

Aggressive conifer removal benefits Sierra aspen

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A study just published by Point Blue Conservation Science shows the benefits of an aggressive approach to restoring Sierra Nevada aspen stands (*Populus tremuloides*).

Most of the aspen stands that dotted the Sierra Nevada less than a century ago are gone or in poor health. Aspen stands can increase groundwater, enrich soils and support a higher diversity of plants and wildlife, relative to adjacent forest types. Keeping aspen stands as part of our forests is critical to maintaining a healthy Sierra Nevada forest ecosystem for people and wildlife.

The study, published in *Restoration Ecology*, documents the effectiveness of using traditional logging equipment to remove all but the largest Ponderosa pine, white fir and other conifers encroaching on remnant aspen stands. The study's authors used focal [bird species](#) as a way to measure if aspen stands were restored.

"Aspen thrive in the time between frequent wildfires," said Ryan Burnett, Sierra Nevada Group director and one of the study's authors. "Without fire, the conifers take over. Aspen stands now make up less than one percent of the Sierra Nevada landscape. We wanted to see if healthy aspen stands could be restored with a fairly aggressive approach."

Beginning in 1999, the U.S. Forest Service removed conifers from over 140 aspen stands in the Lassen National Forest. Site size ranged from

one to 99 acres. They removed the majority of the canopy cover, leaving only the legacy conifers that were alive before widespread fire suppression policies.

Point Blue began annual spring bird and vegetation surveys in 2004 on both treated and untreated aspen stands, surveying 180 different sites during the nine-year study. The scientists selected two groups of focal bird species as the primary indicators of ecological change, 10 species associated with aspen habitat and six species for conifer habitat.

Within a few years, the aspen stands teemed with focal bird species during the breeding season, including mountain bluebirds, tree swallows, and hairy woodpeckers, and the trees showed overall revived health.

"The bird density was so high. There were so many singing that we had trouble writing them all down," says Brent Campos, Point Blue's northern Sierra project leader and lead author of the study. "Birds are good indicators of an aspen stand's health and we were surprised by the dramatic and quick response."

The bird numbers published in the article are significant when considering multiple species over thousands of acres. For example, the numbers of red-breasted sapsuckers more than tripled from an average of .84 birds per acre before treatment to 2.85 birds per acre on restored sites. Multiply that by the 1,000 or more acres the Forest Service has now restored Sierra-wide and that means habitat for nearly 2,000 more red-breasted sapsuckers.

Some of the bird species associated with conifer habitat decreased in restored sites. According to Burnett, these species, such as golden-crowned kinglet and red-breasted nuthatch, are among some of the most common bird species occupying Sierra forest habitat.

"These aspen stands were being swallowed up by the conifer sea around them," Burnett says. "Our study suggests aggressive mechanical removal of conifers can restore aspen stands and benefit birds and ecosystem health. I'd like to see land managers increase the pace and scale of aspen rehabilitation throughout the Sierra Nevada."

More information: Campos, B. R. and Burnett, R. D. 2014. Avian Response to Mechanical Aspen Restoration in Sierra Nevada Coniferous Forest. *Restoration Ecology*, Vol. 22, No. 5, pp. 616-624.

[onlinelibrary.wiley.com/doi/10...1/rec.12114/abstract](https://onlinelibrary.wiley.com/doi/10.1111/rec.12114/abstract)

Provided by Point Blue Conservation Science

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