

Badlands National Park Campground Prescribed Fire Monitoring Report

Prepared by Kevin Rehman

Burn Unit Summary

The Campground RX unit is a 185 Acre unit that burned over two operational periods on 9/23 and 9/30/03.

9/23/03

Size: 155 acres burned

Vegetation Type: Native Mixed Grass Prairie, dominated by western wheatgrass

Personnel:

Burn Boss: Mike Carlbom

Ignition Specialist: Mark Slovek

Holding Specialist: Dan Morford

Fire Monitors: Cody Wienk (lead), Kevin Rehman

Engine Bosses: Kevin Merrill, Brad Oen, Eddie Childers, Doug Albertson

4 Type 6 Engines

5 ATV's

1 Structure Engine (Interior VFD)

9/30/03

Size: 30 acres

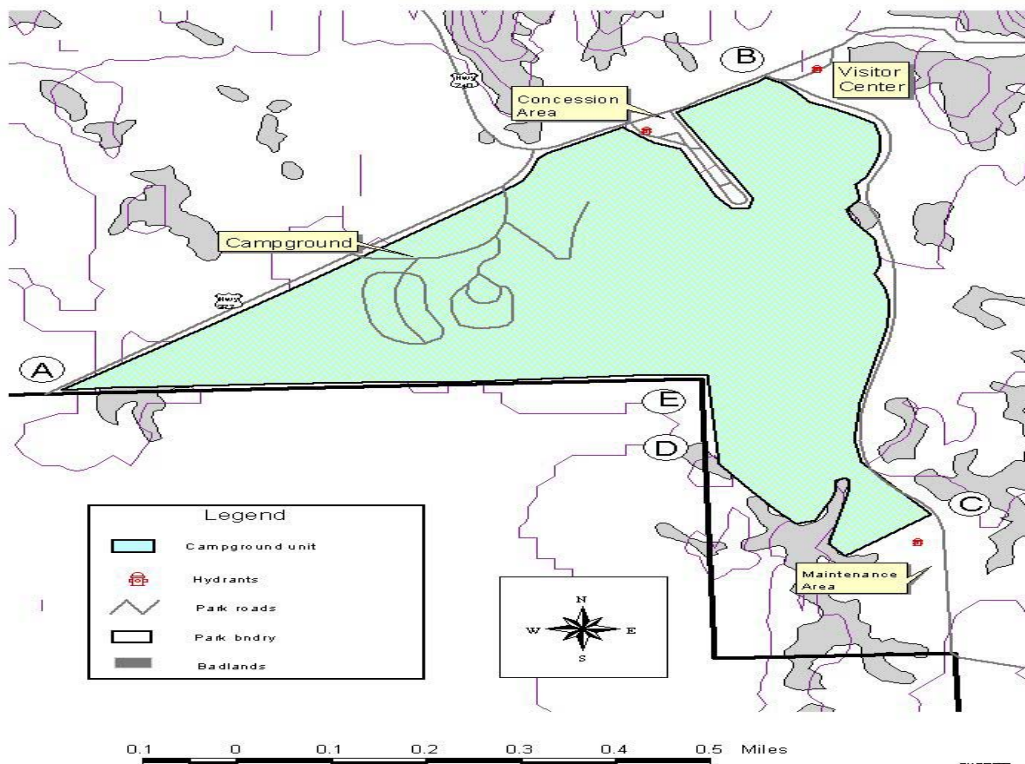
Vegetation Type: Native Mixed Grass Prairie, dominated by western wheatgrass

Personnel:

No changes in overhead personnel with the exception of the following:

Andy Solve of the U.S. Forest Service replaced Doug Albertson as Engine Boss.

The Interior VFD structure engine was also not present for this operational period.



Objectives

Objectives of the Campground RX are as follows:

- Increase relative cover of native grasses by 10 to 25% 1-yr post burn.
- Increase relative cover of native forbs by 10 to 25% 1-yr post burn.
- Maintain increase of relative cover of native grass and forbs 5-yrs. post burn
- Reduce total fuel load 60 to 80% immediate post-burn
- Burn 80-95% of the unit

Weather Observations

9/23/03 Time	Temperature		Dew Point	Wind			Comments
	Dry	Wet		RH	Speed	Direction	
0900	62	54	50	69	3-4	NW	clear skies
1000	67	58	52	59	6-10	WNW	clear skies
1100	75	60	51	42	7-11	NW	clear skies
1200	78	58	44	29	4-8	WNW	clear skies
1300	86	60	41	21	7-10 G 12	WNW	clear skies
1400	88	58	33	14	6-10	WNW	< 5% cloud cover
1500	87	57	30	13	8-10 G 12	NW	< 5% cloud cover

9/30/03 Time	Temperature		Dew Point	Wind			Comments
	Dry	Wet		RH	Speed	Direction	
0910	51	43	34	53	4-5	W	clear skies
0950	52	43	33	48	7-9 G 11	W	clear skies
1050	56	45	33	42	6-9	WNW	clear skies

Shaded cells represent weather within prescription parameters.

Fire Behavior Observations

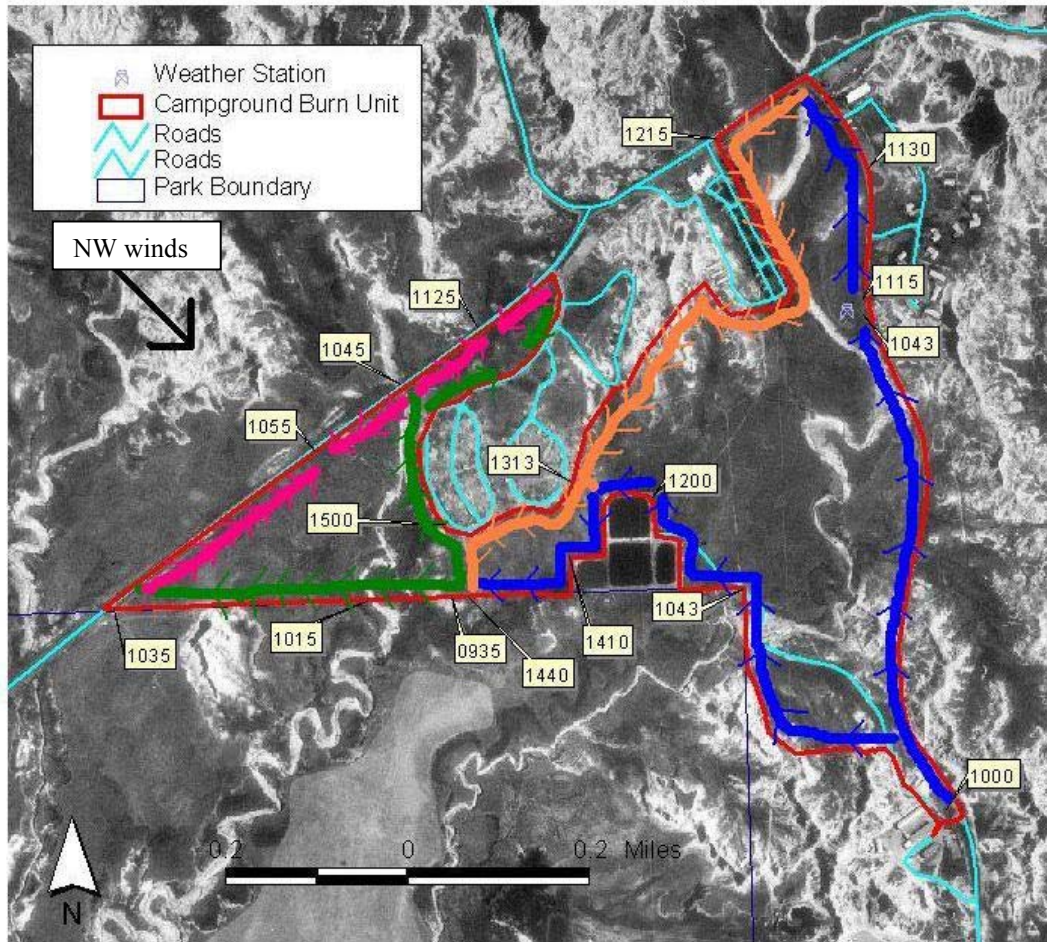
Date	Time	Location	Fire Type	ROS	FL	Comments
9/23	1030	near weather station	backing	1.8 ch/hr	4 – 6"	AGSM
9/23	1045	near weather station	head	72 ch/hr	3 – 5'	AGSM
9/23	1130	admin	backing	1.5 ch/hr	4 – 6"	AGSM/BOCU
9/23	1300	AGSM 17 0P	flank/head	12 ch/hr	1 – 1.5'	AGSM
9/23	1300	AGSM 17 30P	flank/head	3.2 ch/hr	2 – 3'	AGSM
9/30	1010	draw SW of CG	head/flank	33 ch/hr	2 – 5'	AGSM
9/30	1012	draw SW of CG	backing	1.5 ch/hr	8 – 12"	AGSM

ROS = rate of spread measured in chains per hour (1 chain = 66 feet or 20 meters)

Biomass

Type	Sample size	Fuel Loading	Average Fuel Loading
Western wheatgrass	3	3.18 tons per acre	2.73 tons per acre
Cheatgrass/ Western Wheat	3	2.29 tons per acre	

Fire Progression



On 9/23/03 A test fire began at 1000 near the maintenance grounds in the southeast corner of the unit. From there two ignition teams proceeded north and west bringing backing fire with them as shown in blue on the above map. Headfire is denoted as an orange line with directional arrows showing the path of ignition. Ignition ceased at 1500 just south of the western most campground loop.

On 9/30/03 A test fire began at 0935 on the southern boundary just south of the western most campground loop. From there two ignition teams proceeded north and west bringing backing fire with them as shown in green on the above map. Headfire is denoted as a pink line. Ignition ceased as 1125.

Smoke Monitoring

Because of northwest winds during the first operational period and westerly winds during the second, holding resources along the southern and eastern perimeters of the burn unit were impacted by smoke. Fireline visibility ranged from a half mile to a mile with good fireline visibility. Smoke blew away from Highway 377 and only lightly impacted the road leading to the maintenance yard. The National Weather Service predicted very good smoke dispersal for the day with mixing heights at 9000 feet above ground level. Once the fire backed away from the fireline, visibility increased dramatically and smoke impact along the fireline decreased.

Fire Monitoring

One long-term fire monitoring plot is located within the Campground burn unit. The plot is in native mixed-grass prairie, dominated by western wheatgrass. The immediate postburn severity measurement showed that the vegetation had a value of 29% “lightly burned” and 71% “moderately burned”. The substrate had a value of 100% “lightly burned”. This means that most all of the standing vegetation burned leaving approximately 2 inches of stubble. In the litter layer, more than 85% of the litter was consumed and the duff layer was largely unaffected.. This plot will be read 1, 2, 5, and 10 years after treatment of fire to determine vegetation changes.

Conclusions

The long-term health of ecosystems is the focus of the prescribed burning program here in the Northern Great Plains and at Badlands National Park, therefore certain criteria need to be assessed.

Some objectives are immediately measurable such as fuel load reduction immediate post-burn. Other quantifiable specific objectives need to be viewed over the course of several years before results can be determined. With a long term ecological monitoring program in place, a quantifiable assessment of prescribed fires specific objectives can be made.