

NEWS RELEASE

USDA Forest Service -- Northern Region



Date

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FOR IMMEDIATE RELEASE

Why Smokey Bear Needs Fire in the Forest

The 5th in a special series by Deborah Richie Oberbillig

A malnourished black bear cub with bandaged burned paws and a beseeching gaze captured the hearts of people around the world after TV cameras converged on the forest fire survivor. This was not the famed Smokey Bear or the year 1950, but a deliberately unnamed cub in Montana's summer of 2000 fires.

The cub's destiny is not to be a poster bear, but to slip quietly back into the wild. Montana Department of Fish, Wildlife and Parks plans to place the cub in a forest den this fall, as part of its program to give orphaned cubs a chance for a natural life outside a zoo.

Talk to any bear biologist and they will tell you that Smokey Bear's message-- "Prevent forest fires"--is only part of the story. It's true that we all need to be careful with fire and prevent human-caused fires, and it's also true that fires provide essential habitat for bears. From huckleberries to the nutritious seeds of the seriously declining whitebark pine tree, important bear foods need fire to prosper.

Dr. Chuck Jonkel, president of the Great Bear Foundation in Missoula, Montana, pointed out that it's difficult but necessary to reconcile some individual wildlife injury and mortality with the big picture of fire's benefits.

He admitted that cubs like this year's media star from the Bitterroot Valley tug at your heartstrings. "They have a way of giving you this look like a kid in trouble," he said. Dr. Sterling Miller, senior biologist for National Wildlife Federation in Missoula, worked as a bear researcher in Alaska for 21 years. He observed that many bear cubs don't make it through the first year, whether there are fires or not. The underweight cub found in the Bitterroot Valley may have lost its mother well before the first trees ignited. If a fire burned early in the summer, tiny cubs would be more likely to be stranded, since their

mothers often leave them in trees for safety. But when the Bitterroot fires burned this August, cubs should have been big enough to follow.

Bears are highly mobile and rarely trapped by flames. For example, researchers tracked 38 radio-collared grizzly bears in Yellowstone during the 1988 fires that burned about 1.4 million acres of the national park. They found that 13 of the 21 bears with home ranges in the fire areas strolled back into fresh burns. Three stayed within actively burning areas. Only three bears remained outside of the fires.

In fresh burns, the grizzlies fed on elk carcasses (only one percent of the park's elk died in the fires) and dug into charred logs looking for ants. They nibbled on sedges and bluegrass that emerged quickly, fertilized by a flush of nutrients released by the flames. Since then, biologists have observed similar scenes in other fires. In fact, this year's star black bear cub survived by feeding on a deer carcass.

Singed huckleberry bushes in fire areas respond later with improved berry crops, but the best scenario results from hot, intense fires that remove the forest canopy. Then, sunlight streams full force on the charred huckleberry plants that are fertilized by ash. Soon, the bushes will send up healthy new sprouts from their underground stems. Twenty-five years later, the huckleberry fields will produce outstanding crops, which points to the benefits of fires burning regularly in different parts of bear habitat.

"Our best, most productive berry fields are in old burns," said Kate Kendall, bear researcher at Glacier National Park. "You'll find some of the highest grizzly bear numbers in the Apgar Mountains in late summer, feasting in berry fields resulting from a fire in the 1920s."

Sweet, high-calorie berries have become critical for grizzly bears in northwestern Montana, now that an even more nutritious fall food source, whitebark pine seeds, has become steadily rarer.

Whitebark pine trees are suffering from a disease called blister rust that was accidentally imported from Eurasia. In fact, these wind-sculpted trees that cling to high ridges are experiencing a 50-90 percent mortality in west central and northwestern Montana, according to Dr. Bob Keane, fire ecologist at Missoula's Fire Sciences Laboratory. Keane views any fires that burned in whitebark pine country this year as positive. "I just can't see any down sides to burning where whitebark pine is being killed by blister rust," he said.

While burning up trees to save them might sound odd, Keane has studied this ecosystem long enough to feel confident in the results. Unlike the low-elevation ponderosa pine forests where fire historically swept through the understory every decade or so, whitebark pine forests tend to experience fire at 300-year-intervals.

When a lightning fire torches a whitebark pine forest, the flames leave clearings that are ideal for Clark's nutcrackers to bury pine seeds with their sharp bills. Some seeds will become their winter food, while others will germinate and grow.

Keane explained that the surviving whitebark pines in a blister rust-stricken area have a resistance to the disease. When the birds plant seeds after a fire, the new crop of trees will carry a natural ability to fend off the dangerous disease.

Like the huckleberry story, the benefits of the fires will be experienced decades later. In fact, it can take anywhere from 60 to 100 years before whitebark pines are capable of producing cones.

Grizzly bears rely not only on whitebark seeds for the high fat content that helps them through the winter. They depend, too, on the Clark's nutcrackers, and on red squirrels that harvest cones from the treetops and stash them, inadvertently giving bears easy access to the seeds.

Bears have been known to ignore spawning salmon until they had eaten their fill of whitebark seeds, according to observations in British Columbia and on Russia's Kamchatka Peninsula, Kendall said.

"If grizzlies don't get the high nutrition they need in fall from the pine seeds or huckleberries, they may fail to have cubs the next year," she said, explaining that bears mate in the spring, but there's a delayed implantation of the embryo until fall. Without excellent nutrition, females will abort instead of giving birth to cubs in a winter den. When grizzlies emerge from hibernation in spring, they head to fire-created meadows to dig up the roots of yampa, serum, glacier lily and biscuitroot. They sample morel mushrooms in new burns. They follow stream corridors that have also seen their share of fire, which nourishes tasty plants like cow parsnip. In Northern Montana, these powerful animals grow up on a diet that's 80-90 percent vegetarian.

Both grizzly and black bears spend their days deliberately moving within a maze of habitats, from dense forests where they might nap in the heat of the day, to streamsides and meadows in varying stages of succession. As they move from high elevation to lower

grounds, they pass unknowingly through past fire regimes that vary dramatically in frequency and intensity.

"Fire under most circumstances is beneficial to bears as long as it doesn't homogenize the landscape," Dr. Miller said. "When it burns in patchy mosaics, it creates edges and food producing areas."

Suppression of fire at higher elevations can allow fuels to become more connected, and fires today to be more widespread and less patchy, said Dr. Keane. However, if this year's fires did burn a larger swath of cone-producing whitebark pines than occurred historically, he believes that Clark's nutcrackers can easily disperse seeds from other sources, as far as 5-6 miles away.

Without fire at all, subalpine fir and spruce shade out whitebark pine seedlings and prevent the rust-resistant trees from passing on their immune genes. Fire is the best way to help establish new, healthy whitebark trees. In fire's absence, agencies are forced to collect rust-resistant seeds and plant them by hand, a labor intensive program. For bear biologists, it's easy to rejoice at the sight of ancient whitebark pines that succumbed to a lightning blaze or to discover charred huckleberry bushes. The message? Where there's fire, there's life. Even this year's wildlife star, the bear cub with bandaged paws, will get a second chance to enjoy the rewards flames can bring to the land.

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