

Out There: **The Tree Slayer**

What does a naive environmentalist discover when he buys his own forest? He's got to log it to save it.

By Peter Stark

It was never my intention to own a forest. I blame it on my mother-in-law. Sixteen years ago, my wife, Amy, and I, at her mother's urging, searched for a small house to buy instead of dumping more money into the extortionate rents in our Montana university town. Paging through a Missoula real estate shopper one day, my eye involuntarily skipped over the 1930s bungalows on Cherry Street and was seized by a small ad billed "Rattlesnake Wilderness Land."

Instantly I knew the advertised 40 acres wasn't ordinary real estate. From countless hikes and bike rides, I was familiar with the address, Sawmill Gulch—a deep cleft in the high, woody hills four miles north of downtown Missoula that provided access into the 61,000-acre, federally protected Rattlesnake Wilderness and National Recreation Area. The land was amazingly cheap, even by my low-rent standards: \$1,000 per acre, a tiny fraction of what city lots went for only a few miles away.

A few days later Amy and I were jouncing up a rutted track in our realtor's white sedan, the grille snagging tall stalks of bluebunch wheatgrass. We stepped out on a high ridgetop. Through gaps in the ponderosa pines, we gazed off the ridge's south side a thousand feet down to the street grid and houses on Missoula's outskirts; to the north, we peered straight into the heart of the Rattlesnake Mountains. We hadn't walked 100 feet along the ridge's spine, leaving in the dust both the agent and that 1930s bungalow, when Amy and I turned to each other. "We should buy this land," I said.

"We'll worry about the house later," she agreed.

With my family's help, we soon owned two adjoining parcels, a total of 80 acres. Our property straddled the narrow ridge and fell away steeply on both sides. (Flat and easy to build on it was not, which helped explain the price.) Still, we possessed an entire geographical feature of the earth's surface—a small, forested mountain. When, as tree-hugging, deep-breathing, cardboard-recycling eco-liberals, we began to envision the type of home we'd build, our first instinct was to not cut down a single tree. The land would remain all-natural, all-wilderness. With an architect friend, we embarked on designing a semi-underground, multilevel dwelling that sliced through the ridgetop like a concrete-and-glass arrowhead. The main level, a combination living room/studio for Amy, a professional dancer, featured spectacular views.

While the house plans took shape, I enrolled in a state-sponsored workshop that taught private landowners to develop a "forest stewardship plan." For my homework assignments, I spent numerous days traversing our ridge to count and identify trees, and used an auger to bore sample cores and count the rings. I filled out workbook tables, penciled in formulas to calculate wood volume, and crunched numbers.

What my data finally showed was this: We owned a desperately sick forest.

The ridge's gentler south face, about 30 acres, was in decent shape—large, well-spaced ponderosa pines among meadows of native grasses. But the ridge's north slope, which dropped nearly a thousand feet into Sawmill Gulch, had needed CPR long ago.

The north slope held approximately 837 trees per acre. A clothes closet would have offered more room for each tree to grow. Spindle-thin trunks of Douglas fir and western larch stood in anemic, dying thickets, toppling like the flagpoles of small, failed nations. Many larger trees showed cankered boles and parasite-bloated boughs. My core borings revealed annual growth rings as thin as sheaves of the Old Testament—I had to use a magnifying glass to see them—and they indicated that most of the trees were at least a century old.

"So what we have," I announced to the stewardship class during my presentation, "is 50 acres of steep, junky forest."

A woman's hand shot up. "Don't think that those stunted old trees are necessarily worthless," she said. "My husband knows a musical-instrument maker. People are looking for dense-grained wood like yours for violin necks."

In that moment, I stopped viewing our forest as an arboreal basket case and began to see it as a stand of slender violin necks.

Our land typifies the condition of the vast forests of the American West, where increasingly crowded undergrowth has fueled the huge fires of recent years. It's the old story of human interference. In ancient times, fires sparked by lightning and Indian hunters periodically cleared the forests' dense understories and left the large, fire-resistant trees—massive western larches and ponderosa pines, in the case of our ridge's north face. But loggers felled the old trees in the late 1800s and sawed them into mine-shaft timbers and boomtown houses.

I expected a few angry calls about our "logging." Instead, the local chapter of the sierra club sponsored a media tour of our land.

On our land, I found evidence of that century-old slaughter in the form of huge, rotting, sawed-off stumps hidden like giant toadstools. After the clear-cutting, the north slope germinated a thick mat of young Douglas fir and larch. Had nature been allowed to take its course, low-intensity fires over the decades would have pruned and opened the mat into something resembling the original stately stands. But starting in 1910, the newly born U.S. Forest Service and other government agencies declared war on forest fires.

Like millions of acres in the West, our north slope during the 20th century sprouted into the equivalent of an unweeded garden—choked, stunted, and, if it were to catch fire, prone to burst into a tree-top conflagration instead of a low-level, understory-clearing blaze. Fire is a natural part of the western landscape, ecologists have argued for the past

several decades, and slowly the Forest Service has retreated from its stamp-it-out-at-all-costs fire policy. Now that most everyone agrees on the need for a thinned—or "restored"—forest, the big hang-up comes over where to thin, how to thin, and how to pay for it. Some environmentalists don't want any restorative thinning at all except by nature's hand—lightning-caused fires. Some in the timber industry would like to clear-cut vast swaths in the name of forest health (not to mention industry profit). Between these two positions lies a spectrum of options, including the use of hand or mechanical thinning, human-set prescribed fires, and Forest Service timber sales designed to restore the forest.

The Bush administration's Healthy Forests Initiative is, in theory at least, designed to address the overcrowded western federal forests. It authorizes Congress to allocate as much as \$867 million—the amount designated for 2006—to reduce hazardous fuels and protect wildlife on 20 million acres considered in danger of "catastrophic" fires. Many environmentalists have savaged key components of the Bush plan as giveaways to the timber industry, objecting to the way it allows approval on a fast track, without as many environmental reviews and public appeals. Professional foresters, meanwhile, have said that the measure's ultimate impact would depend on exactly how the Forest Service implements each project.

As for pruning our own choked forest, Amy and I could have simply tossed in a match on a hot, windy July afternoon, but the neighbors probably wouldn't have appreciated the 100-foot wall of flames roaring toward their homes. This left us the option of mechanical thinning, which is expensive—up to \$1,000 an acre, or closer to \$2,000 for full restoration work, twice what we paid per acre for the land in the first place.

The problem is that, unlike a commercial logging site, the small-diameter trees taken from the restored land sell for a pittance, not nearly enough to cover the labor and equipment costs of culling them. Skinny trees have historically had various uses: Until the late 1800s, settlers notched them together for log houses and outbuildings, bridges, and corrals. After World War II, manufacturers in Germany—where the big trees had been felled centuries ago—shaved small trees into wood flakes and compressed them into something called flakeboard. American researchers turned this into the stronger oriented strand board, or OSB, which hit the U.S. market in the 1970s and is becoming ubiquitous on today's construction sites. Big sheets of glued-together wood chips are now replacing plywood for house subfloors and walls. Other products, from paper pulp to veneers, are manufactured from small-diameter trees, but for the most part, the U.S. timber industry's sawmills have long been dominated by big-log equipment and mired in a saw-it-into-two-by-fours mind-set that is only now beginning to change.

Five years after buying our land, and still trying to figure out how to deal with our trees, we finally pulled the plug on our ridgetop dream house—we'd go bankrupt if we built it, I realized. A few weeks after our first child, Molly, was born, we bought an old fixer-upper in town. Our son, Skyler, was born three years later. It was about then, in 1997, that I first heard of a young entrepreneur named Matt Arno, the son of Stephen Arno, a nationally recognized authority on the role of fire in western forests. With his forestry degree, Matt,

35, had founded a Montana-based company, Woodland Restoration Inc., that thinned forests to restore their health. I'd heard that he sometimes worked on a break-even basis—paying his crew by selling logs, the skinniest ones going to the pulp mill and the fatter logs going to the plywood or two-by-four mills.

Several times over the next few years, Arno drove his pickup up the road in the bottom of Sawmill Gulch and inspected our north face. But he couldn't make the economics work.

"I keep thinking there's got to be some great undiscovered use for all this straight, tight-grained wood," I remarked with frustration during one of his visits. "Something that would pay a lot more money than pulp or studs. Like violin necks. Or Japanese post-and-beam houses. Or chopsticks!" "Well," drawled Arno, staring up into the thickets as his mutt, Kootenai, sniffed about, "they'd better need about a billion chopsticks." He looked again. "No, make that ten billion."

Three years ago, Arno finally agreed to take a stab at our forest restoration—at least as much as he could afford to do. He and his crew trailered in a used \$80,000, Swedish-built piece of equipment called a cut-to-length harvester. It resembled a small bulldozer, but instead of a blade it sported a powerful hydraulic arm that gripped a standing tree by the trunk, whipped out a chainsaw, and sliced it off like a switchblade flicking open. Then it flipped the entire tree sideways like a hollow soda straw and shot the trunk through its mechanical fist to strip off the branches, as if peeling back the straw's wrapper, while sawing it into computer-determined lengths of log.

The Scandinavian space alien gobbled its way across a level triangle of our ground in Sawmill Gulch, and a few days later the result looked beautiful—like a real forest, not a commercial logging site. I gave Arno the go-ahead for the steep north face, but the space alien, it turned out, couldn't handle the terrain. So he brought in a 30-year-old entrepreneur, Dyrk Krueger, who had built his own take-it-anywhere line machine called the "Excaliner." Like a chairlift without the chairs, the contraption amounts to a suspended cable that hauls wood uphill. Because it lifts most of each log (cut by goat-footed, chainsaw-toting sawyers) off the ground, it avoids the deep, nasty skid trails that scar so many logging sites.

The thickets vanished. In their place stood well-spaced larch and fir and a few pines. Surveying the stumps, I noted that Arno and Krueger had felled some larger trees, too; where three bigger trees crowded one another, they had removed one. After they'd tackled about a third of our north face, the slope grew too steep and the thickets too labor-intensive to be cost-effective. Still, the thinning had produced 17 truckloads of wood at 25 tons per load, or nearly a million pounds of timber. The crews also burned about half a million pounds of lopped-off limbs gathered in slash piles.

I was more than pleased with the work. Every day, dozens of hardcore enviros—fierce protectors of the Rattlesnake Wilderness and National Recreation Area—came up Sawmill Gulch on foot, mountain bikes, and four-wheel drives en route to the trailhead and got a perfect eyeful of our thinning. I printed up signs explaining what we were doing

and why, listing all our names and phone numbers. I expected at least a few angry calls about our "logging." Not a single one. Instead, the local chapter of the Sierra Club sponsored a media tour of our land as an example of fuels-reduction work done well and done in the right place—on the "wildland-urban interface," the juncture between city and forest where letting natural fires burn is too risky to homes and property.

About the time Matt agreed to our thinning job, in 2002, I happened to receive some book royalties. Amy, meanwhile, was struggling to juggle two young children, a full-time teaching load at the university, and running the modern-dance company she had founded.

"If we suddenly had some money," I asked her, "what could we do to relieve stress in your life?"

"Build a dance studio in the backyard," she responded instantly.

As the estimates came in for our "simple but elegant" 30-by-45-foot backyard structure, which included a second-floor writing suite for me, they all seemed reasonable except for the \$12,000 "floating" dance floor, nearly half of which came from the cost of the oak floorboards.

"Why should we pay for all that wood," I said, "when we have all those skinny trees up on our land that we're trying to get rid of?"

Here, at last, were my violin necks and chopsticks: larch flooring. Before the last truckloads of larch left our land, I purchased one of them from Krueger, then I located, in southwestern Montana, a one-man, 1940s-vintage sawmill called Hellferstout Lumber Company that milled tongue-and-groove flooring and was operated by a rancher named Sandy James. Two months later, James hefted onto my rented trailer two neatly wrapped bundles holding 2,400 board feet of one-by-four-inch larch flooring.

Driving home, I worked out the numbers. Our larch logs had cost me \$1,400 to buy from Krueger. James had taken half the logs as payment for his sawing into rough boards, and charged me \$800 for kiln-drying and planing into tongue-and-groove. This meant I'd paid \$2,200 for around 2,400 square feet, or roughly \$1 per square foot. This compared with \$3.50 per square foot to buy tongue-and-groove oak flooring retail. I felt good: I'd saved six grand in wood costs, and the dance floor—the only thing the backyard studio now lacked—was on its way.

One hot July afternoon, about 30 friends and the dancers from Amy's company helped us lay the studio's plywood subfloor over 1,200 hand-stapled rubber pads (our invitation had read, "Help us get laid"). Then we celebrated our labors with a barbecue. We left for a vacation while a Missoula installer named Shannon O'Keefe hammered the larch into place. Returning home on an August evening, we jumped around on the silky-smooth expanse.

Word quickly spread of our small-diameter larch dance floor made from a restored forest. People wanted tours. Architects heard about it. I received invitations to speak at timber-industry conferences. Photos appeared in wood-products magazines. I became part of the blossoming "small-diameter," or "smallwood," movement: conferences, product fairs, research laboratories, doctoral theses, entrepreneurs, even a "smallwood-enterprise agent" in our own town. Tremendous energy was being poured into discovering high-value ways to use the billions of skinny trees out there—not only from the 73 million acres of national forest judged to need thinning but also from millions of acres in public and private forestlands.

The National Fire Plan, passed by Congress after the massive fires of summer 2000, helped stimulate activity with three years of grants through its Economic Action Program. Small-diameter wood was used to build Navajo hogans, pedestrian footbridges, and, in Darby, Montana, a 5,000-square-foot library that incorporates small-diameter logs for everything from roof trusses to furniture.

Encouraged by our local smallwood-enterprise agent, Craig Rawlings, the three of us who had created our dance floor—Matt Arno, Shannon O'Keefe, and me—started thinking that maybe we had stumbled onto a marketable commodity. Missoula-based forester and environmental lawyer Mike Wood, trained in "green certification" procedures, joined us, and we forged a partnership. Our product, both "green" and beautiful yet competitively priced, would be tight-grained tamarack (a species of larch) flooring milled from small-diameter trees harvested only from "sustainable" forest-restoration projects. Kicking around names, we settled on North Slope Sustainable Wood LLC; we coined a motto, "Beautiful Floors from Restored Forests," constructed a Web site, printed brochures, and milled a small inventory.

First Shannon sold a tamarack floor. Then I sold one. Then he sold another, and I another. Early this year, as part of the Healthy Forests Initiative, the Forest Service announced a "Woody Biomass Utilization" grant program to encourage the use and marketing of small-diameter wood, with the idea that it would ultimately reduce the cost of thinning federal forests. We applied for funds, nearly \$120,000, to launch a three-year marketing campaign for our North Slope flooring, and made the short list.

I never remotely imagined that I'd one day be in the business of cutting trees and selling flooring. But so much has shifted in the ecological landscape in recent years—and I believe that to care about the environment means shifting, too. The smooth, hundred-year-old larch under my stockinged feet where I now sit in my study represents only a tiny fraction of a very complex solution for what ails our forests. But it is one solution. I am excited, even passionate, about the way it is possible—or at least appears possible—to make money and restore the forest at the same time.

So, for many reasons, not all of them selfish, I hope our little eco-wood company thrives. Go ahead, call me an eco-capitalist. I kind of like the sound of it.