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Experts Pin Hopes on Cutting, Burning to Save West's Dying Aspen

By ERYN GABLE, SPECIAL TO E&E of [Greenwire](#)

Nothing signifies fall in the Rocky Mountains like the golden leaves of its aspen trees. And each spring, the return of the aspens' green leaves shimmering in the wind is a welcome sight, particularly after a long winter.

But for the last decade, these majestic, white-barked trees have been fading away, victims of what scientists have dubbed "sudden aspen decline," or SAD.

It took several years for scientists to identify the problem and its causes, but now foresters are determined to keep aspen from disappearing from the Western landscape. They are hopeful that timber harvesting and prescribed burns in aspen stands will lead the trees to regenerate, even in areas already affected by sudden aspen decline, although it is not known whether some stands are too far gone to be saved.

Aspen stands have been hit hard in southwestern Colorado, northern Arizona, southern Utah, southern Wyoming and southeastern Idaho, as well as parts of Canada. An aerial survey completed in Colorado last year found that about 553,000 acres of aspen in the state -- or about 17 percent of its aspen stands -- are affected by sudden aspen decline.

Scientists suspect drought was the main inciting factor for the die-offs, but other factors such as south or southwest aspects, lower elevations and open stands predisposed some stands to decline. Although these factors weakened the trees, it is typically a secondary pathogen or insect -- such as canker fungi, wood borers, bark beetles and clear wing moths -- that actually kills the trees.

One reason the die-offs have created such concern is that affected aspen stands do not appear to be recovering the way they normally do from other natural disturbances. That is why foresters are hoping to introduce other disturbances, like fire or clear-cutting, into diseased stands to encourage regeneration.

Aspens grow differently from other tree species in that they send out shoots, called suckers, from their extensive root systems, rather than spreading seeds. This "clone" system, in which the root sends out fresh suckers when a tree dies, allows stands to live for hundreds of years.

Sudden aspen decline is unusual in that it also appears to weaken the roots of the affected stands, which makes regeneration less likely. The hope is that cutting down or burning aspens in affected stands will encourage regeneration by allowing younger shoots to replace older trees, as long as the stands are not too far gone to regenerate.

Mark Krabath, a supervisory forester for the Dolores Public Lands Office in Colorado, said sudden aspen decline has led foresters there to reconfigure their annual timber program, which typically offered 200 to 300 acres of aspen annually. Now, the program offers about 400 to 500 acres of aspen per year, primarily for clear-cutting.

"We've changed our focus from green trees to dead and dying trees," Krabath said.

Much of Krabath's work is focused on the west side of the San Juan National Forest, where sudden aspen decline was first noticed in 2004. Since then, the acreage of aspen affected by sudden aspen decline has grown from about 5,000 acres to 45,000 acres, he said. That represents about 15 percent to 20 percent of the forest's aspen.

To get ahead of the die-offs, the Forest Service recently approved a landscape-level environmental assessment that will allow 1,500 acres of aspen to be harvested for timber, another 1,500 acres to be treated with prescribed burns, and 100 acres to be mulched. The hope is that these actions will promote a regeneration response in the stands, Krabath said.

The Forest Service has largely focused on cutting and burning affected aspen stands because these types of events are known to have a dramatic and immediate effect on regeneration.

"The part we don't know is, what's the threshold? How bad can SAD be and can we still stimulate adequate regeneration through treatment?" said Jim Worrall, a forest pathologist with the Forest Service.

The answer to those questions may emerge from a study being conducted on the Grand Mesa, Uncompahgre and Gunnison national forests in Colorado. There, foresters are cutting stands that have been afflicted by sudden aspen decline to varying degrees to see whether the stands regenerate and whether there is a threshold at which the severity of sudden aspen decline is so great that there is not enough life left in the roots for the trees to regenerate.

The Forest Service is also planning a five-year prescribed burn of 3,700 acres of aspen on Battlement Mesa in the Grand Mesa National Forest with hopes of reversing declines there.

Regeneration is considered critical to stemming sudden aspen decline because there appears to be a benefit to simply encouraging the growth of more young trees. Aspen stands that are less than 40 years old have generally not been affected by sudden aspen decline.

"One of the strategies for the long term is to get more young aspen on the landscape, so that they can better withstand SAD if there's a recurrence of the type of severe drought that incited this thing," Worrall said. "Then there's a better chance of the trees surviving it in the future."

Other factors also seem to be at play, including forest topography and microclimate regimes. For example, Steve Hartvigsen, supervisory forester for the San Juan National Forest, noted that the eastern end of the forest has not been as hard hit by sudden aspen decline as other areas of the forest.

"I think we're in a little better shape here because we have a slightly moister regime," Hartvigsen said.

That moister regime -- thanks to the area's surrounding mountain ranges -- has meant more spotty wildfire activity historically, which led to smaller stands of aspen in a few isolated areas, Hartvigsen said. It also meant the area was less affected by the drought that appears to have kicked off sudden aspen decline.

Additionally, even in areas that have been affected by the decline, Hartvigsen said the aspen appear to be regenerating.

Sudden aspen decline is also providing the Forest Service with an opportunity to bring back the forests to something that more closely approximates their natural condition, before fire was excluded from the ecosystem and high-value tree species were logged for timber, Hartvigsen noted.

"We're trying to restore the stand conditions that were there in the past," he said.

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