

Wildfire Management in Alaska

by David Kelleyhouse

As I soaked up the afternoon sun atop a rock outcrop on the highest hill in the area, I had a panoramic view of the surrounding landscape. It was early September and I was in the midst of a 225,000 acre area burned in 1966. Thirty-four years earlier, the Y34 Chicken Fire generated tremendous speculation about its devastating impacts upon wildlife and wildlife habitat. Yet by fall 1990 this huge burned area was already a veritable oasis of wildlife abundance and diversity in the midst of a "desert" of unburned, decadent black spruce muskeg.

My panorama included endless rolling hills painted vivid oranges, reds, and yellows by the first hard frosts of fall. Unburned inclusions of white spruce along meandering streams and around hillside springs broke the monotony of the surrounding shrublands. Bleached trunks of fire-killed spruce served as persistent reminders of the force which sculpted this wildlife habitat mosaic so long ago.

Wildlife was abundant. An ermine climbed onto the toe of my hiking boot sizing me up for a possible meal, oblivious to the fact that I was a hundred-fold its size. Harriers and red-tailed hawks rode the hills' thermal in search of unwary voles or hares. Sharp-tailed and spruce grouse were busily gleaning the last bits of easy food soon to be covered by snow. And, yes, there were a few moose beginning to show up for their evening feeding amidst a seemingly endless sea of tender young browse.

Although none were visible at the moment, I had previously observed grizzly bears, wolves, marten and wolverines near my camp nestled into the base of the lookout rock. Despite the gloomy predictions of federal fire bureaucrats in 1966, the Chicken Fire has produced a bounty of wildlife in the years since.

As a professional wildlife biologist, I have had frequent occasions to dispel the doom and gloom predictions of those who do not understand the necessary role of wildfires in the constant rejuvenations of northern wildlife habitats. My message is simple. Fire is equally important to the health and produc-

tivity of northern ecosystems as rain is to the world's tropical rainforests. Responsible land management in Alaska dictates that fires in areas remote from inhabited human developments must be accommodated.

This past summer of 1990 proved once again that mankind cannot exclude wildfires from the Alaskan environment—we can only postpone the inevitable. When weather and fuel conditions are right, fires are going to occur and statistics show that during at least one in every ten years such fires are going to be numerous and virtually uncontrollable. The vast spruce forests of interior Alaska have evolved to burn and various plant and wildlife species have adapted to fire. This is not a fanciful theory, it's fact. If we humans intend to live in this ecosystem, we must learn to manage fires to minimize risks to ourselves and to maximize fire's beneficial effects on the ecosystem.

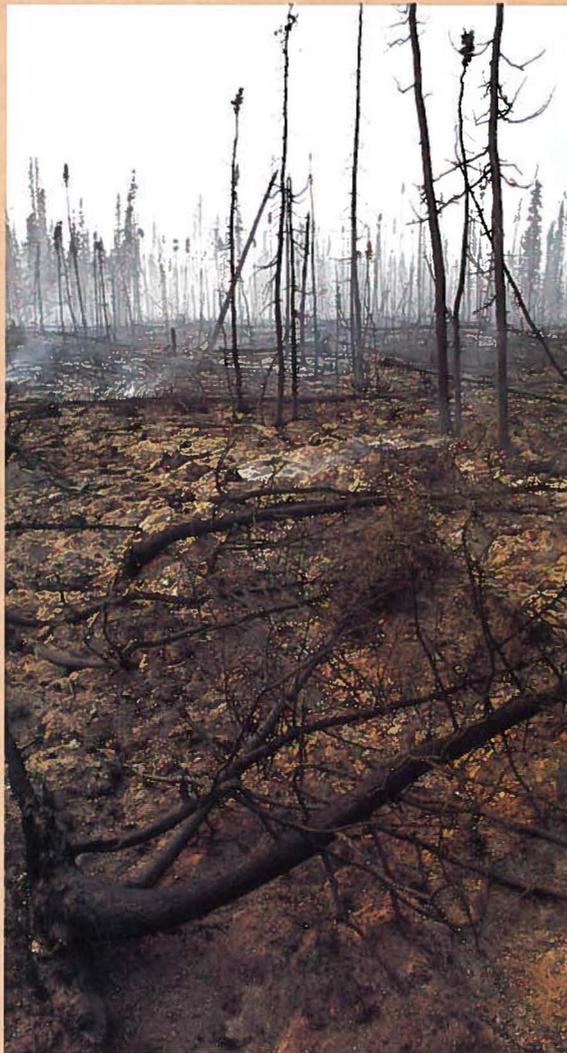
It is true that our professional fire fighters can put out a high percentage of all fire starts by attacking fires quickly. This is known as initial attack, a practice which was used indiscriminately throughout Alaska from the late 1950s until the early 1980s under the now-antiquated Bureau of Land Management Alaska Fire Attack Policy. Millions of acres of low productivity black spruce muskeg were "saved," but it required millions of dollars to do it and only resulted in creating an ever-increasing sea of highly flammable fuel types. But, these acres were "saved" only to burn ever more violently and uncontrollably during the severe fire years of 1966, 1977, 1988, and 1990. It's not so much a question *if* interior Alaskan lands are going to burn as it is of *when*.

The greatest impediment to fire management is public opinion. Fires are simply perceived as not "good" when they are burning. Fires create smoke in our communities, scare the devil out of folks, and every so often actually threaten communities such as Tok and Tetlin this past summer. The relatively high turnover rate in Alaska's urban population poses problems in wildfire education. Perhaps most frustrating is the short-term and rather selfish outlook of some Alaskan trappers. Many



Close to 1,000 firefighters fought the Tok blaze, one of hundreds that burned in the state during the summer of 1990.

The decadent black spruce forest that burned will be replaced by shrubs that will be high enough to benefit moose within five years.



The 1990 fire of Fairbanks, Alaska



All photos by Michael Mathers

**hat burned near Tok, 175 miles southeast
ached a perimeter of 97,000 acres.**

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trappers insist that all fires be suppressed so that their present traplines don’t burn but show no consideration for future trappers who would benefit from fires today.

In the absence of fire, wildlife production declines as forests become over-mature. As forests mature, wildlife foods become scarce in the cold, wet, dark conditions near the forest floor. Fewer and fewer individuals of fewer and fewer wildlife species are capable of sustaining themselves under such conditions.

Conditions change immediately and dramatically following fire, which, in Alaska, is usually caused by lightning strikes. Spruce trees and deep accumulations of mosses and organic matter are instantly burned off the underlying mineral soil. Nutrients locked up for decades in organic matter are released to the soil. Sunshine warms the soil and drives the permafrost away from the surface, improving soil drainage. Underground roots and stems not killed by the fire produce shoots, the beginning of a new plant. The new soil conditions provide excellent seed beds for surviving spruce seeds dropped to the ground or for wind-blown seeds from nearby, unburned plants.

Within a few years, grasses and young shrubs become firmly established in the burn, producing seeds and fruits and supporting wildlife species such as voles and birds which require such foods. Woodpeckers are among the first species to arrive, making good use of insects living under the peeling bark of fire-killed spruce. Unburned inclusions of more mature forests provide cover for many wildlife species requiring heavy cover and abundant food in close proximity.

As plant succession in a burn progresses through the shrub, sapling, and young mixed forest stages, a great many more wildlife species find the burn attractive. Moose and sharp-tailed grouse can find adequate food in a burn within only 4 to 6 years after the fire, but conditions for these species peak 15 to 20 years postburn. After about 25 years, snowshoe hares have both adequate food and sufficient cover to protect them from predators.

As spruce forests begin to dominate a burn, wildlife diversity begins to decline. The whole sequence from one burn to the

next can take up to 40 to 100 years or longer.

Furbearers also benefit from fires in the long term. Red foxes, marten, and ermine are the first species to reinhabit a burn after vole populations rebuild. Lynx come next after optimal conditions for their primary prey, snowshoe hares, are reached. Wolves and wolverines begin to frequent burns when moose and later caribou, find conditions in a burn favorable. Aquatic furbearers such as muskrats and beavers may not be adversely affected by fire at all because wetland habitats usually do not burn severely in the first place. Research has shown that some of Alaska’s most productive furbearer populations occur in areas with the most active fire history.

Fortunately, state and federal land resource managers and private landowners got together in the early 1980s and created the Alaska Interagency Fire Management Plan. Fire management in Alaska began in 1984 when this plan was first implemented. The plan basically zones fire suppression efforts so that human lives and developed property receive the greatest levels of protection while wildfires in remote areas are not attacked at all. The plan recognizes the importance of minimizing harm to people while allowing wildfires to play their necessary ecological role in Alaska’s wildlands. The plan also saves a great deal of public money by not wasting money fighting fires needlessly.

Perhaps most important is the fact that the plan allocates limited fire suppression forces to areas needing the greatest levels of protection. If all fire fighters had been committed to fighting remote fires early in the 1990 fire season, few reserves would have been available to attack fires which occurred later in the season close to Alaskan communities. All in all, the Alaska Interagency Fire Management Plan represents a sensible approach to wildfire management in our state.

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