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ENVIRONMENT

Understanding Wildfires: Past, Present and Future

By [Grace Hood](#) ([people/grace-hood](#))

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Credit Grace Hood

Dendrochronologist Peter Brown demonstrates tree coring.

(http://cpa.ds.npr.org/kunc/audio/2012/06/GH_FOREST_RESTC)

For most of us, the [Hayman Fire](http://www.kunc.org/post/denver-hayman-fire-symposium-brings-comparisons-draws-lessons-high-park-fire) (<http://www.kunc.org/post/denver-hayman-fire-symposium-brings-comparisons-draws-lessons-high-park-fire>) registers as the largest in Colorado history. But trees across Colorado—and the ecologists who study them—tell a different story.

Every tree has hundreds of years worth of information about temperature and fire conditions. And the dendrochronologists who study this are collaborating with forest managers, building new understandings around how to prevent the next big forest fire from occurring.

That's the idea behind the [Front Range Roundtable Collaborative Forest Landscape Restoration Project](http://frontrangeroundtable.org/) (<http://frontrangeroundtable.org/>), which started bringing together local governments, scientists and conservation groups after the 2002 Hayman Fire.

Finding Pith

Gathering data about historical forests in Colorado is a painstaking, manual process that starts with tree coring.

In Heil Valley Ranch in Boulder, Lead Researcher Peter Brown, who heads up [Rocky Mountain Tree Ring Research](http://www.rmtrr.org/) (<http://www.rmtrr.org/>), kneels on the ground, twisting clockwise a thin, “T” shaped metal tool into a ponderosa pine. He’s trying to get as close to the center—or pith—with his tool as possible to get a good sample.

Those samples go into thin paper tubes, which are taken back to the lab and analyzed. Brown says this small of a sample won’t hurt the tree.

“I always equate it to us getting a hypodermic needle,” he says. “It probably stings, but the tree has some pretty good defensive mechanisms.”

For example, ponderosa pine have resin that will fill up the hole in 3-4 days.

Dendrochronologists like Brown spend a lot of time measuring plot areas—always a specific size and chosen at random within a landscape. After each sample is analyzed, they add up to data points that ultimately tell the forest’s story.

“We’re looking at how often fire occurred, when it occurred, how large fires were, and how it related to both climate history, other histories, and of course human histories as well,” he says.

Tony Cheng, CSU forestry professor and head of the [Colorado Forest Restoration Institute](http://sustainability.colostate.edu/centers/colorado-forest-restoration) (<http://sustainability.colostate.edu/centers/colorado-forest-restoration>) in Fort Collins, says other states like Arizona have done extensive research in this domain. Scientists in Colorado are seeking to paint a similar picture.

“This effort is really trying to create that network from north to south, as well as from lower elevations to higher elevations, around 7,000 feet to 8500 feet,” he says.

Researchers like Cheng are especially interested in returning to plots they already cored in Young’s Gulch—which is inside the current High Park Fire burn zone. Previous samples show that forests there were historically less dense.

“For me, I want to get in the field and really find out under what conditions could thinning and active forest restoration practices have changed the fire,” he says.

Building a ‘Mosaic’

Ultimately, the goal is to share the research with forest managers like Boulder County’s Chad Julian, a senior resource specialist .

In Heil Valley Ranch, Julian says current restoration plans will make this densely populated area of ponderosa pines look very different over the next year. Instead of densely populated trees, there will be larger openings in between stands. Ideally that will stop a wildfire from spreading quickly.

Long term, Julian hopes data from the Front Range Roundtable Collaborative Forest Landscape Restoration Project will give him even more ideas.

“We’re being very aggressive with our restoration of ponderosa pine, but I’m probably only managing for the middle,” he says. “I’d like to manage for the extremes on both ends as well as the middle to have that complete mosaic .”

...it’s a mosaic that will require upkeep, which takes time and money. But as more people move into Colorado’s mountainous areas, the payoff could be priceless.

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