



## IN THIS ISSUE

### Forest Products Marketplace: When Oil Hits \$50 per Barrel, Shouldn't Delivered Wood Fiber Prices Fall?

Recently, one of Forest2Market's pulp and paper customers asked for help explaining why his company's delivered wood fiber prices were not declining as the prices of oil and diesel were falling. Since applying data to answer questions and solve problems is in Forest2Market's wheelhouse, the company analyzed the delivered price data from the Forest2Mill benchmark service to substantiate the customer's theory. **Page 6.**

### Forestry Student Profile: Jeff Osborne Selected for Allegheny SAF Student Leadership Award

Jeff Osborne, until recently a forestry student at Pennsylvania State University, was recently named the recipient of Allegheny SAF's Student Leadership Award. **Page 8.**

### Science & Technology: From Input to Engagement: Public Engagement Methods Come of Age

Emerging communication technologies, shifting public expectations, and financial constraints are creating fertile ground for new, science-based methods for engaging the public to achieve desired conservation objectives. **Page 12.**

### Field Tech: Communicate from Anywhere via Satellite with DeLorme's inReach Explorer

The inReach comes in SE and Explorer models, both of which let you send 160-character text messages via a constellation of satellites operated by Iridium Communications Inc. Because these satellites provide global coverage, the DeLorme messaging service works anywhere, regardless of whether cell coverage is available. **Page 13.**

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## Sierra Nevada Conservancy, Forest Service Target Forest Health on 25 Million Acres

By Steve Wilent

California is known as “The Golden State” for the gold discovered there in the 1840s; for the brilliant yellow of the state flower, the California poppy; and for the wealth that has been generated due to the state's good business fortunes. That, along with a fair climate and a bounty of agricultural land and natural resources, have attracted many migrants seeking the good life. With a population of more than 38.8 million, it is the nation's most populous state. However, not everything in California is golden. As the state braces for a fourth consecutive year of drought, it faces severe water shortages and the prospect of large, intense wildfires such as the Rim and King Fires, which burned in 2013 and 2014, respectively. These fires burned in the Sierra Nevada, a mountain range that stretches for about 400 miles north and south along the eastern side of the state. Throughout much of the range, fuels are dry and many stands are overcrowded and unhealthy after decades of fire suppression and the slow pace of forest management activities designed to return them to health.



In California, drought has resulted in larger, hotter fires in recent years. About 50 percent of the 100,000-acre King Fire in 2014 burned at high severity. Credit: US Forest Service, King Fire BAER Team, inciweb.nwcg.gov.

The Sierra Nevada Conservancy (SNC), a state agency, recently launched the Sierra Nevada Watershed Improvement Program (WIP), an effort to remedy the

situation. The SNC describes the program as “a coordinated, integrated, collaborative

**SIERRA NEVADA ■ Page 4**

## Research Matters: Who Plants? A Look at Reforestation in the Southern US

By Steve Wilent

The shifts in timberland ownership over the past two decades have engendered much discussion of the future of those lands. Numerous observers have scrutinized the management, research, and land-sales practices of the timberland real estate investment trusts (REITs) and timberland investment management organizations (TIMOs) that acquired millions of acres divested by the formerly vertically integrated forest-products companies. A paper in the April 2015 edition of *Forest Science* focuses on reforestation—specifically, the reforestation rates of the four main private forest-landowner groups in the US South: the REITs and TIMOs, as well as nonindustrial private forestland owners (NIPFs) and the remaining industrial timberland owners.



SAF member Daowei Zhang, professor of forest economics and policy at the Auburn University School of Forestry & Wildlife Sciences, is writing a book about the history of institutional forestland ownership and management.

The paper, “Timberland Ownerships and Reforestation in the Southern United States” was written by Daowei Zhang, Xing Sun, and Brett J. Butler. The abstract explains: “In this study, we look into the reforestation behaviors of various timberland owners in the southern United States based on plot-level data from the latest complete US Forest Service Forest Inventory and Analysis cycle. Our results show that, after controlling for market and locational variables for all sampled plots in the study, the probability of reforestation was higher for institutional and industrial owners than for nonindustrial private forest owners and was the highest for timberland investment management organizations. These findings imply that the institutional timberland owners do reforest and embrace sustainable forestry practices.”

Daowei Zhang, professor of forest economics and policy at the Auburn University School of Forestry & Wildlife Sciences, the paper's corresponding author, is keenly interested in the shift in timberland ownership.

“When we embarked on this research about five or six years ago, the issue was that there had been big changes in tim-

**RESEARCH MATTERS ■ Page 11**



SAF Vice-President Clark W. Seely, CF (left) and SAF Board Member Ed Shepard, CF (right). Credit: Danielle Watson, SAF assistant director of government affairs and external relations.

SAF Vice-President Clark W. Seely testified on March 18 before the House Subcommittee on Interior, Environment, and Related Agencies, focusing on the need for the Wildfire Disaster Funding Act or similar measures, and the importance of funding for US Forest Service research. Ed Shepard, SAF Board of Directors member representing District 2, who also addressed the committee, highlighted Bureau of Land Management programs in the president's FY 2016 budget request.

**For more on the testimony, see page 9.**

See page 3 for a Q&A with Forest Service chief Tom Tidwell.

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The mission of the Society of American Foresters is to advance the science, education, technology, and practice of forestry; to enhance the competency of its members; to establish standards of professional excellence; and to use the knowledge, skills, and conservation ethic of the profession to ensure the continued health and use of forest ecosystems and the present and future availability of forest resources to benefit society.

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# The Biggest Collaboration Story Ever Told

By Steve Wilent

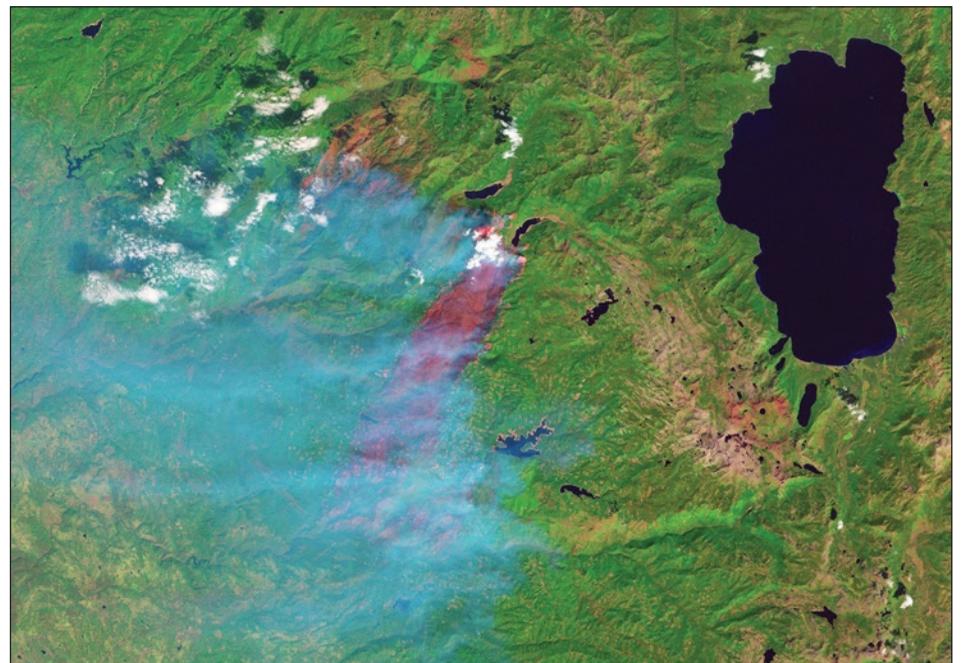
For the past 10 years or so, as April 1 approaches, I smile at the memory of one of the most well-read pieces of writing I've ever produced. It was a classified ad I placed in the April edition of my local newspaper: "For Sale, one beautiful noble fir Christmas tree. 12 feet tall, with stand. Cut locally. Used only once. Paid \$25. Will sacrifice, \$10 or best offer."

I have never had such a good response to a classified ad. A couple of folks left voice mails asking if I was serious, and one laughed but didn't say a word. Several called just to say thanks for the April Fool's gag.

Forest conditions in the Sierra Nevada are no laughing matter, as you know if you've lived or worked there, or read the story about the Sierra Nevada Conservancy on page 1. In a report issued last September, "The State of the Sierra Nevada's Forests," the SNC stated that "Failure to understand the urgency of the situation in the Sierra Nevada will have devastating impacts on California's environment and economy. The potential for more megafires like the Rim Fire is high and the trend of larger, more intense fires is clear, with the current drought and ongoing temperature increases making the situation all the more "urgent."

The report puts some facts behind its use of the word "urgent":

- The amount of area consumed by fire in the Sierra Nevada continues to increase. More land has burned in the first four and a half years of this decade than the previous seven decades combined.
- Between 1984 and 2010, there was a significant increase in the number of acres within fires burning at high



A September 19, 2014, image of the King Fire in the Eldorado National Forest, California, taken by NASA's Operational Land Imager system aboard Landsat 8. The fire ultimately burned about 153 square miles. Lake Tahoe, at right, has a surface area of 192 square miles.

intensity, from an average of 20 percent in the mid-1980s to more than 30 percent by 2010.

- The 2013 Rim Fire, the largest fire in the recorded history of the Sierra Nevada, burned 257,000 acres, almost 40 percent of which was at high intensity. Estimates are that the fire produced the same amount of greenhouse gas emissions that 2.3 million vehicles produce in a year.

The intensity of last year's King Fire, between Lake Tahoe and Sacramento, the state capitol, was even higher: about 50 percent of nearly 100,000 acres burned at a high intensity. The SNC report was issued on September 22, nine days after the King Fire started.

In talking with people from the SNC and its partners, I heard two clear points of agreement: a dramatic increase in active forest management is needed, and collaboration is the way to get there. In recent years, the Forest Service has demonstrated that collaboration works in large-scale projects, such as the Four Forests Restoration Initiative in Arizona and on the

Black Hills National Forest in western South Dakota and northeastern Wyoming, as well as numerous smaller-scale collaborations across the nation. The agency deserves much credit for these successes. So do the organizations and individuals who have lent their time, effort, resources, and influence to these good works—in particular, The Nature Conservancy, which has done more than any other conservation or environmental group to promote sound forest management on federal lands.

In California, one seemingly intractable conflict must be addressed, sooner rather than later: the need for action is urgent, but collaboration takes time. What's more, there isn't enough funding to do the work on a scale large enough to be meaningful in the short term.

It is ironic that the cost of suppressing the 257,000-acre Rim Fire had approached \$130 million by the time the fire was contained, two months after it started—the same amount that the Forest Service's budget will decrease in 2016, compared to 2015, if the President's proposed budget for the agency is enacted. I hope that Congress does not fail to understand the urgency of the situation. **FS**

# Reader Survey Results

To all 170 of you who responded to *The Forestry Source* Reader Survey over the past couple of months, thank you. Your feedback is invaluable. The results clearly show that readers value news: 52 percent selected "forestry news articles" as the "most useful or important" part of the *Source*. The only other category in double figures was Field Tech, with 10 percent. Science & Technology placed third, at about 8 percent. Combined, those three categories were favored by 70 percent of readers, making it clear that readers need and want news and information about forests and

forestry, the tools they use to manage forests, and the research and technological developments that form the foundation of professional, sustainable forest management.

The responses to the open-ended questions were all over the map, with a wide range of suggestions and comments—mostly positive, I'm happy to say. A significant number of respondents asked for more information about continuing education resources, and several suggested listing webinars that they might take for CFE credit. My colleague Joe Smith and I will include more of such information in future editions.

A handful of respondents called for more coverage of GIS, GPS, and remote sensing, and yet more respondents named GIS for Foresters as the least use-

ful or important of the paper's categories. Several readers cited wildlife, habitat, urban forestry, and private-forest management as topics deserving of more emphasis. We'll keep that in mind from now on.

In hindsight, I ought to have included Letters to the Editor in the survey. I don't know about you, but that's the first place I usually turn to after scanning the front page of my local newspaper. It's the same with most of the magazines I get, including the *Journal of Forestry*—I want to know what others think. That includes you, *Forestry Source* readers. I want to know what you think, whether in the form of a letter for publication or an off-the-record note or phone call. You can reach me at (503) 622-3033 (my home office in Oregon) or wilents@safnet.org. **FS**

## SIERRA NEVADA

■ From page 1

program to restore the health of California's primary watershed through increased investment and needed policy changes." That watershed encompasses 22 counties and 12 national forests across more than 25 million acres—about one-quarter of the state—and provides more than 60 percent of the state's developed water supply. In addition to being a source of water, the Sierra Nevada is home to world-renowned landmarks, such as Yosemite and Sequoia National Parks; numerous cities, towns, and rural residential properties; productive private timberlands; and many other resources.

The SNC is not acting alone. Among numerous partners are the US Forest Service, The Nature Conservancy (TNC), and the Association of California Water Agencies (ACWA). On March 4, the SNC and its partners held a summit in Sacramento designed to introduce the WIP and explain "the urgent need for restorative action in Sierra Nevada forests and watersheds, and the foreseeable consequences of inaction."

The main WIP objectives are to:

- Identify and quantify the level of restoration activity needed to restore Sierra Nevada watersheds to a state of proper function and resilience, as well as the cost of implementing these activities.
- Increase state and federal investment in restoration activities, as well as

securing investment from those who benefit from the region, such as the urban, business, and agricultural communities who receive water from the region.

- Identify and address state, federal, and local policy issues that serve as impediments to increasing the pace and scale of restoration and improving the socioeconomic well-being of Sierra communities.

"We and a lot of our partners believe that the benefits of the Sierra forests are at serious risk," said Jim Branham, the SNC's executive officer. "The overarching risk or threat is from large, damaging wildfires—you might even say megafires—like we have been experiencing in recent years. The Rim Fire was the largest in the recorded history of the Sierra Nevada, and last year's King Fire was large and unusually intense. Unfortunately, these fires appear to be part of a new norm. In a lot of the region, conditions are very similar to those that existed prior to the Rim and King Fires. If we don't change course, the likelihood that we will continue to have fires like these is extremely high."

The effects of drought, a climate anomaly, can be exacerbated by local conditions.

"In many areas of the national forests, we have far too much vegetation on the landscape. They're overgrown, which is not a healthy condition to begin with, and the drought makes these excess fuels even drier," Branham said. "And then you overlay a more long-term, more or less gradual



Weeks after the King Fire was contained last fall, the Sierra Nevada Conservancy, a California state agency, and the US Forest Service hosted a tour of the area for state and federal legislative staff. Topics discussed included wildlife impacts, greenhouse gas emissions and climate change implications, and impacts to communities, infrastructure, and water supply. Credit: Sierra Nevada Conservancy.

trend that we're seeing in the Sierra Nevada, which is the increase in temperatures. That means less precipitation in the form of snow, and when we get out of the drought, more in the form of rain. It also means an extended and more severe fire season."

Branham notes that fire activity this winter was unusually high. In February, a 7,000-acre wildfire destroyed 40 homes on the eastern slope of the Sierra Nevada.

"This fire was in winter, in an area that would normally have snow on the ground," he said. "That's the scary reality that we're dealing with now. From our standpoint, changing what's out there on the landscape is critically important. It's going to take a major, large-scale effort from a lot of levels and agencies of government—federal, state, and local—and from a lot of our key partners."

What's more, he said, the large fires of the past two years were more intense than usual. About 40 percent of the 270,000-acre Rim Fire burned at a high intensity; about 50 percent of the King Fire's 100,000 acres burned at a high intensity.

"We're not getting many of the benefits that can come from fire when the ecosystem is healthier," said Branham. "Fire is a part of our ecosystems. Eventually, it will all burn."

As an SNC partner, The Nature Conservancy plans to work closely with the agency to implement the WIP, said Ed Smith, a TNC forest ecologist and SAF member. To Smith, the SNC's use of the word "urgent" is not an overstatement.

"Urgent may be an understatement," he said. "We've waited too long to implement larger-scale projects that have an ecological focus as well as the fuels-reduction focus. I think it's clear from the literature that the pace of forest biomass accumulation and the increase in large fires, especially large patches of high-severity fire, are extraordinary and beyond the range of natural variability in Sierra Nevada forests. I think we have an opportunity, given the state of the economy, to catalyze change with human activity that is focused on restoring the functions of these forests, as well as the sense of community in the Sierras and in the foothill communities. There's an opportunity for an alignment of multiple objectives [and] to line up our human and financial resources with those objectives to effect change that is more sustainable in the long run."

Dave Bischel, president of the California Forestry Association, a forest-products industry group, agrees that taking action is

imperative. The association has been an active participant in the SNC's activities.

"We are in the fourth year of a drought, and who knows how long it's going to last," Bischel said. "Climate change projections suggest that over the next 100 years we're going to see an increase in temperature of as much as nine degrees. Those things are having major impacts today and will have major impacts tomorrow on what our forests in the Sierras look like. Since more than 60 percent of the state's domestic water comes from the Sierras, we've all agreed to work with the Sierra Nevada Conservancy and try to identify how we can restore those forests to a more healthy, more fire-resilient state, and look at the watersheds to see what can be done in terms of water quantity and quality, to optimize both domestic and environmental use of that water."

Branham cites two primary reasons for the decline in forest health in the region: decades of successful fire suppression and conflicts over forest management.

"We were harvesting a billion board feet of timber per year in California a few decades ago, which went along with a lot of other management activities on the landscape, and the pendulum has swung back to where we're at about one-quarter of that or less. I'm not suggesting that we should go back to the 'good old days' of a billion board feet, but the lack of management resulted in a lot of needed restoration activities not occurring, activities that are not based on timber yield, but on ecological values," Branham said.

"We have to do something," said Bischel, "or our Sierra forests are going to become our Sierra brush lands."

### Who Will Handle the Timber?

All of the SNC's key partners agree that more must be done to reduce the threat of wildfire and improve forest health. Agreement is the easy part.

"It's a huge challenge to find ways to utilize the small-diameter material that needs to be removed from our forests to get them back into a more resilient condition and able to respond favorably to a changing climate and insect outbreaks, and to alleviate the crowded conditions that we see across the Sierran pine and mixed-conifer forests," said TNC's Smith.

Bischel knows all too well about the long, slow decline in the state's infrastructure. Many mills have closed over the last couple of decades, as several factors led

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to a decrease in the supply of timber from both federal and private lands. Does the remaining processing infrastructure have the capacity to handle a massive forest-restoration effort?

“In the short run, yes,” Bischel said. “Recent massive fires have put [a] huge amount of blackwood out there, and that has stressed the capacity of the existing infrastructure to some extent. Ultimately, to sustain the watershed-level, long-term projects that the SNC is looking at, it would take new infrastructure. But this is a chicken-and-egg scenario. You can’t put in new infrastructure and hope that the resource will be available.”

The Forest Service is determined to forge ahead. Christine Nota serves as the agency’s Region 5 liaison to the SNC and to a variety of other agencies, organizations, and interest groups that have a stake in Sierra Nevada watershed health. The Forest Service, she said, has long understood the need for action on forest health.

“We started taking an in-depth look at the trends and the science for the national forests in California in about 2008,” she said. “We had about a two-year process of having scientists, modelers, and stakeholders comment and talk to our leadership about the trends, the climate change science, population trends, and so on. The result of that two-year discussion was a call to action for us.”

One result was the document “Region 5 Ecological Restoration Leadership Intent,” which presented a rationale for restoration not only in the Sierra Nevada, but throughout the state: “While sound restoration work is being conducted throughout the region to increase forest and watershed resilience, important indicators suggest that disturbance impacts already outpace the benefits of this work and that we will fall further behind over time.”

The Region 5 staff spelled out a long list of priorities and objectives, beginning with these four:

- Work together to achieve a collaborative and financially supported effort among forestland management agencies, private landowners, and the public to implement a large-scale restoration program to accelerate the pace of forest restoration activities on both public and private lands.
- Increase forest resilience through treatments (including prescribed fire and thinning) and wildfire, resulting in resource benefits to approximately nine million acres of National Forest System lands.
- Restore at least 50 percent of accessible, degraded forest meadows to improve their habitat function and their ability to hold water longer into the summer and deliver clean water when most needed.
- Decrease the occurrence of uncharacteristically severe wildfires and their associated impacts through environmentally and ecologically sensitive veg-

etation treatments, fire management, and public education.

Nota said that Region 5 has looked to the Four Forest Restoration Initiative in Arizona and other large-scale, collaborative forest-management projects for guidance on implementing a far larger project, or series of projects, in the Sierra Nevada.

“We have taken note of the lessons they have learned,” she said. “Here in California, we know that we’ll never get to the pace and scale that we need without working on larger landscapes. We have collaboratives throughout the state that are now helping us reach our goals, including three Collaborative Forest Landscape Restoration Initiative projects. It’s become our way of doing business.”

One project, developed under the auspices of the agency’s National Cohesive Wildland Fire Management Strategy, is underway on the South Fork of the American River, in the central Sierras.

“The El Dorado National Forest is pulling together a collaborative partnership to look at around 400,000 acres or so, and moving that landscape toward resilience. This area has had many fires and a lot of other disturbances,” Nota said.

A collaborative group on the Klamath and Six Rivers National Forests, which are outside of the SNC region, is addressing restoration across 1.2 million acres.

“What we learn with those two projects will be shared with the other forests in our region,” Nota said. “Collaboratives work. Our vision is that, in time, every forest [in Region 5] will have a large-scale collaborative project.”

#### Show Me the Money

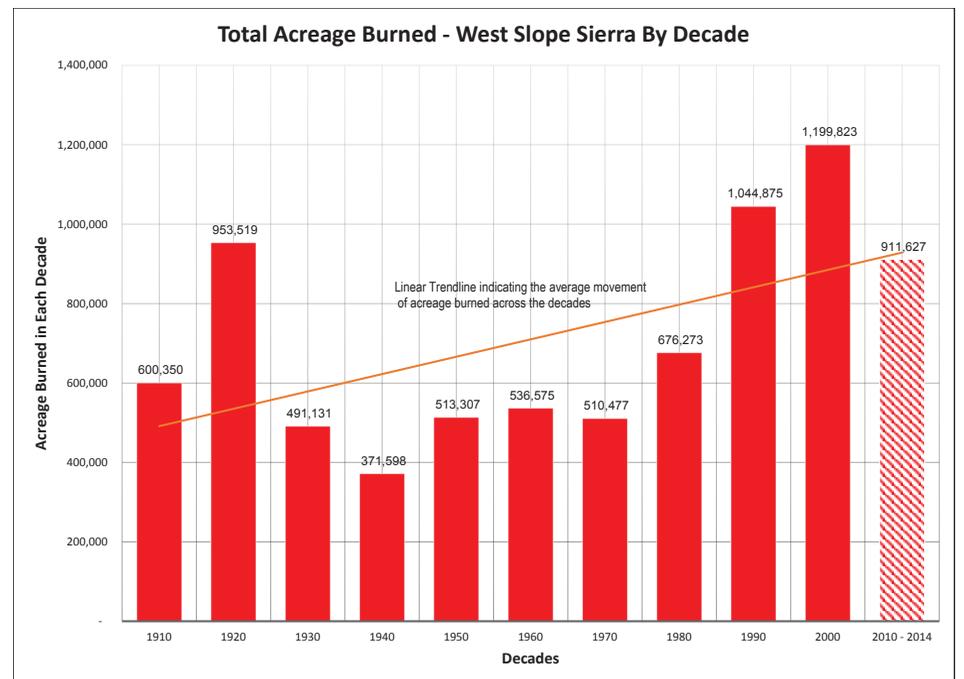
With a flat or decreasing budget and a workforce that has declined in numbers, some observers question whether the Forest Service has the financial and human resources it needs to carry out such a large-scale effort.

“They are certainly committed to doing these projects,” Bischel said. “Do they have the human and financial resources to make it happen? By themselves, I would say that the answer is probably no, or at least not at the scale that we’re talking about. But they are bringing in partnerships and looking at some of the funding that may be available from the California cap-and-trade program, fire-hazard reduction programs—and funding that may be available through other public and private sources.”

One source of funding may be the water bond measure passed by California voters in November 2014. Under the measure, as much as \$7.5 billion would be available for a variety of water-quality, water-supply, and water-delivery projects.

“It’s money that may be available over the next decade, and some of it, a small amount, is specifically identified for us,” said the SNC’s Branham. “Much more is available for other state agencies to do watershed restoration work.”

The SNC expects to receive \$25 million. The state Department of Fish and Wildlife will receive an estimated \$285 million, for example, and the Wildlife Conservation Board will receive about \$200 million. Having a range of responsibilities, however, the agencies may not spend all of



Courtesy of Sierra Nevada Conservancy.

those funds in the Sierra Nevada.

“The State of California also has what is called the greenhouse-gas reduction fund,” Branham said. “Some of that has gone to CalFire [the state fire and forestry agency] in the current cycle, and that funding source is going to grow significantly over time, and that will likely mean increased investments in the forest sector.”

The greenhouse-gas reduction fund is a portion of the state’s revenues from the auction of greenhouse-gas emissions allowances. The fund is projected to receive \$2.5 billion to \$5 billion annually from such auctions, beginning this year. However, forest-health projects are only one of many potential recipients of these funds.

Bischel notes that private timberland owners and forest products companies already are contributing, by practicing good forestry.

“Our members are already involved in doing thinning projects and building shaded fuel breaks that connect large and small landowners and public agencies, to provide more of a network of safety,” he said

TNC recently released a study that suggests that increased water yield from forest thinning could provide economic benefits that may, in some cases, fully offset the cost of forest restoration ([tinyurl.com/lnkrfpj](http://tinyurl.com/lnkrfpj)).

“The study found that there is a modest increase possible with removing a percentage of the biomass from our forests, and that signal is likely to be significant in water quantity and probably also in water quality to downstream users,” said Smith. “Where that water has economic value for farmers, ranchers, or ratepayers and home consumers, especially where there are hydropower facilities, the value of that water could pay for forest treatments in whole or in part.”

Some cities in the West have partnered with the Forest Service to improve drinking-water supplies via forest management activities funded, in part, by water consumers. (See “Denver, US Forest Service Seal Watershed Restoration Deal,” *The Forestry Source*, November 2010, [tinyurl.com/n4l8f3c](http://tinyurl.com/n4l8f3c).)

“We are in the beginning stages of proofing out the concept that good, high-quality, ecologically based forest management can provide better water security

for downstream users,” Smith said. “The next step would be to acknowledge that connection and turn it into policies like the City of Santa Fe and the City of Denver have adopted and that many other cities throughout the West are looking at. These are potential mechanisms to have water users—utilities and [other] users—contribute some of the costs of maintenance for the forests that provide the service of supplying clean, abundant water.”

#### More Cutting, More Controversy?

Will the prospect of increased active management and the sight of more log trucks on highways heat up simmering conflicts over timber harvests? If history is any judge, some degree of conflict is very likely. However, the SNC, the Forest Service, The Nature Conservancy, and other partners think the severity of the problem will win over the public at large, and that collaboration with a wide variety stakeholders will secure enough support to get watershed and forest-health improvement projects off the ground and see them through to completion.

Although the SNC’s partners and other involved stakeholders may have different missions and outlooks, Bischel said that this coalition of groups are on the same page when it comes to the restoration of Sierra Nevada forests.

“I think that there is a better chance right now [of broad public support for active forest management] than there has been in the last 20 years,” said Bischel. “Part of that is because organizations with very different perspectives have ultimately come together and realized that we need to deal with this issue, because we all want healthy, fire-resistant, insect-resistant, disease-resilient forests. These forests are going to be providing our water, so we need to recognize that active forest management can improve water quality and quantity, as well as the timing of water availability for domestic use. As a result of the Sierra Nevada Conservancy’s ‘big tent’ approach, more and more organizations—from the economic, forest-management, conservation, and community perspectives—have come together on this.” **ES**

For more information about the SNC, visit [www.sierranevada.ca.gov](http://www.sierranevada.ca.gov).