

Redwood Forest Conservation: Where Do We Go From Here?¹

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Abstract

One hundred and nine years after the first redwoods were set aside in public ownership, the redwood movement has come a long way. For most of the public, “saving redwoods” has meant placing threatened giants in parks and reserves—Big Basin State Park (1902), Muir Woods National Monument (1908), Humboldt Redwoods State Park (1921), Redwood National Park (1968), and the Headwaters Forest Reserve (1999). But after a century when more than 95 percent of the ancient redwoods were felled and most of the large groves are protected in public parks and reserves, what does it mean to save the redwoods today? If for the first 100 years saving meant buying and placing in public ownership, I argue that for the next 100 years, saving will mean working together to restore the forest, whether in public or private ownership. In a time of rapid climate change, it also means the arbitrary lines we’ve drawn on a map to denote public and private ownership become increasingly irrelevant. We’ll need a new paradigm to think about building resilience and adaptability to climate change into the system to benefit public and private owners. What science is needed to guide these efforts? Do practitioners have the tools they need? How can we do this in a way that makes economic sense for private companies and the public good? And most importantly, how can we engage and gain the support of a skeptical public more used to liquidation lumbering than restorative forestry? If we do it right, it can be a model for how forests around the world are managed; if we fail we risk losing the redwood forest we all love.

Save the redwoods!

Save the Redwoods! There’s a lot packed into these three simple, evocative words. What has this meant in the past, where has it put us today, and what will it mean as we look ahead? For much of the last 150 years, saving the redwoods has meant setting land aside in parks and reserves. In fact the earliest acts of preservation in the United States were inspired by the coast redwood and its relative, the giant sequoia or sierra redwood.

In 1852 the sierra redwoods of Calaveras County were discovered by Augustus T. Dowd. Within a year, the “Discovery Tree” had become “Big Stump.” In large measure, it was this act of destruction that inspired the drive to protect the sierra redwood of Mariposa Grove and Yosemite Valley in 1864. The five-page report to Congress included a full four pages talking about the folly of what occurred at Calaveras and how it must be prevented at Mariposa, leaving one page on the need to protect the valley. When Abraham Lincoln signed the legislation, it was the first time that land had been set aside for its preservation and the enjoyment of future

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generations, rather than its exploitation today. This far-sighted act was taken at a time that the country was engulfed in civil war.

The term “save the redwoods” was coined in the early 1900s here in the Santa Cruz Mountains as the rallying cry for citizens working to protect the California Redwood Park, what is now Big Basin. It was driven by a desire to ensure ordinary people could come and enjoy these majestic groves that then were all privately owned. In 1902 they were successful in persuading the state legislature to purchase the groves at what would become the heart of Big Basin Redwoods State Park.

Save the Redwoods was also the name chosen for my organization, Save the Redwoods League. When it was founded in 1918, its goal was clear: *to save from destruction representative samples of the primeval redwood forest for people’s enjoyment, education and inspiration.* I think it is no coincidence that while the organization was founded by scientists, its early leadership came from marketing geniuses such as Stephen Mather. Mather is best known as the National Park Service’s first director and the man who created the 20 Mule Team Borax brand—registered in 1894 and still available today. Newton Drury, was the League’s first executive secretary; also a marketing executive who went on to direct both California State Parks and the National Park Service.

They knew that our movement all started with a clear name and purpose. And for many years our movement’s name and a simple message—shall it be this (a pristine forest), or this (an apocalyptic image of a recently harvested forest)—galvanized a nationwide movement that has been remarkably successful in protecting primeval forest in public parks.

But it’s no longer enough to simply purchase land to prevent something bad from happening. We’re in the middle of a paradigm shift in redwood protection. The next era has to involve protection and restoration. Rather than conflict, it will require collaboration. And rather than building legal fences around land, it will require thinking and acting across boundaries.

But I don’t think we should underestimate the challenge ahead when dealing with the redwoods. They have always, and will always, stir a deep emotional response. Take a recent edition of Parade, read by an estimated 74 million people each Sunday over their morning coffee. It recently published a “bucket list” of 32 *“essential experiences every American should have.”* Among *“watching a lawnmower race”* and *“admiring the pyramids of Las Vegas,”* was *“Standing at the base of a really tall tree: like one of Northern California’s redwoods or giant sequoias.”* But while the same list encouraged readers to *“Visit a farm”* noting that *“meeting the men and women who grow your food can be fascinating and fun.”* There was no mention of visiting a “working forest” or acknowledgment that growing wood can be fascinating and fun.

At a recent dinner in DC someone asked me if the last mill in Fort Bragg had closed down. When I replied “yes,” much of the table cheered and I found myself talking about how forestry was now an important part of the conservation landscape. Forestry, I believe, is not well understood in mainstream America.

Our research shows the average American loves redwoods, and assumes that all redwoods are saved—probably in public ownership—unless of course, the last

redwood was actually cut. And if they think about it at all, they feel guilty at the thought of building a deck from redwood. Yet at the same time, they probably don't think twice about the total environmental cost of a composite plastic deck.

These two emotions—reverence for parks and guilt, or worse yet ignorance, over what's happening outside them—have defined the last 100 years of work in the redwoods. It's been easy to juxtapose "parks" as protected and everything else at risk. In the meantime, good practices on private land have gone unrecognized. And the impact of benign neglect on our parkland—which contrary to popular opinion is not and never has been pristine—is poorly understood.

If we are to succeed in saving the redwoods for the next 100 years, we're going to need new thinking, new action, and new leadership.

But first, where do we stand today?

We estimate the coast redwood ecosystem covered 2 million acres before European settlement of Northern California. Since settlement, 25 percent of the redwood forest ecosystem has been lost to land conversion—farming, homes, and more recently vineyards. Of the remaining 1.5 million acres, only 117,600 acres are old-growth (representing about 5.6 percent of the historical 2 million acres). Most of this old-growth is in public ownership (90,700 acres), but public redwood forestlands overall are actually 73.5 percent second-growth (251,000 of 341,800 total acres) and share many of the same conditions as private redwood forestlands.

In general, the last 100 years has been underpinned by an assumption of stability. We have assumed that we can set land aside, "*unimpaired... for the enjoyment, education, and inspiration of this and future generations,*" to quote from the National Park Service mission statement. Implicit in this statement is that the land was pristine to start with and that the mere act of reserving it will protect it. It is now clear that most land has been affected by humans for millennia and that the environmental baseline has never been stable, and that today it is changing more rapidly than ever before as the Earth warms, population grows, and we mix species up.

In 1850, the world's population stood at 1.27 billion, while California had a scant 92,000. In 2011, the world's population crossed the 7 billion threshold and California stood at 37 million—a ten-fold increase since the establishment of the State Park system in 1927. Meanwhile, the concentration of carbon dioxide in the atmosphere has increased from an estimated level of 280 parts per million (ppm) in 1850 to over 394 ppm by May 2011. As the Economist recently noted, we may have already moved from the stability of the 10,000 year Holocene, to an era of rapid change starting to become known as the "anthropocene."

At the same time, the institution that Save the Redwoods League established in the 1920s to manage the land we saved—California State Parks—is also suffering. In California we're now having a serious discussion about the wisdom of closing 70 parks. In fact, a cartoon editorial in a recent Sacramento Bee summed up the sorry state of park funding with a picture of an ancient redwood in the park being cut down for a deck.

The landscape today

So what does the forest landscape look like today? Not only are we down to 5 percent of the original forest uncut, but much of the rest of the forest is near a historic low point in terms of its standing inventory. It's no wonder that so many species that depend on intact old-growth forest are teetering on the brink of extirpation here in California, marbled murrelet and coho salmon being the most notable examples.

We stand at a historic turning point in history of the redwood forest. Over the last few months I have visited forests from Monterey County in the south to Del Norte County in the north, and toured parks and working lands with the people who manage them. I find that the issues across the coast redwoods' range are remarkably similar – and while every place has a different history, they all share a common theme. Much of the landscape is in various states of recovery from the era of liquidation logging. And while the canopy has grown up, the legacy of past management is alive and well in the network of roads and stands of dense young forests—coppiced redwoods, Douglas-fir thickets and tan oak groves.

The overarching need is to restore the ecological capacity of these once great forests, both for their habitat value and their economic value. And while doing so we need to build public support for responsible forest management.

We're dealing not only with a long-lived species, but a long collective memory of the actions of the past. This image of past management is burned into the collective memory of the public. The era of “timber mining” in California—where the forest across entire watersheds was slicked off, leaving the naked Earth as a stark reminder—may be long gone in reality, but it is alive and well in the public psyche. Likewise the misperception that public land is primarily pristine old-growth is just wrong.

Let's take two members of the public known to many of you: Steve Sillett and Mike Jani. I think you'll agree they're pretty knowledgeable about redwoods! On a recent trip to HRC's timberland in and around Elk and Freshwater Creek—the center of much of the conflict of the past 20 years—Steve Sillett noted he was expecting dinky trees and bare earth and was surprised by what he actually saw—a healthy, albeit young, forest. And Mike Jani expressed surprise at how much of the park land was actually young forest—very similar to the land he's managing for HRC and MRC—rather than the pristine old-growth he imagined.

Because both our public and private lands have experienced a similar management history, it's not surprising that their conditions are similar today. If you take one simple measure, size-class as measured by the CalVeg 2009, you'll see the distribution is remarkably similar across different ownerships.

What perhaps is a surprise is that the actions being taken today to manage them in the near-term are similar, whether you're on public or private land. Since 1973 and the introduction of the Forest Practice Act in California, forest management has undergone a sea change and it continues to evolve. We now have a diversity of practices across the landscape. In essence, we have a large-scale experiment spanning the range of the redwoods. In the last few months I have been in the woods with many of you, from Monterey County to Del Norte County, and seen the diversity of approaches underway:

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- While even-age management still occurs, managers are leaving structure to protect riparian corridors and key landscape features. Give this land another decade and it will look very different to the even-age management of the past.
- Selection harvest and thinning is happening across the region — in some regions as general practice and in others as an experiment
- Selection harvest has been practiced here in the Santa Cruz Mountains for a generation – with some stands now on their third entry. And in Mendocino County, we've now had a decade of uneven-age management by Mendocino Redwoods Company and we're starting to see difference it makes on the landscape. And conservation groups, such as The Conservation Fund, are using similar approaches to manage the forests they own.
- Land managers as diverse as Redwood National Park, Mendocino Redwood Company, and the Land Trust of Santa Cruz County are conducting commercial age thinning designed to accelerate growth and grow big trees in time.
- And California State Parks, the Bureau of Land Management and many private owners are conducting pre-commercial thinning to accelerate growth and affect species composition.

I have also seen many innovative restoration efforts.

- Creative work to manage habitat for the northern spotted owl – owls on Green Diamond ownership are about to break 2000.
- Large woody debris installations – moving from engineered log dams, to carefully placed free-form structures, to simply dumping wood in the creek and allowing it to move at will.
- Road removals, upgrades, new culverts and new bridges to protect and restore habitat for wild salmon and trout.

Across the range there is a great deal of innovation and experimentation. These are happening culvert by culvert, stream by stream, watershed by watershed, ownership by ownership. It's happening on public and private land, on large and small ownerships alike.

I am left wondering which of today's activities will become tomorrow's regret—the equivalent of the often-told tale of coastal stream woody debris removal in the 1970s and 1980s. We're putting a lot of faith into single species management for northern spotted owls, even as the barred owl moves in. Or into riparian protection on class I and II streams, when we know that the water and sediment ultimately flows from entire watersheds. And setting a 12-foot diameter limit to thin trees on public land when we know it will seriously constrain management options.

What we need is a larger vision for the restoration of the redwoods

What we need is a larger vision to tie all these pieces together—an audacious goal and a collective framework for our actions, for our public investments, one to help us monitor and learn from our successes and failures. What would it take to:

- Double the acreage of forest set on a trajectory toward old-growth?
- Double the land base dedicated to permanent forest uses and protected against land use conversion – either as parks or working lands?
- Double the productive capacity of the redwood region to produce a greater volume of high-quality wood products? In other words, sustain a higher level of yield from an older and more complex forest?

And how can we do this in a time of change, where the audacious goal of permanent protection—which for the last century has essentially meant freezing the status quo—needs rethinking for the century ahead?

Solving this would increase the odds that the redwood forest ecosystem will continue to thrive, that the parks will be vibrant places that can adapt to change, that high-quality redwood products can reclaim their place in the marketplace, and meanwhile the redwood forest would be capturing and storing carbon and helping mitigate the impacts of climate change. It would also be a model for other forest systems around the world.

We're fortunate that in the redwood region today we have a remarkable opportunity to be successful. Ironically, the legendary economic value that drove the liquidation logging has also driven consolidation of ownership. And today, the land tenure pattern is such that we can think, plan, and act at a landscape scale. And at the landscape scale, there's enough space for a diversity of actions from pure ecological restoration to sustained production. It's when we try to meet all our goals on every acre that we run into conflict.

Moving toward this vision will require:

- **New thinking.** It starts by thinking holistically about the entire landscape. Nature has never respected legal boundaries or been concerned about single species. We need to develop a shared set of goals that we can start to lay explicitly onto the landscape.
- **New action.** We need to create a unity of action among non-traditional partners. To get comfortable with ecologically based restoration management that may involve selling wood from public lands to offset project costs once all ecological goals are met. Or creating incentives for long-term stewardship on private land — rather than looking first to the certainty of the regulatory stick. It's time to reward landowners willing to grow their forests longer while leaving the big old trees that have survived alone.
- **New leadership.** Individuals willing to stand up and partner with their traditional adversaries. To talk about the positive benefits of sensitive

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forestry on private land. Or the need to expand parks and connect them together so they can adapt to climate change.

So what role does science have to play in all of this? There is in effect a giant experiment underway across the redwoods, whether we acknowledge it or not. Everyday we're making decisions on where and how to harvest, how much wood to remove in a thinning project, how to approach a road removal project, or install wood into streams. In many instances data is being collected to evaluate the effect of that treatment. But it's often not shared, or collected in a way that makes comparison between sites meaningful. Science can help shape a framework to help us understand the impact of our actions.

This grand experiment also lacks a control. Where on the landscape are we letting nature run its course so we can really understand the impact of our action? Without this control we'll always be left wondering. I don't mean a small-scale project-based control; I mean a watershed-scale control where we're committed to leaving it alone and letting nature reign. Science can help identify these places.

We lack a clear ecological basis for restoration that can be understood by the public and is readily translatable into management actions. What are the ecological criteria that should be deployed in developing a restoration treatment and what should we measure to monitor progress? There's a lot of discussion about density targets, basically measuring the density of a nearby old-growth stand and using thinning to cut down to that level. This simple structural approach to restoration is a start, but how can we marry this with a process-based approach in a way that can be deployed in the field?

Scientists and practitioners need more opportunities to work together. As a minor example, too often I have spoken to a land manager who simply can't get access to the current literature because the subscription is too costly. This conference is a great start, but it needs to be sustained. Ultimately it's about building trust and relationships between academia and practitioners. And while we're doing all of this, we need to acknowledge uncertainty and proceed with humility—essentially adopting our own version of the Hippocratic Oath, to do no harm.

I wanted to return to that bucket list of 32 essential American experiences and the vision I have of what saving the redwoods could mean in the future. One of the things on my bucket list was to climb Kilimanjaro and see the endless Africa plains. I had the chance to do that a number of years ago when I visited Tanzania. On the edge of Tarangire National Park we climbed a lookout tower where we could look one way into the park, and the other way out to the surrounding plains. The interpretive panels discussed the conservation work going on both inside and outside the park. Why do I need to go to Africa to see that?

I imagine climbing up through the old- growth redwoods in Humboldt Redwoods State Park to the ridge that divides Bull Creek from Bear Creek. Perhaps to a new lookout where to the south you can see the restoration work underway in the park and to the north the management underway on the private timberland. And not only understanding the role each plays, but feel proud that I am supporting both—through my tax dollars supporting the park and through my purchase of redwood timber supporting the responsible management of the surrounding landscape.

As I described earlier, the redwoods of Yosemite, Santa Cruz and Humboldt County have been at the heart of the conservation movement here in California and in fact across the United States. We now have a unique opportunity to put them there again as we start to work together at a landscape scale. We've made significant progress toward this since we met in Rohnert Park 5 years ago. I am optimistic that by the time we meet again in 5 years time, we'll be further down this path.