

Fall colors fade in U.S. West as aspen trees die

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By Laura Zuckerman

SALMON, Idaho (Reuters) - The American West is losing its autumn colors as global warming begins to bite and there is far more at stake than iconic scenery.

Aspen, the white-barked trees with golden leaves that gave their name to the famed Colorado ski resort, have been dying off across the Rocky Mountain states. The die-off is puzzling but some foresters point to climate change.

This disaster coincides with beetle outbreaks that have laid waste to millions of acres of pine and spruce forest in the American and Canadian west. They too have been linked to warmer winters since extremely cold temperatures are needed to kill the insects.

Recent droughts and other factors linked to global warming are seen as likely causes for "sudden aspen decline," or SAD, so named because it can strike a forest so quickly.

"Assuming climate predictions are true, it probably is a sign of things to come," said Jim Worrall, forest pathologist with the U.S. Forest Service.

Dwindling aspen would spell trouble for mountain towns like Aspen, Colorado, where tourists flock each autumn to see their spade-shaped leaves turn from green to gold before skiers arrive for the winter.

Failing aspen forests also hurt sawmills and threaten large animals such as elk seeking food with consequences for hunting and other outdoor industries.

The effects have yet to hit home in a city that trades on its scenic beauty, but officials are braced for the worst.

"A large die-off could be devastating," said Aspen Mayor Mick Ireland.

Colorado acreage ravaged by SAD quadrupled from 2006 to 2008 to more than 850 square miles (2,200 square km). The syndrome has also struck in Utah, Wyoming and Idaho, where researchers suggest a warmer, dryer West may all but eliminate aspen from the Rocky Mountains by the end of the century.

Stands afflicted by SAD lose leaves, are assaulted by insects and frequently fail to reproduce.

Delta Timber Co. in southwest Colorado, where SAD is at its height, depends almost entirely on aspen to produce paneling for walls and ceilings.

"We're struggling right now with the same thing all sawmills are facing because of the housing crunch," said owner Eric Sorenson. "Now with the trees dying, it's going to create more challenges."

NOTHING TO BE DONE?

Dale Bartos, aspen ecologist with the Rocky Mountain Research Station in Logan, Utah, is cautious about using climate-based forecasts to predict an end to aspen.

"I see aspen moving up and down the hillsides with climate change," he said. "As it dries out, we may see aspen on the lower end move up the hill. I don't think the answer is cut and dried."

Others foresee a grim outlook for a tree whose image has long been associated with the outdoors appeal of the West.

"What we think will happen is that aspen will disappear in some areas and there will not be anything we can do about it," said SAD expert Wayne Shepperd of Colorado State University.

A study by scientists with the federal Rocky Mountain Research Station in Moscow, Idaho presented just such a scenario. It predicted the near total disappearance of aspen in the Rocky Mountain region by 2090.

The research, to be published in *Forest Ecology and Management*, links ailing aspen to global climate change and concludes that up to 41 percent of Western forests would be unable to support aspen by 2030. That figure would rise to 75 percent by 2060 and as much as 94 percent in 2090.

Study co-author Gerald Rehfeldt said a combination of less rain and snow, the timing of precipitation and warmer summers would outstrip the tree's ability to colonize new areas.

Future forests may show an increase in evergreen seedlings as they encroach on areas once occupied by aspen. But aspen in other areas may also replace dying spruce and pine.

"Things are happening pretty quickly and that's what's scary," said Forest Service plant pathologist John Guyon.

(Editing by Alan Elsner and Peter Henderson)

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