

Theodore Roosevelt National Park (South Unit)

Horse Camp, Loop 5

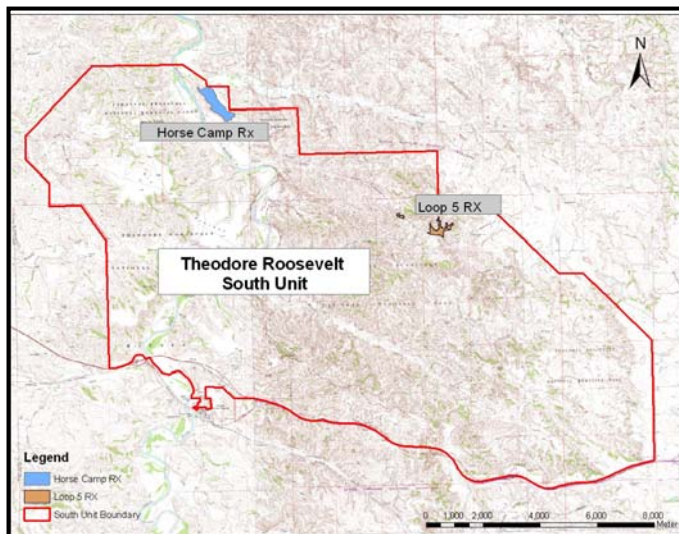
April 23, 2007

Prepared by Keith Mitchell



Burn Unit Summary

The Horse Camp and Loop 5 prescribed fires covered 162 acres of Theodore Roosevelt National Park. These units were a part of seven proposed burn units for the spring of 2007. The units were situated in the badlands of the South Unit of the park. Vegetation within the units consisted of mixed grasses in open areas with chokecherry and juniper in the steeper draws. In lower parts of the Horse Camp Unit there were pockets of green ash, chokecherry, and snowberry. It was these pockets that caused the greatest concern during the operational period.



April 23, 2007

Size: 162 acres treated, about 65 % burned.

Vegetation type: mixed-grass, juniper, chokecherry.

Personnel:

- **Burn Boss:** Gary Luce.
- **Firing Boss:** Eric Allen, Cody Wienk (T).
- **Fire Monitors:** Andy Thorstenson, Keith Mitchell (trainee).
- **Holding Specialist:** Brandon Oberhardt
- **Holding Resources:** 4 Type 6 Engines, 1 Water Tender, 2 ATVs, 2 Squads.

Resource Objectives

The objectives of the Theodore Roosevelt spring prescribed fires included:

- 1) Provide for public and firefighter safety
- 2) Restore fire to mixed grass prairie ecosystem
 - a. Reduce 1-hour grass litter $\geq 70\%$ immediate post-burn
 - b. Measure fire behavior; fuels burned, rate of spread, etc.
- 3) Provide educational opportunities for the public concerning the role of fire in mixed grass ecosystems.

Weather Observation

Loop 5 Burn Unit

4/24/2007	Temperature		Dew Point		Wind		Comments
Time	Dry	Wet		RH	Speed (mph)	Direction	
0745	41	39	37	85	0-2	E	@ fire Cache
0830	48	45	42	80	0-2	E	
0930	59	49	40	50	2-4 / g-6	SW	PIG 30,20 Oberhardt
1100	59	49	40	50	3-5 / g-7	SW	test fire / up drainage
1200	58	51	46	63	2-4	SW	Increased cumulus
1300	61	51	41	51	2-4	SW	higher gusts in open

Horse Camp Burn Unit

4/24/2007	Temperature		Dew Point		Wind		Comments
Time	Dry	Wet		RH	Speed (mph)	Direction	
1405	64	52	42	45	1-3	W	
1500	66	54	45	47	8-9	S	
1600	64	52	42	45	3-5 / g-7	S	PIG 20% / PIG 30% on SW aspect
1700	62	51	42	48	6-7 / g-9	S	
1800	60	50	41	50	2-3	S	
1900	58	49	41	53	3-5	S	

Fire Behavior Observation

Fire behavior observations were taken throughout the day, with the intent to record fire activity on both burn units. In the Loop 5 Unit, fire behavior was most active when head fire burned through grass fuels, and proceeded to climb into the juniper. In the Horse Camp Unit, similar fire activity was also witnessed. Low fuel areas in both units displayed lighter fire activity, especially in the open grass areas where grazing had occurred. The most intense fire behavior was seen in the green ash, chokecherry, and snowberry pockets within the Horse Camp Unit. The pockets in this unit burned hotter than expected, and caused spotting across the northern holding line. This fire behavior caused the Burn Boss to end the burn early, prior to reaching the largest of the green ash /chokecherry pockets which comprised the southeastern section of the Horse Camp Unit.

Loop 5 Burn Unit

Time	Location	Fire Type	ROS ch/hr	FL	Comments
1110	test fire	H	-	2 ½ -3'	Small pocket
1110		b/f/h	-	6"-12"	
1145	Point C	H	66	6'	Highest R.O.S. of day
1155	Point D	H	36	2'-3'	wind up to 10 mph
1210	Point D	B	2.5	2"-4"	continuous fuel
1224	Between D&G	H	3.6	6"-1 ½'	green component

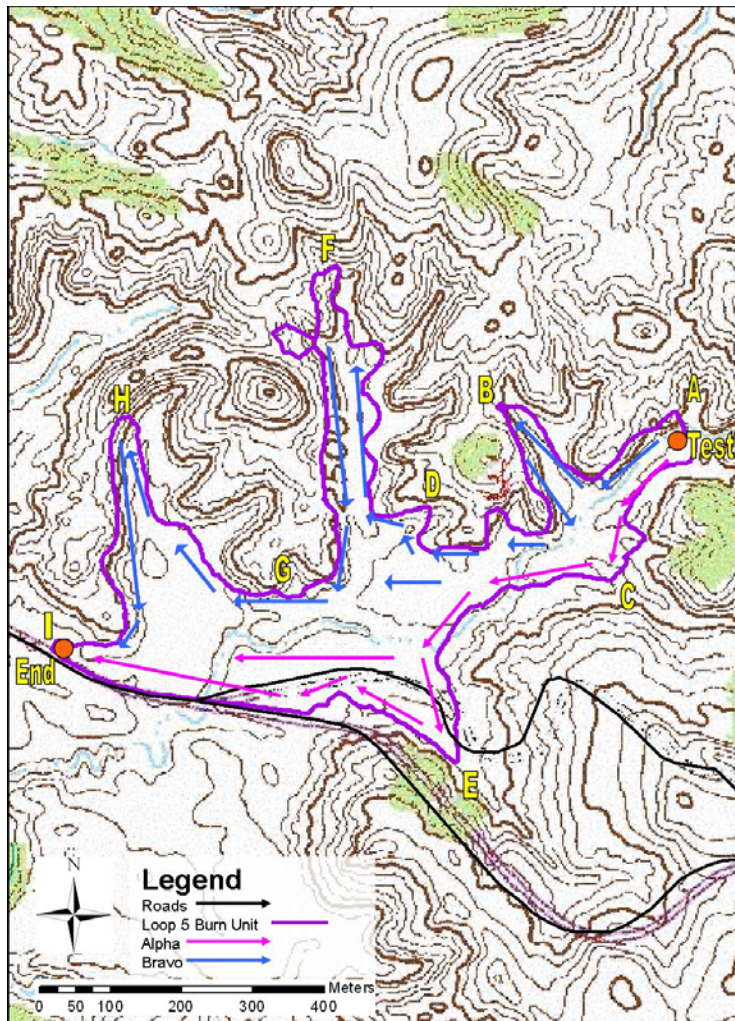
Fire Behavior Observation (Continued)

Horse Camp Burn Unit

Time	Location	Fire Type	ROS ch/hr	FL	Comments
1519	Top of Butte	H	5.5	2"-6"	Spotty fuel
1528	Top of butte	B	0.9	1-3"	

Fire Progression

Loop 5 Burn Unit



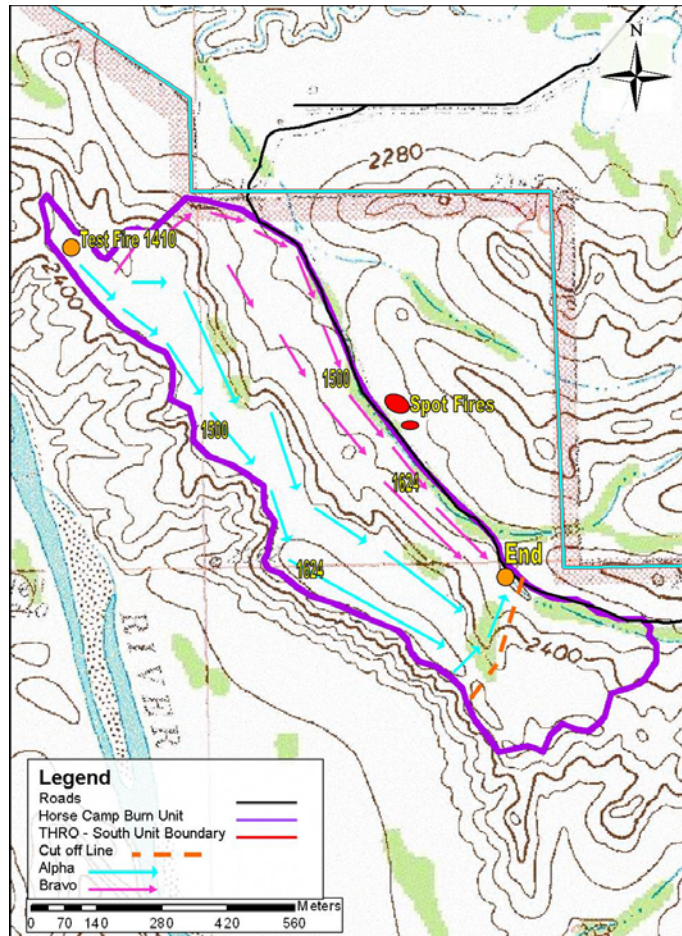
The test fire was initiated 1115 in the north east (A) finger of the unit, with the ignitions team splitting into two squads (Alpha, Bravo). The Squads then progressed down the flank of the finger, dragging fire as they went. Bravo was assigned to the northern half of the unit while Alpha was assigned to the southern half. At 1136 the ignition squads had completed burning all the fingers up to the area between D and C. Alpha then ignited half way between C and E, holding there at 1215, while Bravo burned out a finger from D to F. Once the finger was burned out, and Bravo reached G, Alpha proceeded with firing to E. At 1230 Bravo held for Alpha at point G, as Alpha began burning from E to I. Alpha placed strips interior as they began burning. Once Alpha and Bravo were parallel, both continued to points E and H respectively, with Alpha holding just before I, as Bravo burned from H to I. Firing operations concluded at 1300.

Horse Camp Burn Unit

The test fire began at 1410 in the northwest part of the burn unit. Ignition was split into two different squads (Alpha, Bravo). Alpha was responsible for burning the southern flank, on top of the butte. While Bravo was responsible for the northern flank, bordering the road. Bravo initially brought fire from the top of the butte to the road, as Alpha held at the test fire. Once Bravo reached the road, the two squads began burning parallel, walking to the southeast.

As ignitions began, both Alpha and Bravo experienced mosaic burn patterns, and each squad encountered areas of discontinuous fuels. On the top of the butte, Alpha lit off the holding line, mitigating the lack of surface fuels by using flanking strips. At the road, Bravo lit mixed grass and scrub, experiencing similar fire behavior as Alpha in the grass.

While in the scrublands, the fire crept and lacked intensity, but occasionally torched out the shrubs and trees. At 1500, torching caused from ignition of the shrubs and trees on the northern holding line produced several spot fires across the line. After which it was decided that the burn would be cut off early using a (1624), scratch line constructed from the top of the butte to the road. Ignitions would then burn out the remaining fuel between the newly constructed line and the black. This was done out of concern for the remaining green ash and chokecherry areas in the southeast part of the unit. This section contained the largest shrub pockets within the unit, and had the potential of causing more spot fires. The burning operation was subsequently concluded around 1900.



Smoke Monitoring

Smoke production was light to moderate during both prescribed fires, with the smoke dissipating shortly after the conclusion of ignition. Smoke was primarily influenced by a south by southwest wind, dispersing after several hundred feet. The Spot weather forecast predicted good smoke dispersal with mixing heights at 8400 feet above ground level.