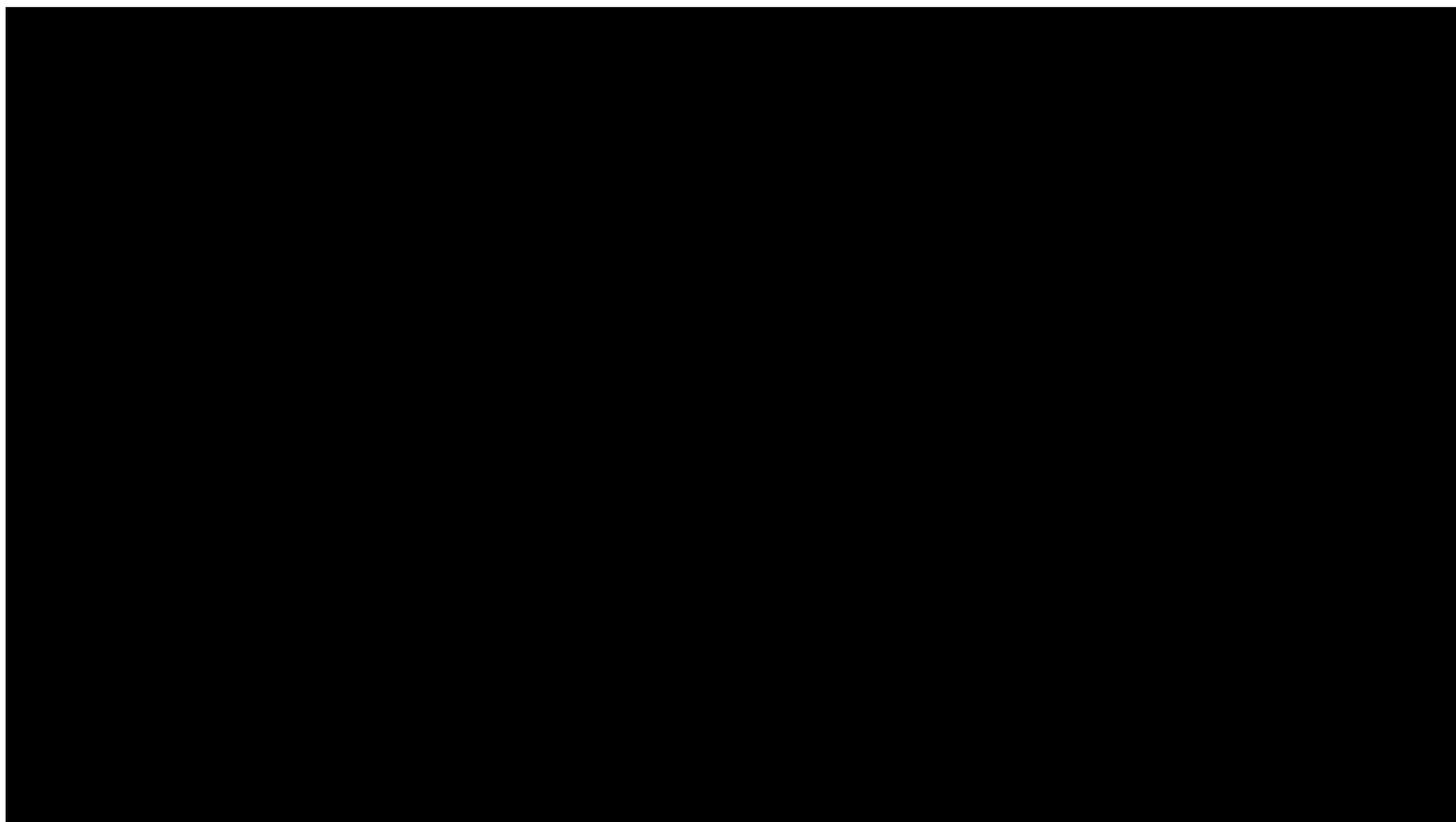




ENVIRONMENT

Will Southern California embrace logging of its 'sky island' forests?



Southern California has struggled to chop back forest in the name of wildfire prevention, according to a Union-Tribune analysis. The Biden administration now plans to dole out \$10 million to ramp up such efforts across the region.

BY JOSHUA EMERSON SMITH

Photography by ANA RAMIREZ

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The whir of a disc-saw echoed across Palomar Mountain on a recent December afternoon as loggers cut down hundreds of white fir and incense cedar on a steep hillside dotted with rustic homes.

It's a fairly lucrative operation for the Julian-based Cecil Logging, which can sell the timber to nearby pallet mills and boutique furniture makers. Smaller chunks usually get turned into firewood.

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But this operation isn't ultimately about making money. It's a project — albeit a potentially controversial one — aimed at protecting a forest on the front lines of climate change.

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Experts say a century of fire suppression has allowed thickets of younger trees to crowd old growth stands across the West, increasing the possibility that mega blazes will obliterate drought-stressed ecosystems. Blankets of recently fallen snow and rain will ease competition from thirsty saplings but could also make for a flammable summer.



That's why the Cleveland National Forest in San Diego County is paying crews about \$3,800 an acre to have swaths of this mountain terrain "thinned." The federal government has essentially ordered a woodland haircut, removing roughly 90 percent of the trees in target locations.

"This piece of land had a lot of dead and downed material," said District Ranger Amy Reid, watching freshly cut logs hauled down the mountainside. "It was very densely stocked. If a fire came through, it would have been lost."

Forests across Southern California have similar plans, from the mountains north of [Ojai](#) to the slopes of [Big Bear](#). The region is now poised to become a bleeding-edge laboratory in forest conservation, with unprecedented amounts of government money slated for such projects.

Last week, the federal government announced a one-time injection of \$10 million for "fuels reduction" across the Cleveland, San Bernardino, Angeles and Los Padres National Forests. By comparison, those forests collectively received about \$2.6 million in federal funding last year for such work, including tree and brush removal, as well as intentional burning operations, according to officials.

However, not everyone's eager to thin these "sky islands," small mountain forests wedged between cities and harsh deserts. Think of the San Jacinto Mountains towering over Palm Springs or Mount San Gorgonio just west of Joshua Tree. Activists, even the eco-conscious retailer [Patagonia](#), have challenged such logging projects in court, arguing that they do more harm than good.

"Fires move quicker through thinned forests," said Chad Hanson, an ecologist and activist with the John Muir Project, which challenges logging projects across the state. "It doesn't protect communities. It doesn't stop fires."



A feller buncher places cut trees into a pile as part of a forest-thinning project on Palomar Mountain in the Cleveland National Forest on Dec. 6, 2022. A rubber-tired skidder will haul out the logs, most likely to make pallets or firewood. (Ana Ramirez/The San Diego Union-Tribune)

Using saw blades to reduce forest densities is more common in the Sierra Nevada and the Pacific Northwest, where logging is more accepted and sawmills available. Although, researchers concede, these projects have often had negligible impacts in the past given their relatively small scale compared to the immense size of the landscape.

There's arguably more at stake south of the Grapevine through the Tejon Pass, where forest acreage is smaller, more manageable and less likely to recover from devastating crown fires, according to experts.

"Sky islands are pretty unique," said Max Moritz, a cooperative extension specialist in wildfire at UC Santa Barbara. "They're relic habitats from when times were cooler, and forests got pushed up to higher and higher elevations."

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Southern California's 'sky island' forests

Southern California's four national forests are slated to receive a massive injection of federal cash to chop back wildfire-prone landscape over the next three years. That includes the region's "sky islands," forests above 5,000 feet in elevation dominated by pine, cedar, fir and oak trees. A Union-Tribune analysis shows that previous efforts to treat forests from 2010 to 2022 fell far short. That includes intentional burning, known as prescribed fire, and the cutting down of trees and brush, known as thinning.



Sources: U.S. Forest Service; Climate Science Alliance Southern California Montane Forests Project; OpenStreetMap; U-T analysis

KARTHIKA NAMBOOTHIRI U-T

Southern California's four national forests have in the past focused more on chopping back brush around homes, roads and campgrounds, rather than pursuing ecologically complex and potentially contentious endeavors to fell thousands of live trees.

But some land managers are now feeling a growing urgency to act, especially as temperatures continue to climb and massive wildfires exceed firefighters' ability to suppress them.

Forester Andrew Weinhart designed the environmental guardrails for the project on Palomar Mountain, including hand-marking thousands of trees to be cut. He's convinced that in the long run this selective logging will make nearby residents safer

and the forest healthier by lowering the chance of devastating fires and limiting competition for moisture.



Trees near creeks and streams are marked with blue paint to prevent them from being inadvertently cut down during a forest-thinning project in the Cleveland National Forest. (Ana Ramirez/The San Diego Union-Tribune)

“We’re seeing a lot of trees with low vigor, sparse crowns,” he explained, floating around the job site in an orange safety vest and blue hard hat, monitoring for invasive grasses and soil erosion. “We tried to save the trees that were in the best state so that after the thinning, they can pop and grow.”

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Nearby, a 30-ton feller buncher repeatedly mowed down trees with its saw-mounted yellow claw. Downed logs and green branches covered the forest floor, crunching under the machine's caterpillar tracks.

Weinhart acknowledged how unsettling the operation could look to the average person.

“You have to give things time to recover,” he said surveying the scene. “It’s hard to judge by this. We’re in the middle of doing the most disturbed portion of the treatment.”

Dangers of a job half done



Vince Torcellini, a firefighter with the U.S. Forest Service, uses a drip torch to ignite several prescribed pile burns on Mount Laguna on Jan. 8, 2022. (Nelvin C. Cepeda/The San Diego Union-Tribune)

The success of forest thinning largely hinges on what’s known as “prescribed burning,” when teams of firefighters use fuel-loaded drip torches to intentionally set a landscape ablaze. But it’s a concept more frequently discussed than executed.

The primary goal of thinning a forest is to prevent wildfires from jumping into treetops, where flames can spread rapidly and engulf entire stands. That’s how the

2003 Cedar fire wiped out roughly 95 percent of the trees in Cuyamaca Rancho State Park.

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Blazes that stay on the forest floor, on the other hand, have custodial benefits, opening resin-covered cones, priming soil for new seedlings and clearing out unwanted vegetation and duff, partly decayed material that accumulates on the ground.

Just cutting down trees won't improve forest health and could actually exacerbate fire danger, according to a high-profile [scientific review](#) of thinning practices published in 2021. Thinning out canopies can let in light that nurtures highly flammable shrubs and grasses, while allowing winds to more aggressively fan flames.

To achieve a net benefit, land managers must also intentionally burn the landscape, most notably all the slash debris that's left after any merchantable timber is hauled away.

"If somebody is just doing thinning without dealing with the surface fuel problem, they can actually increase the fuel load, which can make things worse," said Malcolm North, coauthor and professor of plant sciences at UC Davis.

That means there's a window between when a plot of land is thinned and subsequently burned where fire danger can be elevated.

The Forest Service in Southern California doesn't have a great track record of keeping up with such prescribed fire. The agency has completed just 29 percent of all acres

slated to be treated with “broadcast burns” across the region since 2010, according to a Union-Tribune analysis of federal records.

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Prescribed fire faltering

Forests are intentionally burned under low-risk conditions to mimic the benefits of naturally occurring wildfire without the potential threat to nearby homes and other structures. The Forest Service in Southern California has accomplished just 28 percent of such activities slated for completion between 2010 and 2022.

	Acres planned	Acres accomplished
Cleveland National Forest	6,373	26,271
San Bernardino National Forest	9,192 2,173	
Los Padres National Forest	1,427 1,427	
Angeles National Forest	926 876	

Sources: U.S. Forest Service; U-T analysis

Karthika Namboothiri / The San Diego Union-Tribune

As a stopgap measure, forests also conduct what are known as pile burns, incinerating mounds of woody debris. While these efforts are not ecologically beneficial, they can reduce fire danger. But even these projects aren’t regularly finished on schedule. Since 2010, only half of the planned acreage for pile burns was completed across the region’s four national forests.

Piles not burned

Woody debris is often piled and then incinerated in the winter to reduce fire danger after a logging or brush removal project. The Forest Service in Southern California has accomplished only about half of such activities slated for completion between 2010 and 2022.

Acres planned	Acres accomplished
Cleveland National Forest	7,526
	18,990
Angeles National Forest	10,471
	3,281
San Bernardino National Forest	5,656
	4,412
Los Padres National Forest	4,484
	4,434

Sources: U.S. Forest Service; U-T analysis

Karthika Namboothiri / The San Diego Union-Tribune

Prescribed fire operations should ideally be broadcast burns, where low-intensity fire is allowed to skulk across the entire forest floor after a recent thinning, according to experts. These fires not only benefit serotinous trees that rely on heat for regeneration, such as pines, they also clear out young, shade-tolerant species, such as cedars and firs, which can quickly jam forests with dense patches of young trees.

“If you want ecological restoration, more than just fuels reduction, you’re going to use fire,” North said. “Fire is what jump-starts a lot of those ecological processes that are stalled.”

Anti-logging activists have criticized national forests for failing to follow through on this key step.

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“They’re not reintroducing fire,” said Hanson of John Muir Project. “That’s the big lie.”

Forest officials acknowledged the challenges of getting fire back on the landscape, especially as the planet continues to warm. Fire crews, overseen by a specially trained “burn boss,” typically aim for an increasingly narrow window in the spring to conduct prescribed burns, ideally when temperatures are mild, winds are low and rain is on the horizon.

It is a delicate exercise. Intentional burning can not only blanket nearby communities with smoke, but in rare cases, they can also get out of control. Last spring, New Mexico experienced its largest fire on record after crews simultaneously lost control of two prescribed burns. The [blazes](#) merged, destroying hundreds of homes and torching an area the size of the city of Los Angeles.



Freshly cut logs and piles of tree branches on Palomar Mountain wait to be hauled away or incinerated. Homes can be seen nestled into the hillside. (Ana Ramirez/The San Diego Union-Tribune)

The logging crews on Palomar Mountain in San Diego are slated to wrap up their thinning work this spring. They will next pile and cover with paper any woody debris that cannot be turned into lumber or used as firewood.

Then it's a waiting game. The material will eventually be incinerated the following year, with a final broadcast burn not slated until 2025 at the earliest.

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“It's an extremely useful tool, but the challenges are not small,” Cleveland National Forest Supervisor Scott Tangenberg said of prescribed fire. “It will take more staff, more science, more community appreciation and understanding.”

Forest thinning isn't just logging



Rick Halsey, front, long-time environmentalist and executive director of the California Chaparral Institute, walks through native brush with his student on April 21, 2022 in Escondido. (Ana Ramirez/The San Diego Union-Tribune)

President Joe Biden announced last year a 10-year plan to roughly quadruple the federal government's efforts to treat wildfire-prone landscapes across the West, including with forest thinning, prescribed fire and brush removal.

Congress has set aside about \$3.2 billion over the next decade for such fuel-reduction work through the Inflation Reduction Act and \$1 trillion infrastructure bill.

About \$131 million was allocated last year to projects across California, Arizona, New Mexico, Colorado, Montana, Idaho, Oregon and Washington. This year, the federal government aims to dole out another nearly \$930 million to treat fire-prone landscapes across those states, as well as in Utah and Nevada.

The most recent round of funding includes \$10 million to chop back forests across Southern California. The highly ambitious goal is to treat 27,500 acres over the next three years.

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Many ecologists fear that forest thinning in the region's sky islands will get shortchanged in favor of brush removal.

“What I hope is that a lot of that money will get spent in the forested landscapes down there because forest thinning can make a huge difference,” said Hugh Safford, who spent two decades as the Forest Service's senior ecologist for the state before recently retiring. “The problem in SoCal is that the focus has been almost entirely on chaparral, always.”

Since 2010, the Forest Service has completed roughly 40,000 acres of thinning and brush removal across its roughly 4 million acres in Southern California, according to

a Union-Tribune analysis. That's just 40 percent of all the acreage land managers had planned during that time frame.

Forest thinning falls short

Tree- and brush-covered landscapes are routinely chopped back to reduce the risk of large, devastating wildfires. The Forest Service in Southern California has accomplished roughly 40 percent of such activities slated for completion between 2010 and 2022.

Acres planned	Acres accomplished	
San Bernardino National Forest	11,004	56,257
Cleveland National Forest	12,432	24,469
Los Padres National Forest	8,862 8,801	
Angeles National Forest	8,471 7,354	

Sources: U.S. Forest Service; U-T analysis

Karthika Namboothiri / The San Diego Union-Tribune

To increase those numbers, the federal government will need to hire more foresters and other professionals to design, oversee and carry out such projects. The Biden administration estimates its plan could create as many as 575,000 new jobs over the coming decade.

That would include people like Ray Cecil, who has been logging for most of his life. His family owned a small sawmill in Northern California, where he learned to “fall” trees.

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His business model changed considerably after he relocated to San Diego County about two decades ago. These days, the 73-year-old spends a lot of his time chopping

back thick patches of manzanita, ceanothus and other chaparral evergreen shrubs.

“We do fuel reduction now,” said Cecil, sporting dirty jeans and suspenders while overseeing a brush removal project last spring in the San Bernardino National Forest. “It’s a lot different. There’s hardly any actual falling.”



Hunter Elebash, an equipment operator with Cecil Logging, stands next to a masticator that he used to grind up shrubs and small trees on Thomas Mountain in the San Bernardino National Forest on May 13, 2022. The project’s goal was to reduce fire risk to nearby homes. (Ana Ramirez/The San Diego Union-Tribune)

Chaparral dominates the region’s rolling hillsides. Large “masticators” are used to clear such vegetation around everything from homes and ranger stations to roads, water towers and power lines. That material is then either pile burned or chipped and spread across the forest landscape.

Cecil’s son, Justin, took over as owner of the business more than a decade ago. He estimates that roughly 80 percent of their work includes brush removal whether on state, federal or private land.



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“It’s not the romantic, old school, bad-ass logging,” said the 46-year-old, “but it’s a net positive. You’re still doing a good.”

Federal land managers and the Cal Fire routinely hire crews and even herds of goats to grind back fast growing shrubs. Officials have maintained that brush removal creates staging areas from which to fight blazes, as well as protects evacuation routes.

Fuel breaks that Cecil Logging helped create, for example, are credited with helping firefighters battle the 2018 Cranston fire that scorched Mount San Jacinto.

“They say it very well may have saved the town of Idyllwild,” Justin Cecil said.

“There’s a sense of accomplishment you get from that.”

Opponents point out that powerful, wind-driven fires routinely blow through fuel breaks, even jumping entire freeways. Experts estimate that the largest blazes, less than 3 percent of fires, are responsible for more than 90 percent of the burned acreage across the West.

Still, that doesn't mean that chopping back brush doesn't work, said Eric Just, the forester for Cal Fire in San Diego. "The other 95 percent of fires, these fuels breaks do come into play and provide benefit to houses. It'll help stop the smaller fires."

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However, while fuel breaks might aid firefighters, scientists are deeply concerned about the long-term consequences of ripping out large swaths of chaparral. Researchers and activists often butt heads over the benefits of forest thinning, but they're more aligned when it comes to brush removal.

Specifically, scientists worry that large fields of masticated shrubs exacerbate fire danger, especially when not subsequently treated with a prescribed burn. The practice has also been shown in some cases to spread highly flammable invasive grasses.



Native chaparral reach toward the sky near Rick Halsey's home in Escondido. (Ana Ramirez/The San Diego Union-Tribune)

“Not only are you sacrificing the ecology of an area for protection of structures, but you could end up with a landscape that’s more flammable than it was to begin with,” said Alexandra Syphard, a published research ecologist and one of the foremost experts on fire in Southern California.

“If you disconnect the chaparral, if you increase the corridors for grass to establish,” she added, “you then provide a network of wicks that are highly ignitable.”

Meanwhile, conservation groups see the practice as an affront to the natural landscapes they treasure.

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“They’re so terrified of nature, they just want to get rid of it,” said Rick Halsey, executive director of the California Chaparral Institute. “This is not management. It’s elimination of habitat. In the end, you’re talking reduction of biodiversity.”

Mountain residents also appear to be torn over the issue. While some welcome the increased fire protection, others would rather not disturb the natural landscape.

Chris Murphy has a home in Oak Grove on the east side of Palomar Mountain, where he recently helped organize a grant to complete brush removal on his and neighboring property. He said he’d like the permitting and approval process to move more quickly, especially along roads in the nearby Cleveland National Forest.

“We have a lot of chaparral out here that’s just ready to burn,” said the 67-year-old who also owns a home in Los Angeles. “We’re just trying to make our community more safe, and we’re frustrated with the bureaucracy.”



Laurie Roberts and Lane McClelland, both 70, take their daily walk with their dog Sweetie on Dec. 6, 2022, in Oak Grove, a community at the base of Palomar Mountain. The couple lived in Descanso during the 2003 Cedar fire, when half of their property burned. (Ana Ramirez/The San Diego Union-Tribune)

Others in the community have rejected that mentality. Lane McClelland, 70, a retired general contractor, lives nearby on 10 acres. While he and his wife regularly prune their trees and cut tall grass, the couple declined to participate in the wider brush removal project.

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“Where they do the firebreaks, they (grow back) within four or five years,” said McClelland. “I like my sage brush the way it is. It smells good. It’s too nice to tear out. It’s full of quail.”

Too much and too little fire



Sarah McCullough Hennessy, associate ecologist with the U.S. Forest Service, front left, watches as trees are cut down for a forest-thinning project in Cleveland National Forest on Dec. 6, 2022. She is joined by Andrew Weinhart, a forester for Cleveland National Forest, right; Nathan Judy, public affairs officer for Cleveland National Forest, back left; and Amy Reid, Palomar District Ranger for the Cleveland National Forest. (Ana Ramirez/The San Diego Union-Tribune)

Sarah Hennessy was hired about two years ago by the U.S. Forest Service to help spearhead a project aimed at saving the sky islands. The research ecologist worked for San Diego Zoo Global before joining the federal government's [Southern California Montane Forests Project](#), a collaboration with San Diego State University.

Hennessy is charged with drafting a report on how best to manage forests across the region, especially given the growing threat of mega blazes and the opportunity to pull in large amounts of federal funding. As part of that, she's also looking into ways to "raise the profile" of mountain forests across the region.

"Even though they're not timber-producing forests, they're so valuable for recreation, habitat for threatened and endangered species, maintaining open space, protecting drinking water supply," she explained.

Her work highlights perhaps the key challenge facing forests across the West: humanity's ever-expanding footprint. Aggressive fire suppression in forests has

cleared the way for homes, power lines, ski resorts, hunting, even mining and oil drilling. But perhaps ironically, all that human activity has increased ignitions in the lower-elevation chaparral.

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The view from Laurie Roberts' and Lane McClellan's living room in Oak Grove onto the Cleveland National Forest. The couple say they understand the risk of living at the base of the mountain and have an evacuation plan and do routine maintenance to their property to help reduce the risk of a fire. (Ana Ramirez/The San Diego Union-Tribune)

That means forests simultaneously have too much and too little fire, depending on vegetation type.

“There’s been so much fire in some areas where even shrubs haven’t been able to establish, and we have annual exotic grasses,” Hennessy said. “But if we’re talking about protecting the sky islands, then you need to identify places on the landscape where you can reintroduce fire on a frequent interval.”

Of the roughly 4 million acres in Southern California's national forests, only about 8 percent are tree-covered sky islands, according to a 2019 study published in the journal *Forest Ecology and Management*. Historically, these landscapes burned about every 13 years on average. Today, that figure is nearly 78 years, with less than 30 percent of forests getting what scientists consider a healthy amount of fire.

By contrast, chaparral evolved to burn every 30 to 100 years. A 2019 study published in the journal *Ecosphere* documented a substantial loss in chaparral cover in San Diego County since the 1950s. The leading driver of the decline was frequent fire, especially where blazes occurred less than every 15 years.

Hennessy and her colleagues hope to call attention to this kind of data as foresters scale up to meet the challenges of this century. Specifically, they appear to favor more forest thinning and prescribed burning while limiting disturbances to chaparral.

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“With some things, we lose a little bit on the ecological side for the protection of life and property,” said Megan Jennings, research ecologist at SDSU working on the montane forest project. “We have to strike a balance where we’re not losing too much.”

Southern California is now at a crossroads with billions in federal funding available for such work over the next decade. It won't be easy for the region's national forests to increase thinning operations, but such an endeavor could provide a blueprint or perhaps a cautionary tale for forests across the Southwest.



Fog hugs the tree tops in the Cleveland National Forest the morning of Dec. 6, 2022. (Ana Ramirez/The San Diego Union-Tribune)

Staff data and graphics reporter Karthika Namboothiri contributed to this report.

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