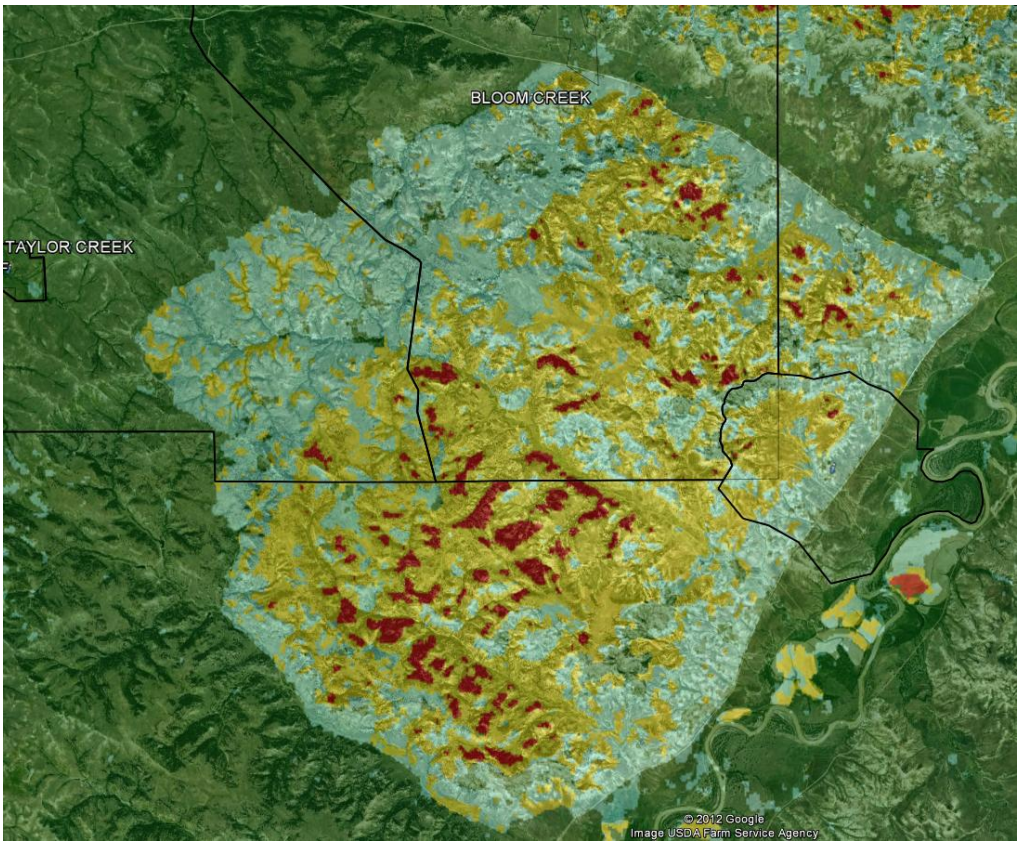
PART V - SUMMARY OF ANALYSIS

A. Critical Values/Resources and Threats:

Summary of Watershed Response

Winter of 2011/2012 the Ashland Ranger District was very dry, with no repreive in the form of spring and early summer rains. No significant moisture has been received through the duration of the season. Coupled with the perhaps the hottest summer on record the region has had one of its most active fire seasons ever, which included the Ash Creek/Taylor Creek Complex that burned over 310,000 acres in June and July. The Dutch Fire is the latest of the numerous fires in the vicinity of Ashland this summer.

[1] Smaller severely burned watersheds may yield much higher peak flows (Parrett et.al. 2003).



Dutch Fire Burn Severity Map.

The Dutch Fire burned through the extreme southeast corner of the district with the majority of the burn occurring on private land to the south of the forest boundary. The fire made the majority of its initial run over the course of 24 hours before being contained. From its initial starting point on private land, the fire burned north and east. The most intense and severe burn conditions occurred within the interior of the fire and primarily on private land. North aspects, with the greatest fuel load, exhibited the highest burn severity. Along the northern edge of the fire on FS land, the fire burned under low intensity and severity, perforated by areas with more moderate intensity and severity where pockets of ponderosa pine were encountered. The fire burned through a portion of the 1992 Blank wildfire area on the western flank.

The burned area occurred near the confluence of the Bloom Creek and Powder River drainages. On the northeast edge of the fire, a rolling plateau transitions to long, narrow drainages draining to both the Powder River and Bloom Creek. The largest of these drainages, including Spring Creek, Plum Creek, and Dutch Gulch, drain to the Powder River. These drainages are dissected with rock outcrops from the Fort Union member of the Tongue River formation. The southeast edge of the fire perimeter is at the base of these drainages as they transition into the alluvial floodplain of the Powder River. Vegetation on the plateau consisted of primarily grasslands interspersed with pockets of ponderosa pine that transitions to dominantly ponderosa pine in the drainages and on north aspects. Streams are ephemeral within the fire perimeter.

Dutch Fire looking east from the air. The Powder River Road was used as an anchor point for burnout operations.

Looking northeast from the air into the Spring Creek drainage.

Steep slopes, loss of ground cover, and development of hydrophobic conditions will further exacerbate potential for post-fire soil erosion, especially considering that the majority of the burned area is comprised of soils exhibiting moderate to severe erosion hazard risk under unburned conditions. Model results indicate that a high-intensity rainstorm could produce a four-fold increase in erosion over background rates. There are, however, no structures in drainages at risk from decreased slope stability and potential slope erosion and/or mass wasting events.

While the majority of the burn fell within a low intensity burn category, several of the tributary drainages to the Powder River and to Bloom Creek burned with a majority of their area in high to moderate intensity and severity. Significant hydrologic response from high intensity rain events is anticipated in small tributary drainages that burned under these conditions. Excessive overland flow is likely with concentrated flow developing in these tributary channels. The Ashland area has a documented potential of producing robust storm flow response to wildfires. Parrett and others, in a study of 2001 and 2002 wildfire enhanced storm discharges, estimated late June and early July 2002 intense thunderstorms in the Ashland, MT area at 50 to 500 year recurrence intervals (2003). These discharges ranged from 28 to 1000 cfs/mi^2, with some small watersheds (0.1 to 0.2 mi^2) discharging as much as 6500 cfs/mi^2- considerably more than a 500 year recurrence interval. Rainfall events were estimated and nearby gages at 2.35” in 30 minutes and 5” in 2 hours (Parrett et al. 2003)[2].

[2] C. Parrett, S.H. Cannon, and K. L. Pierce. 2003. Wildfire-Related Floods and Debris Flows in Montana in 2000 and 2001. Water-Resources Investigations Report 03-4319.

Values at Risk:
Risks were assigned based on Interim Directive No. **2520-2010-1**.

The BAER interdisciplinary team identified issues that result from fire effects within the Dutch fire. The primary watershed effects from the fire include a potential reduction in infiltration due to water repellency with the resulting increase in potential runoff. Increased runoff, especially where the vegetation and surface duff layer has been burned will result in increased potential for higher peak flows, soil erosion, and sedimentation, particularly on the National Forest portion of the Dutch Fire. Protection of life and property were given high priority. After examination of the fire area the BAER team, in consultation with other specialists, identified the following values at risk. The following post-fire effects and identified values at risk were identified and addressed where possible with BAER treatment proposals:

- **Road System:** Historically, intense burned areas have resulted in substantial damage to National Forest roads on or providing access to the Ashland District. The Powder River Road is vulnerable to washout of road culverts below the Plum Creek and Dutch Gulch Drainages. The Bloom Creek Road- a primary access route to the forest and important travel corridor for private inholding residents to travel to Broadus- is also vulnerable to washout in two locations. Since both the Powder River Road and Bloom Creek Road are under the jurisdiction of Powder River County, no road treatments are being proposed using BAER funds. Powder River County will be informed of the need for crossing improvements and provided with initial recommendations.

- **Heritage/Cultural Resources:** All sites within the moderate to high severity burn areas were field-reviewed to identify risk(s) from erosion, watershed failure, debris flow and hazard tree fall that could potentially affect site integrity and permanently alter or destroy these non-renewable cultural resources. None of the known cultural resources require BAER treatment at this time.

- **Soil Productivity:** High intensity rainfall during the first two years following the fire will accelerate soil erosion. The loss of a major portion of the topsoil could significantly reduce soil productivity of those sites. In addition, pre-fire populations of noxious weeds are anticipated to significantly increase as a result of the fire and potentially impact soil productivity. While this is an important Value at Risk, no specific treatments have been proposed to mitigate impacts to soil productivity from the fires.

- **Potential Loss of Native Vegetation and Ecological Integrity due to Weed Infestation and Spread** For most noxious weed species identified in the fire complex, disturbed sites and dry potential vegetation types are the most at risk from invasion and spread. Disturbed areas would include roads, gravel pits, dispersed recreation sites, livestock spring developments and where ground disturbing fire suppression actions occurred (dozer lines, hand lines, helispots, safety zones, and drop points). Weed assessment and treatment of fire induced weed spread is requested.

- **Potential Loss of Native Vegetation Recovery and Soil Stabilization without Livestock Deferment** Fires can be a devastating event, but at the same time, fire can provide many benefits to rangeland. Managing rangeland after fire can mean the difference between rangeland improvement or rangeland damage. The ability of rangelands to recover and produce forage following the fire depends on three factors – moisture conditions, time of burning, and management in the following years. One cannot control the first two factors, but livestock deferment until after the growing season in the 2013 grazing season will help rangelands recover and soil to stabilize.

In accordance with the revised Forest Service manual, the risk matrix below, Exhibit 2 of Interim Directive No.: 2520-2010-1, was used to evaluate the Risk Level for each value identified during the Dutch Fire BAER

assessment. Only treatments that had a risk of Intermediate or above are recommended for BAER authorized treatments.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

The risk levels by resource included soils, roads, and weeds/sensitive plants. Only weeds had risk levels of intermediate or greater and therefore are the only resources recommended for BAER funded treatments. Administrative action will be taken for livestock deferment and BAER funds are not requested for this action.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High weeds*	Low
Possible	High	Intermediate soil productivity	Low
Unlikely	Intermediate	Low	Very Low

*Details given in the treatment narrative section

B. Emergency Treatment Objectives:

- Weeds and native vegetation recovery - Reduce the risk of expansion of existing infestations of noxious weeks and allow burned plant communities to recover more rapidly.
- Livestock deferment will be done, loss of AUMs for deferment for one year ($52,200).

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land **90** % Channel **na** % Roads/Trails **na** % Protection/Safety **na** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land (weeds)	50	70	90
Land (site proteection)	na	na	na
Channel	na	na	na
Roads/Trails	na	na	na
Protection/Safety	na	na	na

E. Cost of No-Action (Including Loss): $212,600*

*Cost includes first year treatment ($130,200), treatment of weed infestation spread over three year period ($80,000), and loss of AUMs due to vegetation type conversion ($2,400).

F. Cost of Selected Alternative (Including Loss): $130,200*

*This figure reflects the cost of the proposed treatments, but without losses. Treatments are expected to be highly effective and successful and no significant losses are anticipated outside of human control. Note: There will be a $52,200 loss to permit holders for deferment of AUMs.

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[x] Soils	[ ] Geology	[x] Range
[ ] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[x] Engineering
[ ] Contracting	[x] Ecology	[x] Botany	[x] Archaeology
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[x] GIS

Team Leader: Andy Efta/Kim Reid

Email: jefta@fs.fed.us Phone: 406-255-1407 Kim Reid: kreid@fs.fed.us Phone 406-255-1413

Core Team Members:

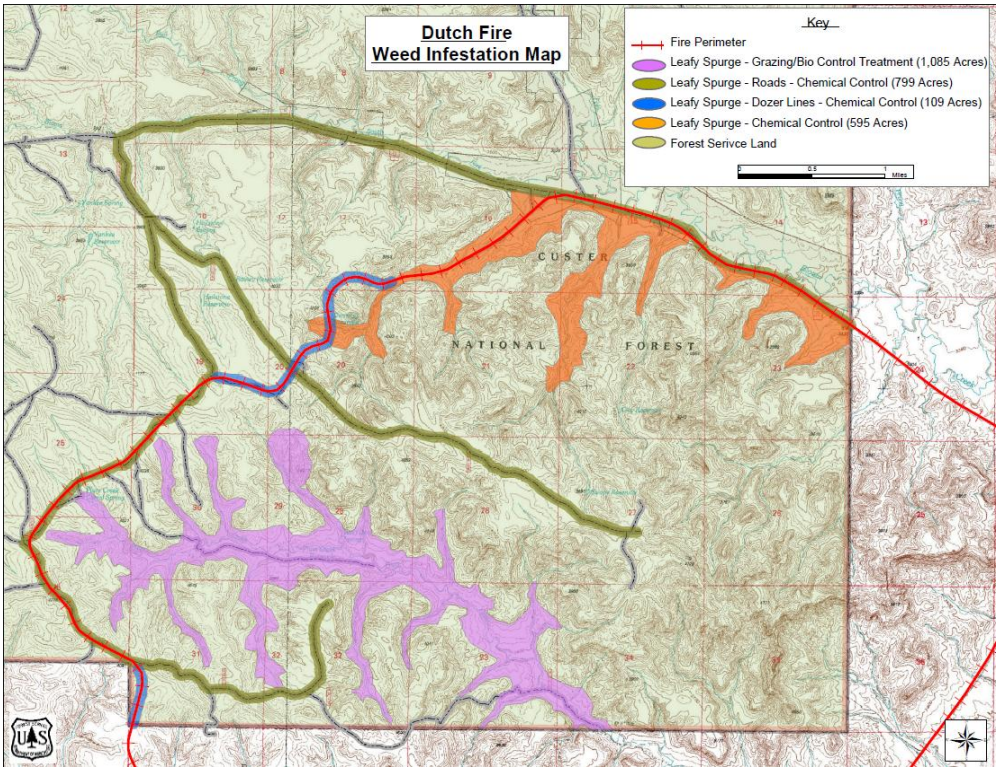
- Andy Efta – Hydrologist/Soils
- Kim Reid – Range/Botany/Noxious Weeds
- Megan Dawson – GIS/Range Specialist
- Ryan Melin- Range Specialist
- Scott Studiner- Range Specialist
- Halcyon LaPoint – Heritage
- Mike Bergstrom – Heritage
- Andy Godtel – Biological Science Technician
- Joe Vacirca – Fisheries Biologist
- Dave Shimek – Engineer

H. Treatment Narrative:

Land Treatments

Weed Treatments: The emergency to the resource caused by the fire is of a high priority, especially in those areas which have highly invasive species concentrations prior to the burn. About 1,420 gross acres within the Dutch Fire is predominately infested with leafy spurge with isolated pockets of spotted knapweed. Even though weeds existed in pre-fire conditions, the seed banks in the soils associated with those infestations have long term viability aspects that will take advantage of post-fire conditions. Although the estimated net infested acreage is small in the context of the gross fire area, the entire fire area provides a seed bed where weed seeds can become established from several spread vectors and remain viable in the soil for years. Weed seed viability can last up to 20 years for spotted knapweed, which can produce up to 40,000 seeds per plant. Viability of leafy spurge weed seed can last up to 8 years, which produces up to 4,000 pounds of seed per acre and has a substantial rhizomatous root system.

Weed infestations are predominantly leafy spurge.



The areas depicted are general areas where weeds were known to exist prior to the fire, rapid expansion into the adjacent burned areas is highly likely.

About three miles of dozer suppression lines were built and are considered prime weed beds, especially where there are known seed beds and infestations being in the area and suppression activities possibly moving seed source around suppression lines. Weed wash stations were not established and initial attack activities did not have this preventative measure in place, making some of the fire area more vulnerable to new weed seed sources. Since the P-Code for the fire will be closed out by the time specific locations of weed spread are known the BAER authorization request includes assessment and treatment of dozer lines as well as the general areas adjacent to known pre-fire populations.

The fires burned grassland and forest land and eliminated natural competition for invaders. The fire-caused disturbance created perfect habitat for noxious weed invasion and expansion. If emergency mitigation activities are not implemented, this problem will very likely expand exponentially and will require extensive future resources to manage.

Recommended land treatments to mitigate the emergency are weed detection, herbicide and biological weed treatment, and livestock deferment from burned areas during recovery of native vegetation. Proposed assessments treatments where needed will follow Forest Service regulatory requirements and protocols in accordance with existing 1986 Custer Forest Plan and 2006 Custer National Forest Weed Management EIS NEPA decisions.

BAER team vegetation experts assessed areas at risk from invasion and potential seed sources into these areas. Locations were identified for continued assessment to determine where treatment within one year of fire containment will be needed to protect vulnerable vegetation resources. These areas will be the first priority for detection assessment and potential future noxious weed treatment. The second priority for detection assessment will be the remainder of the burned area.

Grazing Deferment: At a minimum, permitted grazing will be deferred for at least one full growing season following the fire. This is around August 1 for the Ashland Ranger District. The length of time for the grass to recover and for grazing to resume will depend a great deal on rainfall in the months and years following the

fire. Below normal precipitation may delay vegetative recovery and extend deferment needs. This is an administrative action that does not require any request for BAER funds.

Part VI – Emergency Stabilization Treatments and Source of Funds Initial Request

A. Land Treatments-FY13	Units	Unit Cost	# of Units	BAER $	Other$
Weed Detection and Treatment	acres	$92	1,420 acres*	$130,200	
Livestock Grazing Deferment		0		$0	
Subtotal Land Treatments				**$130,200**	
B. Channel Treatments					
C. Roads and Trails					
Subtotal Roads and Trails					
D. Protection and Safety					
Subtotal Protection and Safety					
E. BAER Evaluation					
Assessment (person days)	DAYS	$350	16		$5,600
Travel costs					$0
Subtotal Evaluation					$5,600
F. Monitoring					
Subtotal Monitoring					
G. Totals				$130,200	$5,600
Previously approved				0	
Total for this request				$130,200	

*This was felt by the BAER team to be a reasonable estimate, should assessment show fewer acres require treatment the amount spent will be less.

PART VII - APPROVALS

1. /s/ Mary C. Erickson 9/26/2012
Forest Supervisor Date

2. / /2012
Regional Forester Date