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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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.

Katherine Anderton

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.”

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
Leafy fronds fans out beneath a canopy of Douglas-fir - a stand of trees in the redwood forest. And enough trees – 40,000 or more – 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.

If thinning is to help these young redwoods “release” into their natural growth patterns, 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 ancient 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.”

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 to 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 rhythms of underground fungi that help the redwoods grow. “Nature is not only more complex than we think,” muses naturalist Rick Hise, 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, 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

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.”

(continued on page 6)
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: Del Norte Coast Redwoods State Park is my new favorite! It is a steep 1.2 - 1.5 mile trail that 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 bluffs with a view of the Pacific.

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.

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.”

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.”

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 up 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.

Lewis Thomas” considerably less intelligent than my liver.”

Looking northwest from the Post Creek purchase
Photo by Fred Mertz

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