Environmental Case Study
Fires in the Boundary Waters Canoe Area Wilderness:
Major Fires Expected in Popular Wilderness Area

May, 2000

Boundary Waters Canoe Area Wilderness, Minnesota

Catastrophic wildfires were feared during the summer of 2000 in the Boundary Waters Canoe Area Wilderness (BWCAW) in Minnesota. One year previously, on July 4, 1999, a sudden windstorm toppled trees on thousands of acres of forest in this corner of northern Minnesota adjacent to the Canadian border. The area of damage is an irregular swath of downed and broken trees 4 to 12 miles wide and 30 miles (50 km) long, running in a southwest-northeast direction across the wilderness area. The BWCAW is the most popular wilderness area in the United States. More than 200,000 visitors come there to canoe and camp every year.

Forest Service officials say a serious fire is inevitable following the blowdown. The only questions are when the fire will happen and how long-lasting the damage will be. The worst type of fire would be a "plume-dominated" fire—one with updrafts reaching 30,000 feet (10,000 m) or more, causing strong winds that further feed the fire, fire whirls along the edge of the fire, and spot fires jumping 3 miles (5 km) to start additional fires. Whether this type of fire develops is a matter of weather conditions. A hot, dry, and windy summer could produce conditions that would support this type of fire. A cool, wet summer would reduce the chances of an extremely large fire.

In anticipation of fire, the Forest Service gathered and rented fire-fighting equipment, including airplanes and helicopters, and hired extra fire-fighting staff for the summer. Also, some prescribed fires were planned to reduce fuel near key road corridors and residential areas, but as of early June 2000, weather conditions had not allowed any prescribed fires to be carried out.

Some fires occur every summer in the Boundary Waters area. In a normal year, 57% of the fires are caused by lightning strikes, while 43% are started by campers who fail to fully extinguish their campfires. Historically, this region is a fire-adapted ecosystem, having some tree species that reproduce readily only after a fire. However, after more than half a century of fire suppression there, a dangerous level of fuel has accumulated on the ground, and human habitation has seriously encroached on the wilderness. Now the most serious concerns are not for the forests and wildlife but for the property of the people who live on the edge of the wilderness as well as for campers who may be in the area when a fire occurs.

To learn more, see these related websites:

Mn DNR damage assessment page, with interactive image viewer
Mn DNR blowdown photo pages

To read more, see:
Environmental Case Study
Fires in the Boundary Waters Canoe Area Wilderness:
Major Fires Expected in Popular Wilderness Area

Environmental Science, A Global Concern, Cunningham and Saigo, 6th ed.
Fires and ecosystem resilience, pp. 226-27
Fire management, p. 319
Wilderness areas, pp. 342-44

Environmental Science, A Study of Interrelationships, Enger and Smith, 7th ed.
Restoring ecosystems, p. 88