

Chapter 1

Overview

OVERVIEW

Fire Background

The Battle Creek Fire ignited on August 16, 2002, off the South Rockerville Road on private land near of Keystone, South Dakota. High temperatures, low relative humidities and strong winds created conditions that resulted in intense fire behavior with long range spotting. The fire burned actively for four days, spotting across Highway 40, South Rockerville Road, and Highway 16. Before it was contained on August 25, the fire had burned 12,450 acres.

During the first day, the fire spread rapidly and burned 2,400 acres. The two other major burning periods occurred on August 17th (3,300 acres) and 19th (4,200 acres).

Over 600 structures were threatened, in addition to the town of Keystone. Firefighter efforts were able to limit losses to three residences near the community of Hayward.

The area affected is administered primarily by the Black Hills National Forest. Of the 12,450 acres burned, 9,120 acres are national forest system lands, and 3,330 acres are private lands. Suppression costs are estimated at \$7,000,000.

Area Setting

The fire lies approximately 10 miles southwest of Rapid City with the small communities of Rockerville, Keystone and Hayward flanking its boundaries.

Most of the burned area is characterized by the mountainous topography of the Black Hills, with many areas containing steep slopes and narrow canyon bottoms. The eastern third of the fire area is located in sedimentary limestones and sandstones that flank the Black Hills. The western two-thirds are situated in the central metamorphic crystalline area. Precipitation averages around 19 inches per year, most of which falls as rain from high-intensity storms in early spring and summer. Vegetation consists of extensive stands of ponderosa pine with inclusions of bur oak and aspen. The area supports a variety of wildlife species. Human uses include hunting, driving for pleasure, firewood cutting, cattle grazing, and logging. Residences are located within and around the burn area.

Post Fire Activities

This Rapid Assessment is part of the overall process to rehabilitate and recover from the fire's effects. Two other processes are also involved. This includes the Fire Suppression Rehabilitation activities and the Burned Area Emergency Rehabilitation process.

The Fire Suppression Rehabilitation Activities

The fire suppression command team has the responsibility to rehabilitate all damages caused by suppression activities. The funds for this rehabilitation comes from the same source as the funds used to fight the fire. Fire suppression rehabilitation for the Battle Creek Fire is currently in progress. It includes rehabilitation of dozer and hand fire lines, and repaving roads.

The Burned Area Emergency Rehabilitation (BAER) Process

Immediately following the Battle Creek Fire, a Burned Area Emergency Rehabilitation team met and evaluated threats to human life, property, and critical cultural and natural resources. BAER funding can be used for treatments on National Forest System lands to reduce the post-fire emergency to these “values at risk”.

Field reviews within the burned area and downstream of the burned area confirmed that threats to life are unlikely except for ash flows and rock on Highway 16. Threats to homes and outbuildings that are located in or near the floodplain or at the mouth of drainages exist in and downstream of the burned area. The impact will be wet foundations and ash and sediment deposits. There are numerous culverts on state highway, private, county roads and Forest Service roads that could be damaged.

The BAER Team conducted intensive field surveys after the fire to identify impacts and compiled the following recommendations for stabilization and rehabilitation of affected lands:

- Treat previously weed-free areas adjacent to known populations for next 3 years
- Install automated rain gage and Data Collection Platform (DCP) with GOES telemetry within burned area
- Install four straw bale check dams above the Highway 16 culvert near Rockerville
- Clean all ditches, outlets and drainage structures on 56 miles of system roads and 20 miles of unclassified roads
- Complete numerous road and trail specifications, including grade dip construction, template restoration, drop inlet installation, and trail protection (Flume Trail)
- Complete hazard tree removal and analysis along some roads and trails
- Assess unclassified roads

Rapid Assessment Process

A team of interdisciplinary specialists developed this assessment. The team considered lands administered by the Black Hills National Forest, along with private lands.

The purpose of this document is to:

- Provide an assessment of the fire's effects on the landscape
- Provide a context for future actions that may be taken to address the fire's effects and reach desired conditions
- Facilitate program and budget development by recommending priorities for needed management actions
- Suggest general guidelines to protect and maintain physical and biological resources
- Recommend monitoring strategies and research opportunities
- Recommend possible actions/treatments on private land

This assessment was prepared using tabular and spatial databases, environmental analyses, and other information previously collected by the Black Hills National Forest. It includes information from the Battle Creek Burned Area Emergency Rehabilitation (BAER) Report and supporting specialist reports. The assessment team, along with support specialists from the Forest Service and other State and Federal agencies, conducted field observations and analyses for this assessment.

Of particular value was a burn area image provided by Quickbird® high resolution, satellite imagery. This satellite imagery, collected on August 27th, 2002, allowed the team to rapidly map fire intensity throughout the fire area. The satellite image was in the form of spectral data. Differing fire intensities were classified by their reflectance. Ground measurement plots were used to refine this spectral image classification. No statistical estimate of accuracy for the fire intensity classification is available at this time, but field verification indicates it is accurate for the purpose of providing an overall assessment of the fire area.

This fire intensity mapping was the most critical data needed for this assessment. Models were developed from field observations to predict the fire's effect on these resources. These models utilized existing Geographic Information System (GIS) and other databases as a baseline data source. Field observations and site sampling were used to estimate effects of different fire intensities. Site locations were determined using global positioning system (GPS) electronic survey equipment, where precise location data was desired. GIS was then used to overlay the fire intensity mapping on various resource coverages to determine effects. Using the models and state-of-the-art technology, the assessment team could rapidly gather information and estimate resource and other effects.

Management Direction

The Black Hills National Forest Land and Resource Management Plan, revised in 1997 and amended in 2001, provides guidance for all resource management activities on the forest. Known as the Forest Plan, it establishes goals, objectives, standards, and guidelines, and specifies management emphasis for each area of the forest. The Battle Creek Fire affects

Management Areas 5.4 – big game winter range emphasis, 3.7 – late successional forest landscapes, and 5.1 – resource production emphasis.

BATTLE CREEK FIRE OVERVIEW

The Battle Creek Fire started at about 6:30 p.m. on August 16, 2002, on private land near Keystone, South Dakota. High temperatures, low relative humidities and very strong winds created conditions that resulted in intense fire behavior with long range spotting. The fire burned actively for four days spotting across Highway 40, South Rockerville Road and Highway 16. Before it was contained on August 25, 2002, the fire burned 12,450 acres of land and threatened over 600 structures, and the town of Keystone. Many people were evacuated from their homes during the fire. Effective firefighting was able to limit losses to 3 residences near the community of Hayward, and there were no serious injuries or deaths.

Weather conditions the day of the fire saw maximum temperatures in the high 90's with relative humidities as low as 8%. This coupled with wind speeds of 17-20 and gusts to 60 mph created explosive conditions. The fire was reported at 6:45 p.m. Even though the first initial attack forces arrived at the scene within 15 minutes, the fire was already crowning and out of control. Strong northwest winds pushed the fire 5 miles to the southeast threatening the community of Hayward. It was a rapidly running crown fire with blowing embers starting spot fires up to one-half mile ahead of the main fire. By the next morning the fire had burned 3,562 acres and destroyed 3 residences. Saturday afternoon (August 17) the winds shifted the fire toward the north burning an additional 2,665 acres and threatened several homes near Rockerville. Another flank of the fire crossed the south Rockerville road and was poised to threaten the town of Keystone. Strong southerly winds pushed the fire in a northwest direction on Monday, August 19. The fire burned additional 2,305 acres and crossed highway 16 at Silver Mountain and at Rockerville. Tuesday, August 20, was calm with cloudy skies. This moderated fire behavior and allowed firefighters to contain the head of the fire. Wetter conditions later in the week helped contain the fire at 12,450 acres.

The Battle Creek Fire was fought both on the ground using dozers, handcrews and engines, and from the air using fire retardant tankers and water dropping helicopters. Firefighting in the Black Hills is a group effort. There were many agencies and groups involved in fighting the Battle Creek Fire. Among them were the many Volunteer Fire Departments, U.S. Forest Service, South Dakota State Division of Wildland Fire Suppression, National Guard, Pennington County Sheriff's Office, South Dakota Highway Patrol, South Dakota Department of Corrections and many others that came from across the country to support the effort.