



Resource Bulletin

Wildland Fire

A Heated History

Wildland fire has been an integral part of the western landscape for millennia. In Glacier National Park, as well as the rest of the West, fires are naturally ignited by lightning with a cyclic occurrence, and forest and grassland ecosystems are adapted to this periodic disturbance. Therefore, nearly every existing forest in Glacier has had fire course through once or multiple times, or, has replaced a previously burned forest, or has invaded open areas that fire may eventually reopen. Fire on the landscape creates a diverse mosaic of vegetation and associated wildlife. Glacier has fires every year which burn anywhere from less than an acre up to the 146,000 acres burned in 2003.

Man's relationship with fire on the land has had a very heated history. Before settlement of the West, Native Americans used fire in the region for a variety of purposes. And, even today, a large percentage of fires are also started by people, both intentionally and unintentionally. Add more than 6,000 lightning-start fires that occur in the U.S. annually, and the potential for fire-starts can be great. The West has a history of drought as well as fire, and when lightning strikes a forested region or a prairie that has not received much moisture, large fires may result.

A general practice with early land management agencies was to stop all fires. Up until the 1960s, most managers and the public thought of fire as only a bad thing. Over the years, however, research revealed that fire was a natural process that improved habitat for many wildlife species and maintained certain forest types. Today, park staff employs a combination of suppression, prescription, and



The Wedge Canyon Fire of 2003 started in the Flathead N.F. where it was managed as a "full suppression fire." When the fire moved eastward into Glacier, it was still managed as a suppression fire but with "Appropriate Management Response" which includes using suppression, prescription, and wildland fire use techniques, with a goal to minimize firefighting damage.

"wildland fire use" methods to manage fire across Glacier's diverse landscapes.

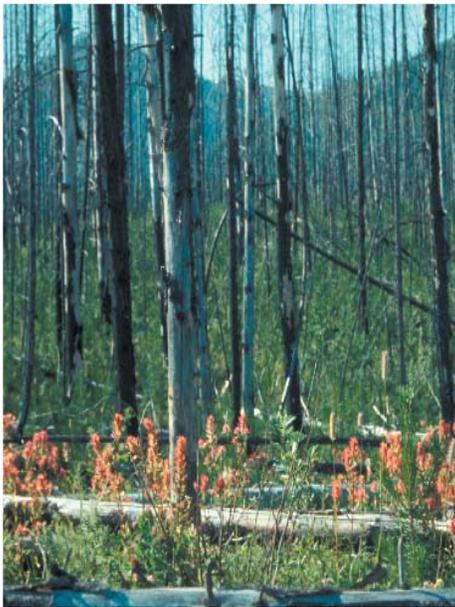
Natural Fire Regimes

While wildland fires are a natural part of Glacier's ecosystem, not all systems respond to fire in the same way. Fire behavior on a landscape depends on many factors, including slope and aspect of the terrain, recent burn history, long-term climatic conditions, and current weather. A major factor affecting the way a system responds to fire is the fuel, or type of vegetation, present. Different types of vegetation and vegetation mixes have different types of fire regimes.

The fire regime of an area is based on the severity and return intervals of fire across that landscape. In most instances, the more severe the fires, the less often they occur, and the less severe the fires, the more often they tend to occur.

The term "burn severity" generally refers to the amount of change in vegetation seen after a fire. For example, a low severity burn in a forest might burn just the underbrush and lower limbs of trees, while a high severity burn will replace the entire forest stand.

In Glacier National Park, there are several different fire regimes. Through research methods such as examining fire-scarred trees, counting



Wildflowers respond vigorously in a recently-burned forest.

tree rings, investigating present forest structure, looking at ash layers in the soil, and carefully documenting the extent of historical burns, we know what the fire return intervals are for various areas of the park. Grasslands and long needled pine forests like ponderosa pine, of the west side, usually burn about every 9 to 29 years with low severity fires.

Lodgepole pine forests, found in the North Fork area on the western side of the park, burn in 60- to 80-year intervals, usually with a high severity. High elevation mixed conifer forests may have as long as 250 years between burns.

Despite active fire suppression over the last century, much of Glacier's ecosystem is still within natural fire regimes. Historic fire return intervals for the majority of the forests in the park are longer than the amount of time that effective suppression techniques have been used. Therefore, there has not been a significant alteration of Glacier's natural fire regimes as there has been in other areas of the United States, such as in southwestern ponderosa pine forests.

Glacier's Management Strategy

Since the necessity for fire in a fully-functioning, western ecosystem has been recognized, Glacier's fire managers try to allow naturally ignited fires to burn whenever possible. However, this is not always feasible. There are many situations where it is merely too danger-

ous to allow a fire to burn unchecked. Such situations include weather conditions that might allow the fire to spread quickly, fires too close to structures or park boundaries, or when there is so much fire activity nationwide that the park could not call for sufficient help should they need it.

A naturally occurring fire that does not threaten people, structures, or property is managed for resource benefits, when possible. Even then, the fire is carefully monitored and managed. Since 1994, the park has followed an "Appropriate Management Response" with all fires. Fire managers set parameters within which a fire will be permitted to burn, allowing the most benefit with the least amount of risk. If fire conditions change and result in unacceptable fire behavior that threatens park resources or the boundary, managers may elect to suppress portions of the fire.

The fire management staff has one additional tool that can be effective. Occasionally, for limited projects, they can set "prescribed fires" within the park, to meet specific objectives, such as fuel reduction or returning fire to dependent vegetation types. Fires planned and started by fire managers aim to return the process of fire to that ecosystem. By bringing back wildland fire to many areas of the landscape where fire has been historically suppressed, managers are helping to improve wildlife habitat, perpetuate grassland and forest communities, and promote ecological diversity within the ecosystem.



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Resources for More Information

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Documents and web sites:

Glacier National Park Fire Management Plan and Environmental Assessment, March 2003:
www.nps.gov/glac/pdf/2003fireea.pdf

Forest Fire in the U.S. Northern Rockies: A Primer:
www.northernrockiesfire.org/history.htm#list1

Glacier National Park Wildland Fire Management webpage:
www.nps.gov/glac/resources/fires.htm



The Apgar Mountains, burned in the Robert Fire of 2003, show the mosaic pattern that most wildland fires leave on the landscape.