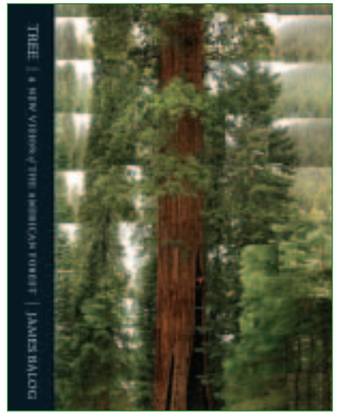
BOOK REVIEW

Tree: A New Vision of The American Forest



In "Tree: A New Vision of The American Forest", renowned photographer James Balog invites the reader on an intimate journey: an exploration of America's most magnificent trees. Balog traversed the country in search of the largest, oldest and strongest trees in America, capturing each in a series of innovative multiple-exposure photographs. When stitched together this collection of photographs offers a unique portrait of these champions.

The coast redwood and giant sequoia presented a special challenge. How to photograph the tallest and most massive trees on earth? Balog teamed up with Dr. Steven Sillet and fellow redwood scientists whose research the League has supported to adapt techniques developed to access redwood canopies in pursuit of scientific inquiry. Suspended on climbing ropes, Balog spent hours climbing up and rappelling down these redwoods. Balog has gone beyond the classic redwood photo and invites us to explore every inch of these complex trees. Many of the coast redwoods recorded in the book were protected through the work of the League and the support of our members over the past 88 years. Balog allows us all to experience these trees anew.

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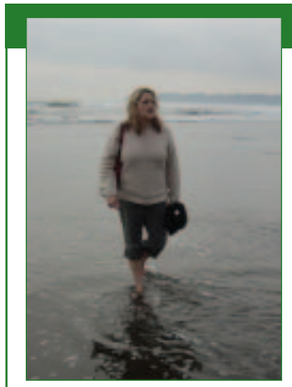
Donor Highlight



Samantha Campbell
Photo by Dean Scheben

Samantha Campbell's first visit to a redwood forest was in 1995, during a drive that began in her hometown of Baltimore, Maryland. "I felt like I was back in a prehistoric time. I remember feeling very small, like I could hide under a fern leaf." She couldn't have imagined then that she would later be involved with Save-the-Redwoods League as a foundation donor. Her father started The Keith Campbell Foundation for the Environment which focuses on marine conservation in the Chesapeake Bay. Samantha moved to San Francisco and expanded the reach of the foundation to the west coast in 2003.

Recently, The Campbell Foundation made a $40,000 grant to the League's Mill Creek restoration project. The astounding $140,000 from members in response to the League's request for Mill Creek donations was one reason the Campbell Foundation decided to support the project. "The project benefits the runs for native species of trout and endangered salmon. The health of the forest and the health of the rivers and creeks are intertwined, and the League recognizes this. They set a very good example. The League has an innovative restoration plan that may serve as a model for future work in other regions. They are approaching this project with a long-sightedness and collaborative spirit that we appreciate."

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Save-the-Redwoods League

Spring Bulletin 2005

Paragon Grove, Mill Creek
Photo by Evan Johnson

Letter from the Executive Director

Photo by Fred Mertz

The forest slopes steeply down from ridge-top to a long-abandoned millpond. Ferns reach shoulder high. Massive fallen trees lead to the foot of an ancient monarch more than sixteen feet in diameter. Deeply furrowed bark stretches upward past thick branches high above, the lofty crown out of sight. The quiet of the forest amplifies the excitement: an all too-rare opportunity to protect another grove of ancient redwoods!

Negotiations are underway, confidential until agreement is reached. This represents the heart of the League's work, the legacy that League members continue to create: the bridge from the distant past into the unforeseeable future.

Elsewhere in the redwoods, in the Santa Cruz mountain region, negotiations continue for purchase of several redwood forest stands made possible by gifts from League members in the closing weeks of 2004 that exceeded the $100,000 challenge grant from the Evelyn Tilden Mohrhardt Fund. Identified in the League's Master Plan for the region, these parcels will increase the viability of existing parks and reserves and extend protection to privately-owned ancient redwood forests.

Today the League's conservation strategies reach beyond purchase of sensitive lands from willing sellers at fair market value. You will read in this Bulletin an in-depth article about continuing restoration at Mill Creek. By applying careful science and professional experience the League and the California State Department of Parks and Recreation work, often with heavy equipment, to restore complexity to these young plantation forests: setting them on the path to recovery and the opportunity for future generations to wonder at a towering redwood forest once more. It's an ambitious but necessary project.

But work on a human scale, is also important in forest restoration. This winter, on League-owned land just south of Richardson Grove State Park, more than 45 League members and local residents gathered to plant 600 young trees. The week before, crews pulled truckloads of French and Scotch broom. These non-native plants had invaded stream banks and channels, choking out native plants that host the diversity of the redwoods' birds and wildlife. Winter rains the following week watered the seedlings, grown from seeds collected on the property and nurtured in a League-supported nursery for several years by dedicated State Park personnel.

Engagement by League members through restoration projects such as these and through your gifts are at the very heart of the effectiveness of the League's work to save the redwoods. I was recently interviewed by a reporter from the San Francisco Business Journal. I told her that one of the most inspiring aspects of my work is the deep personal satisfaction that our members and supporters get from engaging with the League, stemming from their connection with the redwoods.

We read and are renewed by your stories, your memories, your dedication and commitment to the redwoods. Many of you recall your first visit to the redwoods as a young child with your family. Others remember a single visit fifty years before that changed your life. Still others have never been to the redwoods but take hope, "just knowing that they are there."

Thank you for making the League and the sense of wonder created by the redwoods an important part of your life.

Mill Creek Restoration

In 2002, the League spearheaded the purchase of a 25,000-acre redwood forest near the Oregon border that had been logged aggressively for four decades. Now, the League finds itself on the leading edge of science, and conservation, as it works with various partners to restore what was once a magnificent primeval forest.

The Big Picture

The goal at Mill Creek is to support and accelerate the forest's recovery, to approximate in one century what would otherwise, best case scenario, require a thousand years or more. This experiment is so important that, if it succeeds, it could be the key to the long-term health of the whole redwood ecosystem.

As readers may remember, more than 95% of the original coast redwood forest has been logged. Remnants of the ancient redwood forest are so few and so widely scattered that the redwood ecosystem as a whole is in danger of permanent, fundamental transformation involving the loss of native plant and wildlife communities and disruption of their natural interrelationships.

According to League Executive Director Kate Anderton, fragmented patches of old forest can become "tree zoos" that are neither large enough to support wildlife, nor resilient enough to survive change. These patches cannot function in the same way that an uninterrupted expanse of redwoods can. For example, in small patches, the complex life in the canopies of ancient redwoods high above the forest floor, only recently discovered, cannot survive. The absence of giant long-lived trees influences the shape and character of streams and fundamentally changes the light and temperature of the forest. "In order to preserve the redwood forest as a living, working system," Anderton concludes, "we need to provide as much connection as reasonably possible, as soon as reasonably possible, among the remaining ancient groves."

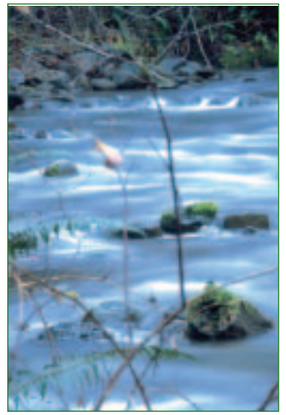

Photo by Evan Johnson

Map by GreenInfo Network www.greeninfo.org

In order to achieve this goal, the League first needs to answer two critical questions: how to restore degraded lands, and where restoration projects should ideally be located. Mill Creek links the pristine ancient redwood forests of Jedediah Smith and Del Norte Coast Redwoods State Parks and the inland reserves of the Klamath-Siskiyou bioregion: ideally located to serve as a prime laboratory for discovering "how." Lessons from Mill Creek will inform restoration at priority locations elsewhere in the redwoods, identified through the

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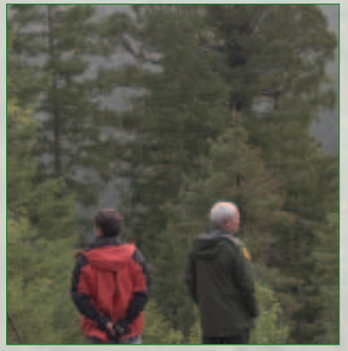

Ruskin Hartley, League Staff (left) and Rick Sermon, retired, California Dept. of Parks and Recreation. *Photo by Evan Johnson*

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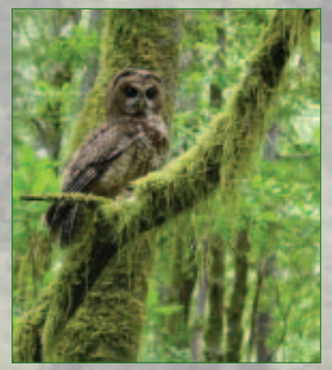
League's on-going study of the two million acres of the redwood's entire original range. These two projects will provide a strong scientific basis for efforts to ensure the long-term health of the whole redwood ecosystem.

All Deliberate Speed

Forest restoration can be extremely time sensitive. This is because, at least in some areas, restoration will require the ecological thinning of trees. Yet thinning, as it turns out, is not likely to succeed at Mill Creek if foresters wait more than a decade to begin.

Most of the Mill Creek forest was clear-cut in the forty years before its purchase. Each year after logging, young redwood and Douglas fir were planted in tidy rows. But Douglas-fir seeds blew in, caught hold and thrived creating such a dense tangle that visitors must crawl through many of these "single-aged" stands on their hands and knees. Because of the unnatural competition for light and nutrients, young redwood trees across much of the Mill Creek property are either suppressed beneath a dark canopy of Douglas-fir or are wispy and elongated, with minimal foliage. In a decade or so the foliage will dwindle to a tiny flag at the top of each tree, severely diminishing the tree's capacity to feed itself through photosynthesis. At that point, no amount of thinning would help these chronically stressed redwoods grow to healthy maturity.



Northern Spotted Owl
Photo by Jack Harper

If thinning is to help these young redwoods "release" into their natural growth pattern, thinning must take place soon. This rapid timeline poses a challenge. Those working at Mill Creek must act in this window of opportunity, the science of restoration is still in its infancy, and much about the redwood ecosystem is still unknown.

Fostering Complexity, Building Knowledge

According to Mike Camann, an entomologist from Humboldt State University who studies microorganisms in the soil of ancient forests, "The concept of an ecosystem is actually quite new." We know a lot, Camann says, about individual flora and fauna in the redwood forest, especially those that are threatened or endangered. "But as for the overarching processes that connect all the species – these largely remain a mystery."

Photo by Stephen Corley

"The forest will teach us, if we listen. Listening is the key to all good science, and good conservation."

Todd Dawson
Professor of Integrative Biology, UC Berkeley

What this means for Mill Creek is that aspects of the restoration involving individual species are grounded in a plethora of data. Habitat for salmon and trout will be protected, thanks to a commitment by the California Department of Parks and Recreation to remove hundreds of miles of old logging roads that contribute excessive sediment that could clog spawning beds in Mill Creek. Other threatened and endangered species, such as the northern spotted owl, are carefully monitored, and restoration activities modified if stress is detected.

But restoration of the forest as a whole has propelled those working at Mill Creek toward the periphery of existing science. Thinning for ecological reasons is a perfect example. Researchers can easily measure the number of trees per acre in an ancient redwood forest. And enough trees – most often commercially planted Douglas fir – can be removed to hasten the Mill Creek forest toward that density. But those working on the restoration are challenged when it comes to recreating the complex, apparently random pattern of trees in an ancient forest. Imitating the effects of sun and shade, wind and fire, viruses, beetles, and famished young bears, all operating over the course of centuries, is easier said than done. *(See sidebar: Nature's Design)*

Even if thinning restores the redwoods' dominance, clears space for young trees to sprout among their elders, and arranges everything approximately as nature intended – complex questions remain. Will getting the larger structure in place automatically replenish all the other elements, from birds and beasts to ferns and lichen, which together constitute a functioning ecosystem?

At present, no one is entirely sure if restoration can recreate the whole ecosystem, down to the deep organic soils, microorganisms, and labyrinths of underground fungi that help the redwoods grow. "Nature is not only more complex than we think," muses naturalist Rick Hiser, who leads tours of the restoration for California State Parks. "Nature is more complex than we can think."

Todd Dawson, Professor of Integrative Biology at Berkeley and also a member of the League's Board of Councillors, agrees that much is unknown, and perhaps never can be known, about the redwood forest. But that, he says, is hardly a reason to delay the work at Mill Creek. "The jury is still out," Dawson admits, "on whether strategic intervention can help heal a damaged ecosystem. But as a scientist I'm comfortable with that. We assess all the information we have, then say, 'let's try this.' That's how science advances."

Those restoring Mill Creek, day-in and day-out, are also comfortable with the creative tension of acting without knowing all the answers. Steve Horvitz, District Superintendent for California State Parks, says that his staff is trained to respond to research as it evolves. "We stay alert," explains Horvitz. "We constantly adjust."

Mill Creek, in fact, has the potential to become the laboratory in which everyone learns more about the redwood ecosystem. The League

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NATURE'S DESIGN

How to mimic natural patterns while thinning a stand of trees is a matter of debate. One technique, now being tested at Mill Creek, involves sending sawyers into test plots with a chain saw in one hand and a pair of dice in another. "Humans tend toward uniformity," explains Kevin O'Hara, Professor of Silviculture at Berkeley's College of Natural Resources, who suggested this method. "The dice are a simple way to introduce chaos into the stand."

Photo by League Staff

Forester Jim Able, another expert working on the restoration, agrees that humans need help imitating the patterns of nature: "People love square corners and things that come out mathematically. Nature doesn't." Able emphasizes intuitive selection, a technique used by commercial growers that easily adapts to serve restoration goals. By observing the form of the tree and its place in the forest, Able can tell from decades of experience which trees would tend to survive. He can actually see the shape of the natural forest. As he removes a tree here, a tree there, he prunes away everything that does not correspond to the quintessential form of an ancient forest.

Both the scientist's dice and the forester's intuitive pruning have their virtues. The League is learning how to combine these techniques. Over time studies with rigorous controls will reveal the approach that benefits Mill Creek.

TOUR MILL CREEK

This summer, take advantage of a rare opportunity to tour the Mill Creek restoration with naturalists knowledgeable about the flora, fauna, history, and future of the redwood ecosystem. For details or to make a reservation, call our office at (415) 362-2352.

While you are in the area, do not miss out on the various state and national parks near the Mill Creek property. Since it may be difficult for travelers to choose among all the tempting natural sites in this area, League staff member, Dan Porter, has agreed to reveal his favorite spot:

The Damnation Creek Trail in Del Norte Coast Redwoods State Park is my new favorite! It is a steep 1.2 - 1.5 mile trail that

Dan Porter, Staff Forest Ecologist
Photo by League Staff

dives off the first ocean bluff through mixed redwood/Douglas fir forests, descends into pure redwood groves and wind-tattered spruce forests, then ends in coastal bluff scrub habitat where Damnation Creek spills into the Pacific. It is a wild portion of our remarkable North Coast that appears to be lightly traveled, despite its easy access off of Highway 101.

For more information, see **www.parks.ca.gov**

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Excavators and bulldozers work in tandem to remove logging roads.
Photo by League Staff

envisions a comprehensive inquiry involving a team of hydrologists, geologists, biologists, and foresters who can together produce integrated research on the flora, fauna, soil, climate, and waterways of the Mill Creek property, with funding stable enough to last for several decades. "That is the only way," says League Executive Director Kate Anderton, "we will ever begin to understand the whole array of organisms and processes that make a redwood forest a redwood forest." And that, in turn, is the only way we can continue to learn how to restore this ecosystem.

Listening to the Forest

Not only is Mill Creek a priceless opportunity to advance the understanding of forest restoration; it is also a lesson in humility. It was heedless human action, in the first place, that caused the conversion of an infinitely complex ancient forest into a simplified tree farm. It is important to make sure that heedless, single-mindedness not take over the delicate sensitivity required for successful restoration.
For even the most well-meaning biologists can blunder in their efforts to help nature heal. Experts in aquatic habitat, for example, spent decades urging landowners to sweep salmon streams of all woody debris in order to ease the passage of spawning fish – only to discover that resulting increased water velocity destroyed spawning pools and devastated the species they were so eager to protect.

Years ago, physician Lewis Thomas wrote that if he were given the choice between piloting a 747 to an emergency landing, or trying to run his own liver for thirty seconds, he would choose the 747 hands down. "For I am," he admitted, "considerably less intelligent than my liver."

Recently de-commissioned logging road; forest of the future is on its way.
Photo by League Staff

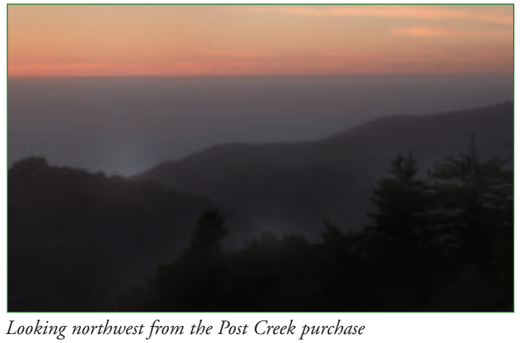
That, in a nutshell, is the League's attitude toward the forest at Mill Creek. No one has any idea, truly, how to "run" the redwood ecosystem, toward healing or any other goal. Those involved in the restoration can only stand humbly before the forest, poised to learn. In the words of ecologist and League Councillor Todd Dawson, "The forest will teach us, if we listen." For, as Dawson puts it, "listening is the key to all good science, and good conservation."

League's Purchase Expands Park

Late in 2004, the League completed the purchase of 80 acres on the southern boundary of Pfeiffer Big Sur State Park. The seller agreed to a substantial discount because the League could make an unconditional offer to complete the transaction in a very short timeframe. This was made possible only because of gifts from League donors.

Post Creek tumbles downward through the property, its banks shaded by a beautiful mature second growth redwood forest that reaches upslope to the mesquite and grass covered hills of the central coast. The addition of the Post Creek property to Pfeiffer Big Sur, anticipated for fall 2005, will expand the thousand-acre park and add easy access from Highway 1 immediately across from the Big Sur Post Office and Café - a welcome easy opportunity for Big Sur visitors to get out of their cars and into the redwoods.

Post Creek
Photo by Fred Mertz



Looking northwest from the Post Creek purchase
Photo by Fred Mertz

Pfeiffer Big Sur was created in 1933 when the Pfeiffer family made a discounted sale of their ranch to the State. Matching public funds were available from the State's first Park Bond passed in 1927 – a campaign spearheaded by the League. Post Creek joins the Big Sur River which runs for several miles through the park sheltered by redwoods, cottonwoods, big leaf maples, sycamore and oaks.

The Post Creek addition is the second in recent years undertaken by the League. In the late 1990's, the League purchased and donated 155 acres to extend the Park northward to include a beautiful stand of old growth redwoods running along Big Sur River and a sunny meadow. Park staff recently identified six new groves in this area that are now available for dedication through the League's Memorial Grove Program. League donors interested in designating a grove through a gift to the League ensure that the beauty and grandeur of the redwoods will continue to inspire future generations. More information on the program is available by contacting Angela Dugan (415-362-2352, ext. 303) at the League's offices.

Pfeiffer Big Sur is one of the area's most popular parks. Its campgrounds fill early. Its trails and swimming holes make it a particularly popular summer destination. Since re-introduction of the California Condor several years ago, birds can often be seen in winter in the redwoods near the Big Sur Lodge in the park. Make plans now to visit Pfeiffer Big Sur this year! (**www.parks.ca.gov**)

Map by GreenInfo Network www.greeninfo.org