



Rocky Point Nature Trail



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In 2003, a massive wildfire raged through the forests along the shore of Lake McDonald, scorching nearly 40,000 acres. An incredible transformation is now taking place among these skeletons of the forest. The Rocky Point Nature Trail leads you into the heart of this changing landscape.

From the Ashes

Flames leaping 500 feet into the sky over Howe Ridge. . . dinners left half-eaten by guests evacuated from the Lake McDonald Lodge. . . towering plumes of smoke and ash blotting out the sun.

For the people who experienced Glacier National Park's 2003 fire season, these are images that will stay with them forever – images of destruction and organized chaos as fire crews fought to contain the widespread fires burning throughout the park.

Fire is a powerful force. Whether ignited by lightning or by humans, fires fascinate and frighten us. When conditions are dry and windy, a wildland fire can race through a forest, cross meadows and jump rivers. Or it can simply creep along, smoldering in the undergrowth. Humans have tried to control fire from the earliest times, but not until recently have we come to understand its true value.

From a human perspective, the toll from the 2003 fires seems alarming – more than one hundred thousand acres of Glacier National Park's wilderness left charred and smoking; thousands of visitors and employees evacuated from the park; homes, businesses and offices threatened by the advancing flames. As frightening as these images may seem to us, however, the ecological impacts of these fires on the park's forests were overwhelmingly beneficial.

As you'll learn on this hike, fire is an integral component of a healthy forest and can be essential for the continued survival of both the plants and animals that live there.

The summer of 2003 was one of the most significant fire seasons in the history of Glacier National Park. After a normal winter snowpack, precipitation was below average from April through June. More importantly, almost no rain fell in July and August. Coming on the heels of a five year drought, these conditions turned the park into a tinderbox waiting for ignition. That summer over 136,000 acres burned within the park boundary (13% of the park!).

The trail you are about to embark upon tells the story of one of these fires, and of the new life that has sprung from the apparent devastation.



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Let us permit nature to have her own way. She understands her business better than we do.

Michel de Montaigne (1533-1592)

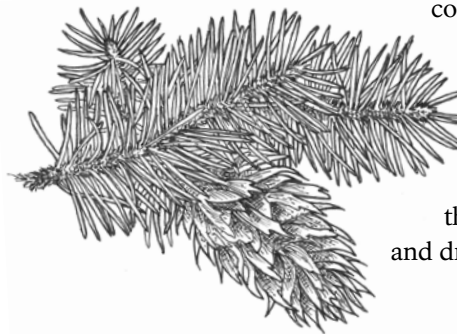
A Forest Adapted to Fire

The forest surrounding you is extremely well adapted to disturbance, and for thousands of years fire has played the role of primary disturber. Each of the following species, all of which can be found along this trail, has evolved its own strategies for surviving and even benefiting from fire. Look for them along the trail.

Douglas Fir (*Pseudotsuga menziesii*)

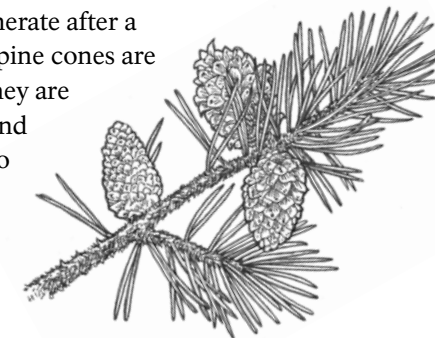
Douglas firs are most easily identified by their unique cones. To some the distinctive, three-pointed bracts protruding above each scale on the cone resemble the rear end of a tiny mouse who's climbed inside, with only its feet and tail sticking out. They are more shade tolerant than many other species and following a disturbance, such a fire, they

compete well against other species and can regenerate vigorously. You can find douglas firs throughout the park in both moist and dry soil.



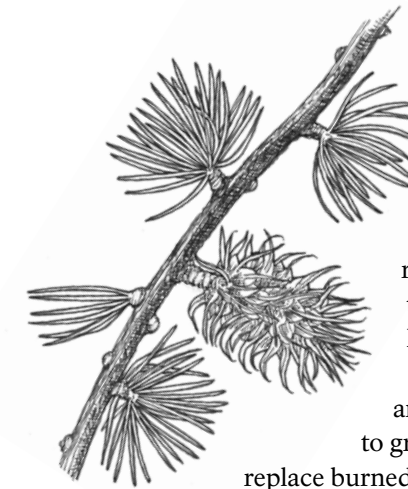
Lodgepole Pine (*Pinus contorta*)

Well adapted to regenerate after a fire, many lodgepole pine cones are serotinous. That is, they are sealed shut by resin and can only be opened to release their seeds by the heat from a fire (113-120 degrees). These straight, slender pines, whose trunks were commonly used as tipi poles, generally live only 150-200 years. Lodgepole pines are often found in uniform stands, probable evidence that the previous forest was destroyed by a large, stand-replacing fire event. They can be identified by their long (2") needles bundled in twos.



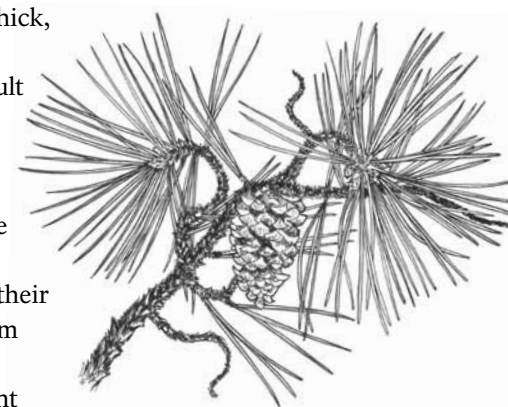
Western Larch (*Larix occidentalis*)

One of the most unique coniferous trees in North America is also one of the most fire resistant. Adapted to live where fires frequently occur, the deciduous western larch is one of the quickest to repopulate an area after a large burn due to prolific wind-dispersed seeds and rapid growth. Protected by thick bark and a lack of lower limbs, large western larch can often withstand an intense fire. Their ability to grow new needles as well as replace burned branches along the bole of the tree make them well adapted to fire. Because of their adaptations these survivors can quickly repopulate an area.



Ponderosa Pine (*Pinus ponderosa*)

These large trees are extremely fire-resistant. In fact, large stands of ponderosa pines depend upon regular, low-intensity fires to thin out the undergrowth, preventing these giants from being overgrown by more shade-tolerant species. Their thick, scaly bark protects the adult trees from fire; scorching can often be seen around the base of the trunks. Due to their deep root system they are also drought resistant and tend to grow on drier sites. The needles are bunched in groups of three and they produce cones over 3" long.



For More Information:

NPS Fire & Aviation Management
www.nps.gov/fire

National Interagency Fire Center
www.nifc.gov

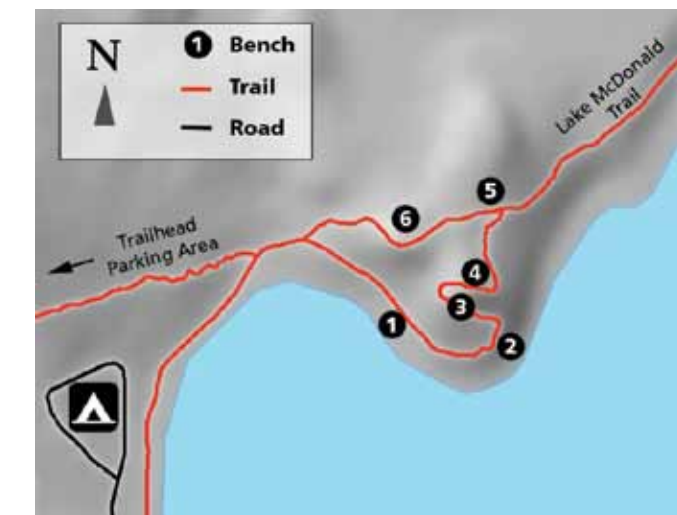
Protect Your Home from Wildfire
www.firewise.org

Glacier National Park
www.nps.gov/glac

Artwork: Jim Clayborn

Funding for this brochure was made possible by the Glacier Association, the Glacier National Park Fund, and the Joint Fire Science Program.

The Rocky Point Nature Trail is located near Fish Creek Campground on the shore of Lake McDonald. The trail is a 0.7 mile loop with an elevation gain of 100 feet.



Bench One

Lives to Burn

You are sitting in a forest that lives to burn and burns to live. The trees around you – lodgepole pine and western larch – are dependent upon the cleansing forces of wildfire. In fact, most of the park’s animals, plants and trees have evolved with fire. Fire causes rapid change in a forest, creating openings that allow light to reach the forest floor where sun-dependent plants grow. The forest around you wouldn’t exist without fire’s regenerative affects.



As you pass through this lush forest on your way to the next bench, watch for evidence of past fires in the understory, including downed logs, old snags, and scorched tree trunks.

Bench Two

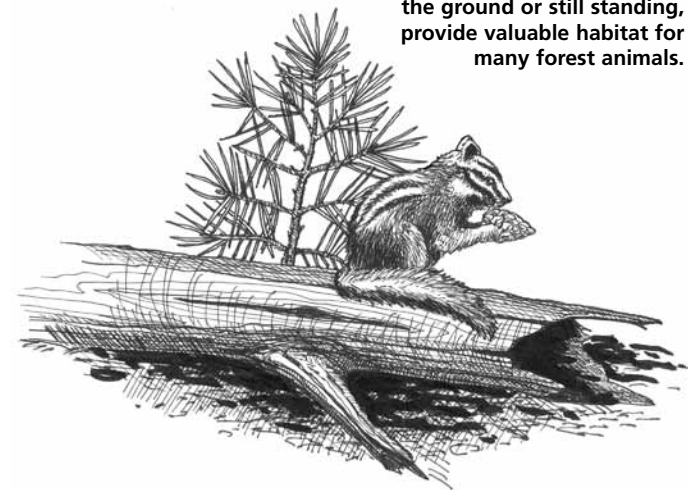
A History of Fire

Did you notice the downed logs covered with moss and hidden by shrubs and other plant life? These are the artifacts of fires that raged across this area nearly 100 years ago. But the history of fire in this ecosystem isn’t only present on the ground.

Walk uphill to a round clearing in the trees, take a side trail to the right and look out across Lake McDonald. In the forest canopy of the distant ridge a pattern emerges. Patches of similarly sized trees can be seen in clumps along the ridge. These are evidence of what are called “stand replacing fires,” those that completely destroy whole sections of forest, killing all of the trees within the fire zone. As the forest recovers, the stand is completely replaced by trees of the same age.



Trees killed by fire, whether on the ground or still standing, provide valuable habitat for many forest animals.



As you continue down the trail, try to imagine what a forest recently impacted by a stand replacing fire might look like. Soon you’ll see the effects first hand!

Bench Three

Patterns of Destruction

Seldom does everything burn within the perimeter of a fire. Some areas may be untouched by flames, while adjacent sections burn at a low to moderate severity. These areas will rejuvenate quickly. Other areas are fully engulfed, but will in time provide a vibrant habitat. The result is a dynamic blend of burned and unburned forest called the forest mosaic.



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The burn pattern of the 2003 Robert Fire created a classic mosaic in the Apgar Mountains.



In front of you rise the Apgar Mountains. The 2003 fire that roared across the ridge where you now sit began in those hills. If you look carefully, you might see the fire mosaic pattern. This patch-like effect leads to a great range in the ages and types of plants in a forest, creating a diverse ecosystem that provides a home for a wide variety of plants and animals, particularly along the edges of a burned area. As you continue to the next bench, you will pass through one of these edges. Look carefully as you do and note the incredible diversity of the plants and animals you encounter.

Bench Four

Inferno

Imagine the place you now sit engulfed in an inferno, with flames roaring 500 feet into the sky and searing temperatures scorching everything that can burn. The fire sped through this part of the forest in a matter of minutes, consuming all before it. Yet notice the lush plant life around you that has grown since the fire passed. These plants, some of which began sprouting while the ground was still smoldering, are evidence of the tenacity of nature.

Mere inches beneath the flames, roots of mountain maples, aspen, willows and others safely bided their time, waiting for just such an event to spring to life. These shoots immediately took advantage of the devastation, racing to be first to fill the void left by the fire. They are the survivors. Other plants you see around you are the colonizers, growing from seeds stored in the ground by squirrels or blown in from unburned areas nearby.



NPS Photo

Flames from the 2003 Robert Fire roared hundreds of feet into the air above the ridge where you now sit.

Most of the wildlife inhabiting this forest was able to escape the flames. It is rare for birds and mammals to get caught in a fire. Larger animals typically move out of the way while most small mammals, amphibians and reptiles avoid fire by seeking refuge in underground tunnels, under large downed logs, or in damp areas.

Bench Five

Rebirth

Around you a new forest is reborn. These tiny trees growing in soils that are nutrient-enriched by ash are the same as the mature forest near the trailhead: lodgepole pine and western larch. The mosaic pattern of this burn allows nearby mature seed trees to repopulate the burned area. But not all of these new trees will survive. Lodgepole pines are not shade tolerant, so the smallest will be shaded out and die by those that outgrow them. What about plants that require shade to survive? Eventually, as the larger trees create a canopy overhead, leafy plants such as ferns, as well as fir and spruce trees, will begin to flourish.



NPS Photo

Scouler’s willows, whose roots remain alive after a fire, are some of the first plants to sprout, sometimes only days after an area burns.

It’s not just the trees and other plants that thrive after a fire, though. A variety of wildlife such as elk, deer, moose, rodents and ground squirrels find new habitat and succulent, more nutritious vegetation where only unpalatable plants previously grew. As these populations flourish, so do predators and scavengers. Certain woodpecker and owl species also take advantage of dead snags for both shelter and as a place to find plentiful food.

Bench Six

An Uncertain Future

Take a seat and enjoy the view. Look back at the role of wildland fire in a natural ecosystem. Fire is life in Glacier National Park. The rebirth of the forest, so soon after the 2003 inferno swept across this ridge, demonstrates the resilience of this ecosystem. This forest will continue to grow and mature and will eventually burn again. This constant recycling of life is critical to the forest’s continued health.

We didn’t always understand that. For more than half a century the National Park Service suppressed the natural rhythm of fire, resulting in unhealthy forests and more catastrophic fires as fuel loads accumulated. Fire managers have learned from these mistakes and now seek to restore and maintain natural processes associated with fire. Fire is a major ingredient in the ecology of the Northern Rockies, just like the snow, the wind and the rain, and native plants and animals are well adapted to it.



However the future of fire management in our National Parks is uncertain. How will we manage fire-prone forests in an era of global climate change? How will the role of fire change in this ecosystem as our glaciers disappear? These are the questions that must now be answered. Fortunately, Glacier National Park provides an opportunity for ecological research and management in one of the largest areas where these natural processes are still allowed to predominate. The answers are all around you, in the blackened remains of the old forest and in the vibrant green of the new one.