

## **Ambitious effort seeks to restore forests, protect water**

**By J.R. Logan**

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Forester Jim Arciniega whispers beneath his breath as he counts the tiny growth rings of a ponderosa pine up Capulin Canyon, a few miles east of Taos.

The rings are from a pencil- size core sample that Arciniega, a Forest Service employee, pulled from the trunk of the tree with a specialized hand drill. Each ring shows one year of growth. The wider the ring, the more the tree grew that year.

After about a minute of counting, Arciniega reaches the core's center.

"It's roughly 110 or so years old," he says, craning his neck to peer toward the top of the towering pine.

What's interesting about this tree isn't necessarily its age. It's the pattern in the rings themselves.

About 40 years ago, Arciniega says the Forest Service did a timber sale in this exact spot. Crews came in and took some trees for lumber, while leaving others standing. Today, the rotting stumps of those felled trees surround this and a handful of other ponderosas that were left behind.

Arciniega says that strategic cutting did wonders for the forest's health on the few acres that were thinned. And the evidence is obvious, not just in the park-like meadow that's there today, but in the growth rings themselves.

Counting outward from the center of the core sample, the rings are tight, almost impossible to distinguish. But starting around 40 years ago, the pattern changes dramatically. The rings get wider, more than 10 times wider in some cases.

"The limiting factor here is probably water," Arciniega says. "So, if you remove the competition, free up that water, these guys are going to grow more."

In the last 40 years, this ponderosa added 4 inches to its radius. By comparison, a core from a similar ponderosa onehalf of one mile away grew less than 2 inches over the same period.

"It's more vigorous," Arciniega says. "And vigor is indicative of resilience."

Vigor and resilience are two qualities that are severely lacking across the forests of the R'o Grande Basin today, experts say. The vast majority of forests have become overcrowded, unhealthy and ripe for disaster.

A big part of the problem, Arciniega says, is that a lot of the forest looks too similar. “Homogeny allows any disturbance — fires and drought and bugs — to be really widespread,” Arciniega says as he stares toward a vista of thousands of acres of dense, unvarying pi-on and juniper. If something were to happen to one part of that mountainside, there’s not much in the way to stop it.

In recent years, record-setting wildfires have rolled with unprecedented severity across the West, including New Mexico. The cost to fight these blazes has soared into the billions. Communities have lost hundreds of structures to fire, and the aftermath has wreaked havoc on watersheds and water supplies. Factor in the effects of climate change — rising temperatures and more erratic precipitation — and things are only expected to get worse.

## **Partnerships**

In the midst of this slow-growing crisis comes the R'o Grande Water Fund: a nonprofit public/private partnership founded with the mission of treating the forests and headwaters in the entire R'o Grande Basin. The primary goal of the fund is to ensure a reliable source of water for everyone who depends on the river and its tributaries.

The idea is to get as many local governments, nonprofits, businesses and agencies working together to prioritize forest treatments on a massive scale and pool their limited resources to use them as efficiently as possible. To do that, the fund has gone to great lengths to explain why things that happen in the upper watershed make a huge difference to everyone downstream, and why those downstream users should invest in protecting those headwaters.

In Taos County, a group calling itself the Taos Valley Watershed Coalition — made up of federal, state and local agencies, as well as nonprofits and private property owners — is among the first recipients of money from the fund to do actual work on the ground. The core of the group had already been assembled as part of a local effort to combine forces for wildfire protection. That group was working. Jobs were being coordinated. And treatments were getting done by the hundreds of acres.

But the sheer scale of what was being proposed by the water fund broadened the group’s horizons considerably.

Last summer, the coalition proposed an ambitious plan for restoring forests, and protecting and improving water quality on the western slope of the Sangre de Cristo Range in the Taos area. The idea is to link existing thinning treatments — from Pot Creek in the south to San Cristobal to the north — in a way that restores and protects entire watersheds, and hopefully prevents the kind of “megafire” seen recently in the Jemez Mountains just to the south.

A major, proactive defense has been an easy sell to some Taos residents.

“In Taos, people get it,” says Ernie Atencio, former director of the Taos Land Trust who was recently hired by the Nature Conservancy. “They understand the connection of forest health and watershed health to their everyday lives, whether it’s acequia irrigation or water for recreation or even the direct connection to groundwater for their homes.”

For millennia, forests in the West evolved with wildfire. But rapid growth and development across the region in the last couple centuries meant fires weren’t allowed to spread naturally. There were now homes, livestock and infrastructure in the way. Wildfire, in any form, was bad. So it was stomped out.

“Fire’s natural role is to clean out the undergrowth by burning as a relatively moderate ground fire,” says Laura McCarthy, a senior policy adviser for fire and forest restoration with The Nature Conservancy. “But what we’ve got is an overgrown forest. And now you get fire that’s burning through the crowns of trees, that can create its own wind and momentum and build into this incredible kind of fire storm. When we get these giant fires, they literally burn holes in the forest. What’s left behind is a moonscape that sends ash and debris into our water supplies.”

Most people credit McCarthy as the spark that has gotten the water fund moving.

For more than a year, she has been criss-crossing the state trying to drum up support for the fund. Her presentation almost always starts with a description of how the R’o Grande turned to ash-laden sludge when heavy rains pounded the burn scar left by the Las Conchas fire. Expect a lot more of this if we do nothing, McCarthy says.

Experts and land managers have been aware of this growing problem for a while, but they were addressing it only in small pieces — a few hundred acres of restoration here and there. McCarthy says it simply wasn’t enough.

“Scientists have been saying it for more than a decade: ‘If you’re going to restore these forests, go big,’” McCarthy says.

That’s why McCarthy and others formed the R’o Grande Water Fund.

### **Thinning work**

In numbers, the fund has sought to accelerate the existing pace of thinning work tenfold, eventually treating 600,000 acres of overgrown forest over the next 20 years. It’s an audacious plan that has been met with a mix of excitement and skepticism. But a little more than a year into building the project, there is momentum. And it keeps building.

McCarthy says the growing sense of a shared purpose is a big reason for the fund’s early success. To date, more than 45 entities have signed on to participate in the project, including several in Taos County. Last year, the fund helped treat 10,000 acres in New Mexico, and there are plenty more projects in the works.

So far, the fund has dedicated \$225,000 directly to the Taos coalition. That money is being divided evenly for work on Taos Pueblo lands, National Forest up Taos Canyon and private land in El Salto. The coalition also helped secure a \$300,000 grant allocated to Pot Creek last year for private property thinning.

Of all the partners, McCarthy says the Forest Service — which is usually caught between special interests that are at each others’ throats over how to manage the woods — has been especially responsive. “With all these partners showing all this support, the Forest Service is being put in a leadership role,” says McCarthy, who previously worked for the agency. “Now, their job is not to convince anybody of anything, but to become doers again. That’s who they were. And I think they’re loving it.”

On the Carson National Forest, at least, that seems to be true.

“It’s one of the most exciting times of my career,” says Tammy Malone, who oversees the Camino Real District of the Carson. She’s thankful to have other people — people “not in a green uniform” —

explaining why this sort of work is so vital. Malone says the scale of this restoration will have several benefits beyond ecological restoration.

Malone says people in her district are constantly clamoring for firewood, and the agency has only been able to provide a limited supply. “The Camino Real has been under the gun, and we just can’t really keep up with the demand of these communities,” Malone says. “So, this effort with the Taos Valley Watershed Coalition should really help us get out of this hole. People are going to have heaping piles of firewood in their yards.”

In the initial round of funding earmarked for Taos County, Malone’s district is getting \$75,000 to pay for an archaeological survey of 2,100 acres in the Taos Canyon area. Without the money, Malone says the survey wouldn’t happen. And without the survey, which is part of a mandatory environmental study, the agency can’t do the work on the ground.

### **Pitching in**

Another big part of the fund’s initial success is thanks to a couple deep-pocketed benefactors who have put up hard cash to get it off the ground. The Wyoming-based LOR Foundation, which has recently focused part of its efforts in and around Taos, has dedicated \$2 million to the Fund. The Taos Ski Valley Foundation (affiliated with Ski Valley owner Louis Bacon’s Moore Charitable Foundation) just announced another \$125,000 donation.

The Taos coalition is also in the running for two federal grants: a \$2.9 million disaster resilience grant and a \$2.8 million grant administered by the Forest Service and National Resource Conservation Service. Taos’ position as a major headwater for several Rio Grande tributaries, as well as the diversity of landownership (tribal, federal and private) are considered advantages in the application process.

McCarthy says initial contributions have been critical to getting initial work done on the ground, as well as paying for scientific and economic reports meant to explain the fund’s benefits to water users downriver. If the pending grants come through, it would bolster those efforts.

Still, it’s highly unlikely the fund can sustain itself for long on donations and grants alone. The fund aims to treat 30,000 acres a year for the next 20 years and beyond. At around \$700 an acre, that’s \$21 million a year. And it’s not yet clear exactly where it’s going to come from.

There’s hope that downstream water users, especially those in urban centers like Santa Fe and Albuquerque, will be willing to pitch in to treat forests in the headwaters. But water utilities and irrigation districts have yet to commit to some sort of surcharge to pay for thinning projects upriver.

At the same time, the fund’s organizers are also trying to make their money go further and see progress faster by reducing the cost-per-acre to thin. And most think the best way to do that is revitalize the state’s moribund timber industry, putting people to work by putting more value on the wood that’s being cut down.

### **Forest housekeeper**

For decades, the timber industry took fire’s place as the forest housekeeper after fire suppression became the rage. But many people believe overzealous loggers caused plenty of damage by over harvesting timber, especially big trees. In the ‘80s, the pendulum swung in the other direction when the environmental movement essentially blocked loggers in the Southwest from doing any work at all.

Getting those loggers back on their feet and working responsibly is seen as a key component to the fund's success.

"It's absolutely critical," says Kim Kostelnik, a retired state forestry employee who now does natural resource consulting work. "There is just not enough money to do this without industry. And with industry, we get a lower cost per acre. That means more acres treated on a landscape sale – and getting it done faster."

Given what's at stake, Kostelnik said the fund is definitely operating with a sense of urgency.

Kostelnik says she helped the R'o Grande Water Fund calculate its \$700-per-acre treatment costs. But if industry can find value in the wood — especially the small-diameter stuff that is currently choking out the forest — she thinks that could drop to \$450 or even less. When you're talking about treating 600,000 acres, that difference in cost comes out to \$180 million in the long run.

### **Low-value wood**

But jump-starting the timber industry in New Mexico, and in Taos County in particular, isn't as simple as flipping a switch, says Brent Racher, president of the New Mexico Forest Industry Association.

Racher says the challenge is not only getting agencies like the Forest Service to commit to providing enough wood for the timber industry. Those have to be multi-year commitments (an anomaly in the Southwest) so businesses are willing to take the risk of buying equipment and hiring crews. Plus, someone has to create a demand for all this low-quality material that isn't worth much as lumber, or even firewood.

"Probably 70 percent of the trees that need to come out are that low-value wood," says Racher, who also sits on the R'o Grande Water Fund board. "And we have to find a home for it."

Plenty of ideas for how to use small-diameter wood are floating around at the moment, things like biomass energy generation and wood pellet manufacturing. But it's hard to say whether any of these can work. And be profitable.

Mark Schuetz, a local forestry contractor who's been active with the Taos Valley Watershed Coalition, is skeptical of any plan to turn this low-value wood into an economic driver. Schuetz thinks the army of local firewood gatherers will gladly haul out anything that's larger than 4 inches in diameter. But for the small stuff, the slash, he doubts there's any way to move it and process it that works without a substantial subsidy.

Schuetz says many of the places he's working have obviously been logged multiple times, and the best timbers were taken long ago. There's not much point in trying to turn what's still out there into money. "It's not getting logged because there aren't any logs out there," Schuetz says. "It's a scrap heap."

Instead, Schuetz is a proponent for strategically leaving these scraps as a kind of mulch to protect the soil from erosion and help restore forest health over the long term.

Taos Mayor Dan Barrone is owner of Olguin's Sawmill and Firewood, one of the few operating mills left in the area. Barrone says he'd be eager to see the Forest Service make more wood available through

timber sales, which he believes have been far too infrequent. There's a demand for the wood, Barrone says, and he has the capacity to scale up.

As an elected official and a businessman, he's also hopeful that the R'o Grande Water Fund can make significant progress before Taos County suffers the same kind of catastrophic fire that's ravaged neighboring forests to the south.

He's willing to be part of the thinning effort. And he's open to finding new outlets for wood products. Flexibility has been part of the mill's success, Barrone says.

But he's adamant that subsidizing his or other businesses to take risks on an unproven market have been the downfall of many in his industry.

"I'm being cautious," Barrone says. "We've spent our own money to build our business, and we're still in business. But I know a lot of businesses that have taken grant money only to lose their shirt. Sometimes free money isn't free money."

Some, like forestry consultant Kurt Swearingen, have heard the "bringing-industry- back" pitch before. And he's leery about what the fund is promising.

Swearingen spent years wielding a chainsaw as a thinning contractor. But for more than a decade, he's overseen a program for Taos Soil and Water Conservation District that helps private landowners thin trees on their properties and around their homes.

Wandering around a four-acre thinning project done up Taos Canyon last fall, Swearingen jots down notes on a clipboard as he inspects work done by a crew under that program.

In some ways, this thinning job is a micro-version of what the R'o Grande Water Fund aims to do. The understory of small trees and brush has been largely chopped down. Piles of slash will be burned when fire danger is low. Bigger trees, like ponderosas, are left standing alone or in clusters. Coveted stands of aspen are all left untouched in the hopes that they'll expand and fill in the new openings. By breaking up the homogeneity, creating diversity of age, species and stand thickness, foresters hope to build resiliency back into the forest ecology.

It's exactly what the Taos Valley Watershed Coalition is hoping to do, but at a much grander scale. The trick is finding a way to do it that's economical.

Since Swearingen is operating on a limited budget, he tries to get the most for his money. That way, he can treat as many properties as possible.

So to cut costs, Swearingen lets contractors leave felled trees on the property instead of hauling them off. It's easy on their backs, and on the district's pocketbook.

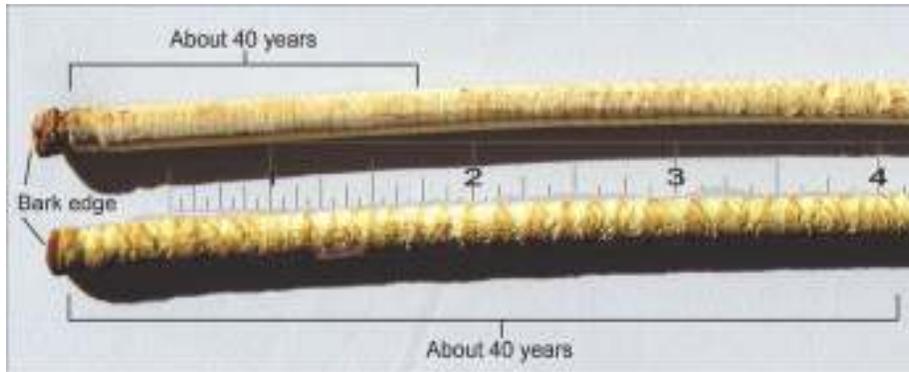
The downside is, without putting value on that wood, the costs to thin are still high. The district's per-acre costs vary, but the work proposed on private properties in Pot Creek, for instance, is expected to cost more than \$2,000 an acre. That's prohibitively pricey for anyone trying to scale up thinning efforts.

Still, in a place where many homes rely on firewood for heat, and *vigas* and *latillas* as building materials, there are signs that connections could be made so that the numbers work.

Around Taos County, there's evidence of that demand, including at Swearingen's thinning site.

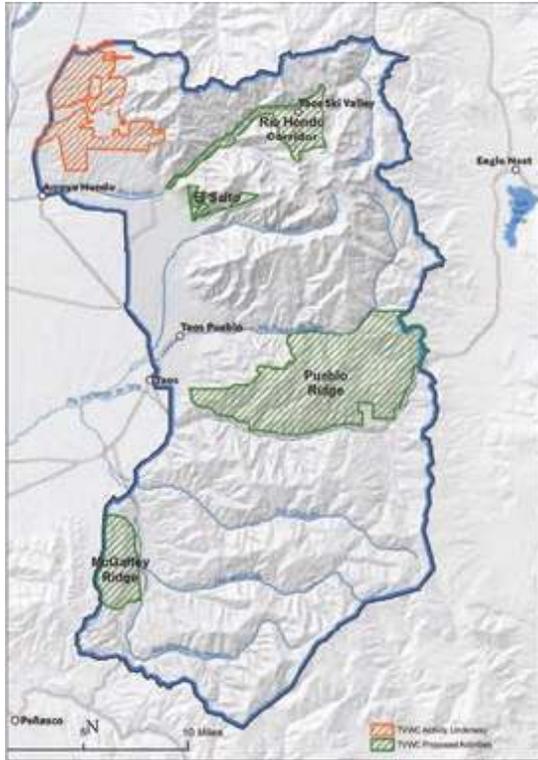
At the back of the property are fresh tire tracks in the snow. An empty bottle of bar and chain oil rests in a pile of sawdust beside one of the bigger felled logs. It's clear someone sneaked in here to grab an easy truckload of firewood.

Taose-os, Pe-asqueros and Queste-os want wood. And many are willing to go get it. If the R'o Grande Water Fund and Taos Valley Watershed Coalition can find a way to put those pieces together, there might be plenty to go around. Not just in the near future, but for generations.



Core samples from two ponderosa pines east of Taos show how competition for water affects growth. The tree sample on top is in a densely wooded area, where it competes with nearby plants to survive. The sample below is in an area that was logged about 40 years ago, drastically reducing its competition and making it more vigorous and able to fight off disease, fire and bug infestation.

Photo by Katharine Egli/Graphic by J.R. Logan



The Taos Valley Watershed Coalition has proposed a massive plan to restore much of the western flank of the Sangre de Cristo Mountains near Taos. The effort is meant to protect watersheds from the devastating effects of wildfire, but supporters also hope it could become an economic driver by revitalizing the local forestry industry.

Map courtesy Taos Valley Watershed Coalition

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