

QUIET DECLINE



Fewer Wolves and Wildfires May Have Led to Aspen's Decline

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A withering stand of aspen in Yellowstone National Park bears testimony to the decline of these native trees around much of the Rocky Mountains. (Oregon State University)

By Lee Dye

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Sept. 21 — A gentle breeze wafting across the American West sends the heart-shaped leaves of the quaking aspen into a frenzy, filling the forest with a gentle roar as they whisper the sounds of approaching fall. The days of autumn grow colder, and these majestic trees switch from silvery green to a luminous yellow so brilliant it almost hurts your eyes. It is a scene repeated in many areas across the country, as small pockets of these commanding trees cloak themselves in the colors and sounds of fall, dazzling anyone fortunate to stand in their midst. But those opportunities are growing more scarce, especially in the western states where the aspen has fallen on very hard times. In forest after forest, the aspen is simply not regenerating, or sending up young shoots to replace the older trees that are nearing the end of their lifespan. The decline of the aspen has reached crisis proportions, according to foresters, many of whom admit they only recently became aware of the problem. Utah, for example, once had more than 2 million acres of aspen, but today that number is down by 60 percent. The decline in some areas of the West is even worse, down as much as 90 percent in some parts of the Rocky Mountains, according to the U.S. Forest Service. The aspen is doing quite well in many regions, like the northeastern United States, but the rapid decline in some areas of the West has alarmed many who are now scrambling to find out why. They are learning that there is no single cause, but in many cases, the finger of blame seems to be pointing back at ourselves. In some cases, in an effort to save our forests from ravaging wild fires, we have robbed nature of what it needed to keep the aspen groves healthy. In other areas, livestock have been allowed to feed upon the tender new shoots of aspen, eliminating

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any chance of regeneration. And in at least one case, it appears that human desires to eliminate a predator may have backfired bigtime.

Killing Wolves Also Kills Aspens?

Researchers at Oregon State University's Aspen Project are exploring the possibility that killing off the wolves in northern Yellowstone National Park may be a principal cause for the aspen declines in that area. How's that? Killing wolves also kills aspens? "I'm still stating it as a hypothesis," clarifies William Ripple, professor of forestry at Oregon State, but he has some compelling evidence to back up the theory. Ripple and Eric Larsen of the university's Department of Geosciences have been studying photographs, historical records and tree-ring analyses of that region dating back to the mid 1700s. The photos show that the aspen went into a decline in the 1920s and never recovered. That coincides with an effort to eliminate predatory animals in the early 1900s in the country's first national park. Between 1904 and 1925, 132 wolves were killed. It was immediately after the killings, the decline of the aspen was first noted. "What is clear is that wolves disappeared during the same era that the successful development of mature aspen stands ground to a halt," Larsen says. Wolves have an affinity for the taste of elk, and fewer wolves meant more elk. And elk love the taste of aspen. But more importantly, Ripple speculates, the absence of the wolf meant the elk could dine without fear. "The effect of the presence of the wolves can be greater than just the wolves eating some of the elk," Ripple says. It may also have changed the elk's foraging habits because they no longer had to remain in clearings where they could see approaching wolves. They were free to dine in the heart of the grove. The wolf was reintroduced in Yellowstone in 1995, "and they have done really well," Ripple says. "Their numbers have multiplied greatly." So to test out the wolf-elk theory, the Oregon researchers have established 115 permanent aspen plots, some in "high wolf use areas, and some in low wolf use areas," Ripple says. It will take several years, but the experiment should tell whether the presence of the wolf keeps the elk out of the aspen regeneration areas. In the grand scale of things, the decline of the wolf throughout the West may be only a minor player in the decline of the aspen. Most experts believe the primary reason for the decline is competition with conifers which reach such great heights that they block out the sun from the shade-intolerant aspen. That's the way nature designed the system — the aspen,

like the alder and other species — is a transitional plant, thriving until bigger trees move in and take over. But why should conifers be making more inroads today than they did in the past?

The Aspen Has a Trump Card

Many experts believe fire suppression provides the most plausible explanation. Fire wipes out conifers, as well as aspen, but the aspen has a trump card. Aspen groves are essentially hundreds of trees growing from the same root. “The entire organism is an interconnected root system, so the whole stand of trees, every tree in that stand, is a clone, or genetically identical,” Ripple says. Most of the bio mass of the system is below the ground, where it is protected from fire. So when fire moves in, it destroys the growth above the ground, wiping out the conifers as well, but the aspen grove remains healthy below the ground. After the fire, new aspens spring up from the root system, and there aren’t any conifers left to block out the sunlight that is so essential for their growth. The Forest Service is experimenting in a number of regions with letting fires continue to burn, putting nature back at the helm. But of course that isn’t practical in populated areas, and fires do wipe out conifers which are more valuable as timber resources than aspen. The aspen, it turns out, isn’t worth much on the timber market, except for pulp. But it is a wonderful thing to behold. I remember walking through aspen groves in New Mexico as a kid, listening to the soft music of their fluttering leaves, wondering what they were trying to say. Perhaps they were saying “help.”

Lee Dye’s column appears weekly on ABCNEWS.com. A former science writer for the Los Angeles Times, he now lives in Juneau, Alaska.