

Burn Unit Summary

Carnegie Rx burn unit lies on the east side of Agate Fossil Beds National Monument. The burn unit is 600-800 acres in size. On 22 April 2008, resources were assembled to burn a 633 acre portion of the Carnegie Rx burn unit.

Weather observations and spot weather forecasts were reviewed at hourly intervals. Winds were predominantly southwesterly, with occasional gusting and switching to direct south or direct west directions. The sky was clear and cloudless, and proved a precursor to unstable low pressure systems that were moving through later in the week.

Carnegie Rx began as a test fire, initiated at point E (1330). Two ignitions/holding squads were assembled (I and II), and began lighting west/north and south along the monument perimeter, respectively. The test fire was deemed satisfactory, at which point both ignitions squads continued to ignite along park perimeter.

North ignitions/holding squad further subdivided into two distinct squads, Ia and Ib. Ia continued north along park perimeter until reaching point C, while Ib worked back to the fenceline corner at point D. Both squads tied in with existing black line at point C and D (1444). At this time, two spots were observed outside of the Carnegie Rx burn unit. Both spots crept through mowline and were encouraged by steady SW winds.

Carnegie Rx was converted into Carnegie wildfire upon recognition of a growing spotfire on neighboring private lands (1445). At this point, ignitions had secured 0.64 miles of the burn unit. All resources were ordered to suppress both the wildfire and prescribed fire areas of the Carnegie complex.

Active fire perimeter was lined and secured (1515). At this point, the Carnegie Rx had reached 16.5 acres and the Carnegie wildfire had reached 11.8 acres.

Engine crews stayed on the fire for a night operation period and mopped up both segments of the Carnegie Rx/Wildfire to 100%. The Carnegie fire was called contained and controlled at 0800 on 23 April 2008.



Test Fire from Point E | 1330 | South Ignitions

Date: 22 April 2008

Size of Burn Unit: 633 acres

Acres Treated: 16.5 acres

Aspect: All aspects due to valleys and bluffs within burn unit

Elevation: 4400-4600 feet

Vegetation Type: short grass prairie including yucca shrub, and riparian wetlands

Personnel

Burn Boss: Steve Ipswitch

Ignition Specialist: Andy Thorstenson, Ken Perreault (t)

Holding Specialist: Eric Allen

Fire Monitors: Jon Freeman (t), Keith Mitchell (t), Marcus Lund (t)

7 Type 6 Engines

1 Water Tender

3 ATVs

46 total staff/fire personnel

Objectives

- Provide for firefighter and public safety during the implementation of this plan.
- Burn 70-90% of project area.
- Decrease non-native herbaceous relative cover by at least 10% one year post-burn.
- Decrease fuel loading in the flood plain area by 30-50% one year post-burn.

Weather conditions

The National Weather Service predicted sunny skies, maximum temperature 65 degrees, minimum relative humidity 17 percent and southwest winds 17 to 22 mph with gusts to 32 mph. Haines index was 3, with excellent transport winds and mixing height at 10,000 feet above ground level. Following the Carnegie Rx burn period was forecast a strong storm frontal passage, bringing thunderstorms and rain.

Weather Observations

Date	Time	Temp.	RH	Wind Speed	Wind Direction	Comments
22 Apr	1100	57	23%	9-12 G15	S/SW	Breezy, Gusty winds.
22 Apr	1200	59	22%	7-12 G15	S/SW	-
22 Apr	1212	61	21%	5-12, G-15	S/SW	-
22 Apr	1245	61	21%	8-13, G-16	S/SW	-
22 Apr	1345	64	17%	8-15, G-19	S/SW	-
22 Apr	1445	69	14%	10-15, G-21	S/SW	Prescribed fire converted to wildfire due to slop over.
22 Apr	1600	66	16%	8-12, G-15	S	-
22 Apr	1900	61	31%	8-12, G-14	S/SW	-

Wind speed in miles per hour, Temperature in degrees Fahrenheit

Fire Behavior

Fire behavior was driven by primarily by strong southwest winds. Sparse fuels limited the test fire at point E and initial ignitions, but as the fire backed westward, it reached more consistent short grass fuel and was backing at 4 chains per hour at last observation. Head fire behavior increased 30 times rate of spread and three times flame length.

Fire Behavior Observations

Time	Location	Fire Type	ROS	FL	Comments
1330	Point E. Test fire	B	<1 c/h	1'	Heavy SW winds, Gusts to 20 mph at eye level.
1400	South of Point E	H	120 c/h	3'	Heavy SW winds, Gusts to 20 mph at eye level.
1430	¼ mile south of Point E	B	4 c/h	1'	W/SW winds.
1500	¼ mile south of Point E	B	4 c/h	1'	W/SW winds.

B=backing fire; F=flanking fire; H=head fire

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

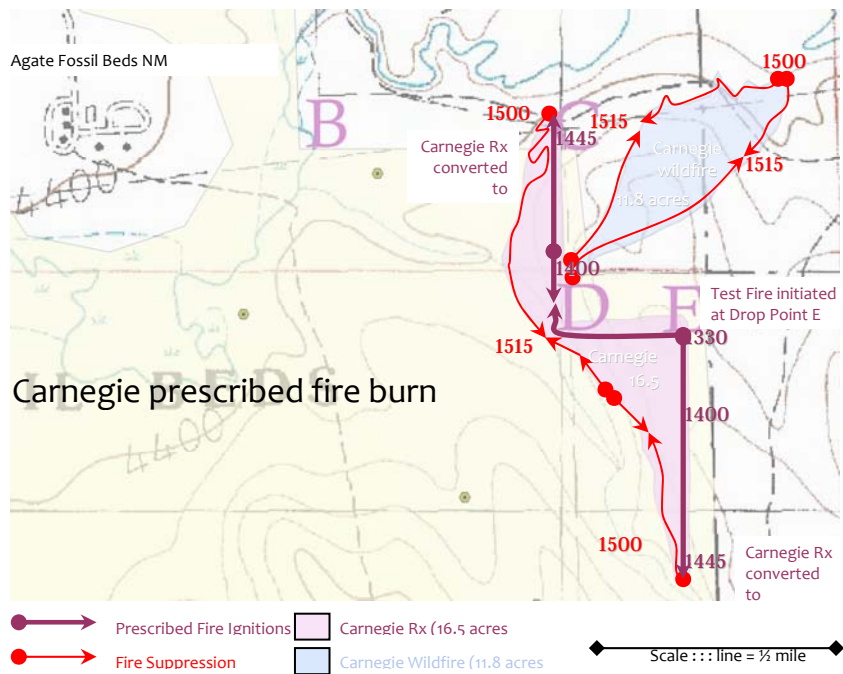
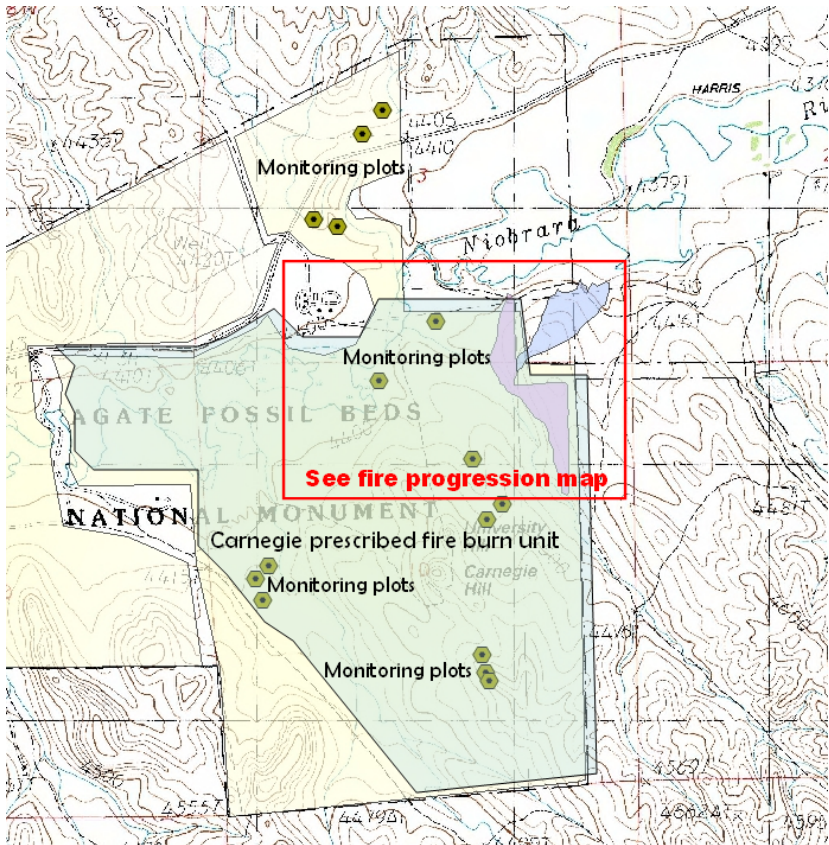
Fire Progression

A test fire was initiated at drop point E (1330). Fire was backing slowly in marginal fuels and against a consistent 8-12 mph southwest wind. Test ignitions continued to move in opposite directions, with a squad igniting along park perimeter fence line to the west and north, and another squad igniting southward along the park perimeter fence line.

At 1400, Carnegie prescribed fire was initiated with two ignition teams continuing along the fence line. At 1430-1445, the northbound ignition stopped under a foam line in grass and ignited a wildfire on neighboring land.

At this time (1445) the Carnegie Rx was converted to Carnegie Wildfire. Resources were mobilized to suppress both the escaped head fire and the prescribed backing fire.

By 1515, the Carnegie fire was fully lined, yet engine resources were ordered to stay on the fire through one night shift. The Carnegie burn was mopped up to 100% confidence. Carnegie wildfire was deemed contained and controlled at 0800 on 23 – April – 2008.





North ignitions | Point D | 1444

Smoke Monitoring

The National Weather Service forecasted mixing heights of 10,000 feet. Smoke was dissipating rapidly while fire was on the ground. No plume was noticeable until the Carnegie wildfire commenced, when even with strong steady winds, the smoke rose in a vertical column.

Biomass and Soil Moisture

Total aboveground biomass was sampled at each of the 11 monitoring plots located in the Carnegie unit. Fuel load measured approximately 1.95 tons per acre for non-native grass (range: 0.45-5.05 tons per acre), 1.93 tons per acre for native mixed grass prairie (range: 0.24-3.65), and 5.28 for riparian plots (range: 4.00-6.87).

Soil moisture sampling in the top 1 inch of soil at the 13 plots averaged 15.69% (range: 1.45% in native mixed grass plots – 62.56% in riparian plots)

Fire Effects Monitoring

None of the 11 monitoring plots located within Carnegie unit were burned. The fire was suppressed before fire could reach the closest plots.

A quick look at the 16.5 acres that were burned within the unit indicated moderately to lightly burned vegetation and lightly burned to scorched substrate.

Conclusions

Carnegie prescribed fire did not adequately meet management objectives, due to premature suppression of the fire.

Overall, 16.5 acres were treated within Agate Fossil Beds NM, while 11.8 acres were burned on adjacent private lands.

After the fire was controlled and contained, the remaining crews worked to prepare the perimeter line and enhance the burn perimeter and control lines. Also, an open discussion between the federal fire personnel, Harrison fire volunteers, and neighboring land owners was held.

Carnegie prescribed fire provided an initiation to Agate Fossil Beds NM prescribed fire program.