



- Cohesive Strategy Goals**
- Resilient Landscapes •
 - Safe & Effective Wildfire Response •
 - Fire Adapted Communities •

Collaborative Group - Meeting Summary

Meeting held April 11, 2018
 Prepared by the Consensus Building Institute

Meeting in Brief

At the April Collaborative meeting, the Resource Conservation District and Cal Fire presented on Fire Adapted 50; participants viewed a Ted Talk by fire ecologist Paul Hessberg; Pacific Southwest Research Station introduced the concept of a Resilience indicator field trip that will take place this summer in Caples Creek Watershed; and representatives from Blue Forest Conservation presented on the Forest Resilience Bond, a new vehicle for financing large-scale forest restoration work.

Action Items

Who	What
All	Contact Pat Manley (pmanley@fs.fed.us) if interested in resilience indicator field trip
All	Contact Blue Forest (Nick and Phil) for more info on Forest Resilience Bond
Mark Egbert Tom Tinsley	Send maps from Fire Adapted 50 presentation to CBI; CBI to post on website
CBI	[COMPLETE] Post Paul Hessberg articles and link on SOFAR website

Meeting Summary

Introduction

The Cohesive Strategy is an all-lands approach to achieve the goals of resilient landscapes, fire adapted communities and safe and effective wildfire response. As described in the SOFAR charter, the Collaborative is charged with shared problem solving, identifying areas of agreement, and moving forward in such a way that meets all interests in the room.

Fire Adapted 50

[View presentation](#). Tom Tinsley (Cal Fire) and Mark Egbert (Resource Conservation District), presented on the Fire Adapted 50, which was initiated in the wake of the King Fire.

Three phases of Fire Adapted 50. Each phase is currently active in some capacity.

- **Phase 1 - Sly Park Vegetation Management Program:** A cost-share fuels reduction program; this phase involves low-hanging fruit, and thus marks an easy starting point.
- **Phase 2 - Camino/Pollock Pines shaded fuel break:** Slab Creek Dam to Pony Express Trail
- along the canyon rim; emphasis on fuel break enhancement and maintenance.
- **Phase 3 - Highway 50 shaded fuel break:** Icehouse Road to Echo Summit. Agreement between Cal Fire and U.S. Forest Service (USFS) via Good Neighbor Authority

Fire Adapted 50 Goals

- **Restoring and maintaining resilient landscapes** – Landscapes across all jurisdictions are resilient to fire related disturbances in accordance with management objectives.
- **Creating fire-adapted communities** – Human populations and infrastructure can withstand a wildfire without loss of life or property.
- **Responding to wildfires** – All jurisdictions participate in making and implementing safe, effective, and efficient risk-based fire management decisions.

How did we get here?

- Interagency agreement between CAL FIRE and Resource Conservation District (RCD), for RCD to oversee fuels reduction on Fire Adapted 50.
- First Good Neighbor Authority agreement in California between CAL FIRE and Forest Service: Georgetown RCD will conduct CEQA and NEPA as funding becomes available.
- Two of three phases are in the South Fork American River (SOFAR) drainage area, and thus part of the SOFAR Cohesive Strategy.
- Fire Adapted 50 (RCD) was recently awarded \$500k to expand work on El Dorado Irrigation District (EID) property.

The treatment goal is to minimize vertical continuity of fuels while maintaining habitat. Most fuels reduction work in Phase 1 is based on tree diameter. After the initial phase of fuels treatment, Cal Fire Chief Mike Webb will determine whether the landscape is ready for broadcast treatment or requires secondary fuels treatment.

45 to 48 degrees is the steepest slope that a masticator has operated on; this can be exceeded if there is a landing (i.e. skid trail) at the bottom of the slope and with appropriate soil conditions.

660 acres have been treated to-date and 643 acres remain for treatment. Total project cost is \$1479 per acre; this number encompasses *all* costs and will decrease significantly as the project progresses.

Dr. Richard Harris ([bio](#)), a consultant to the RCD, noted that it is currently unclear as to whether state Greenhouse Gas Reduction Funds will ultimately support forest resilience projects such as Fire Adapted 50. In addition to greenhouse gas reductions, other benefits of FA 50 include better visibility within the forest for recreational users and more resilient forest stands.

Dr. Harris affirmed that much work remains to reduce stand density and support growth of large trees, which would shift the landscape toward desired future conditions as described by Malcolm North. Carl Skinner ([bio](#)), a scientist at Pacific Southwest Research Station, compared thinned and unthinned plots at Blacks Mountain Experimental Forest, with some of the thinned plots undergoing prescribed burning. Notably, thinned areas – particularly thinned areas with prescribed burning - were significantly more resilient to the September 2002 Cone Fire.

Discussion

- The RCD and Mule Deer Foundation are working on a proposal to the U.S. Forest Service that further treatments and increase the benefits of treated areas adjacent to Sly Park.
- Tinsley noted that the term “noodle” refers to a strategic planning or treatment area along a ridgeline, aligned with prevailing wind patterns.
- A representative of the local California Native Plant Society (CNPS) chapter expressed concern about the impact of fuels treatment on native plants. Dr. Harris explained that an early step in CEQA analysis involved looking at a database of sensitive plants in the area, as well as conducting plant surveys in advance of treatments. Dr. Harris suggested that for future projects, CNPS members could help the RCD better understand areas of concern; the RCD will keep CNPS in mind for the Sly Creek survey area. Dr. Harris also noted that now that the initial treatment is conducted, fire can be reintroduced to the landscape, which will support the return of native plants that need fire regime. This speaks to the **compatibility between fuels reduction and native plants propagation and habitat**.
- A participant noted that priority treatment areas start in population dense areas and radiate outward.

Fire Ecology Ted Talk by Paul Hessberg

[View Ted Talk](#). Participants viewed a Ted Talk by Dr. Paul Hessberg, who works in dry forest landscapes with conditions similar to that of the Sierra Nevada. Dr. Hessberg’s talk reaffirms the goals of the Cohesive Strategy.

Summary of Ted Talk

Megafires are on the rise, as a result of how the landscape has been managed over the past 150 years. Much of the destruction caused by megafires could have been avoided. Science indicates that unless we change our fire management habits, the Western U.S. will lose more of its beloved forests and they will not recover in the next two generations.

How Did We Get Here?

- Forests today look nothing like fire-resilient forests of 100+ years ago. Forests of old were “patchy” – a constantly evolving patchwork of open and closed areas, with open canopy forests and grassy meadows. Topography, elevation and weather shaped the way the forest grew, which in turn shaped fire behavior on the landscape. This patchwork provided a natural mechanism to resist the

spread of fires across the landscape, with burned patches supporting resilience for the rest of the forest.

- Native people lived on landscape for 10,000 years, with intentional burning to grow food and increase grazing habitat for deer, elk and bison. Native people burned in spring and fall to avoid high intensity summer fires.
- Impact of European settlement: By the 1880s, there was intensive livestock grazing on grasses that would otherwise help spread fire. Railroad and roads acted as fire breaks.
- The Great Fire of 1910 stretched from East Washington to Western Montana, burned an area the size of CT and killed 87 people. The Great Fire turned wildfire into public enemy #1 and shaped the public consciousness around wildfire for decades to follow. USFS was tasked with extinguishing *all* wildfires on federal land. 95-97% of all fires were extinguished annually. As a result, wildfire suppression - rather than wildfire - became the primary shaper of the forest.
- Fire suppression and selective harvesting (removing large trees) had the cumulative effect of allowing the forest to fill in, thereby leading to the current epidemic of more trees on the landscape than the landscape can support. Dry south slopes are now covered with trees, and the patchwork once sculpted by small and medium fires has filled in.
- Because trees are growing so closely together and tree sizes are so similar, fire, disease and insect outbreaks spread rapidly, thereby increasing tree-kill. This is combined with hotter and dryer weather. Models show that the area burned since 2000 will double or triple in the coming decades. Furthermore, many communities are increasingly vulnerable as 60% of new housing is built in these areas.

What to Do?

- We need to restore the patchwork landscape and reintroduce the right kind of fire to the landscape. We have tools and know-how to do this:
 - Use prescribed burning to thin and remove dead fuels, thereby creating a patchwork on the landscape to reduce the severity of future fires.
 - Use mechanical thinning, especially around built communities.
 - Prescribed burn produces much less smoke than wildfire; however, smoke from prescribed fire is regulated under air quality regulations as avoidable.
 - Utilize natural wildfire to restore the power of a patchwork landscape.
- There is no future option that does not involve fire.
- This is a social problem that humans must solve. To do so, we must generate public support and spread the message to lawmakers who can help manage fires and forests.

Caples Creek Resilience Indicators

Pat Manley, Pacific Southwest Research Station (PSW), described an upcoming event in Caples Creek Watershed that emerged out of a partnership between Pacific Southwest Research Station and the California Academy of Sciences.

Three scientists from California Academy of Sciences, two or three PSW scientists and two or three Eldorado National Forest staff (including Becky Estes) will conduct rapid biological data collection, with the aim of better understanding the effects of

prescribed fire in Caples Creek Watershed. Experts will lead a training session for resilience indicator field trip participants on May 22 or 23 in Placerville, and then a large number of people will comb the landscape to identify plant and animal species using a phone application that tracks location.

The resilience indicator field trip will take place the weekend of **either June 30, July 7, or July 14, 2018** (date to be determined) and anyone may participate, whether as organizations or individuals. They will conduct a resilience indicator field trip again one again later, in 2019, to track changes over time.

Pat Manley will ask National Geographic if it is interested in being involved; they made a video about Caples Creek Watershed. Participants also suggested outreach to Future Farmers of America and the YCC Youth Crew. Manley expects capacity for 30 to 40 participants.

Next Steps

- Contact Pat PManley@fs.fed.us if you would like to be involved in the Caples Creek resilience indicator field trip.

Forest Resilience Bond: Insights from the Blue Forest Pilot Project

[View presentation](#). Nick Wobbrock and Phil Saks of [Blue Forest Conservation](#), a conservation finance firm, presented on the Forest Resilience Bond.

Estimates from USFS and the Sierra Nevada Conservancy indicate that millions of acres across the Sierra Nevada are in need of restoration. Blue Forest Conservation's goal is to bring additional resources to support conservation work. Blue Forest Conservation aims to reshape the economy such that pension funds and university endowments can invest money in sustainable projects that support landscape restoration rather than in industries with negative externalities.

Introduction to the Forest Resilience Bond

- Forest Resilience Bond is a way to utilize investor capital to fund landscape management. Pension funds, university endowments, etc. have much more capital than the federal government.
- Large-scale investment in landscape restoration provides social returns (jobs, protected homes and communities), environmental returns (habitat, greenhouse gas reductions, etc.) and financial returns.

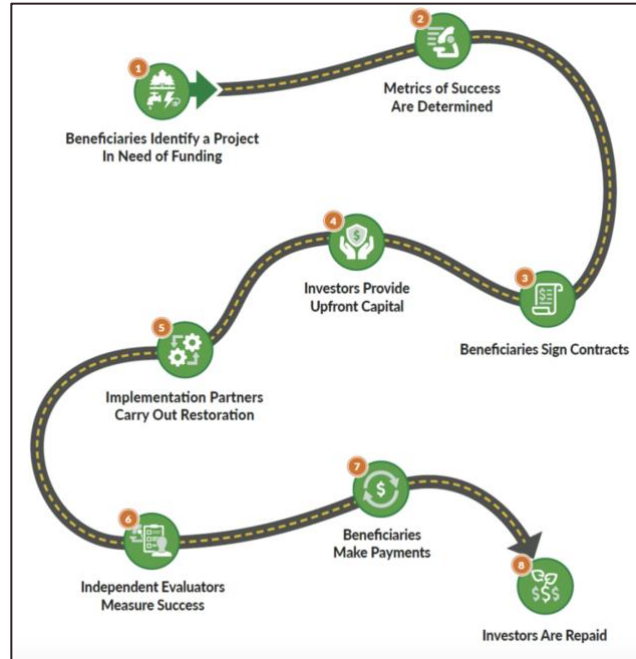
How the Forest Resilience Bond Works

The roadmap to the right outlines the Forest Resilience Bond process:

Upon repayment (the final step on the roadmap), investors receive interest on the upfront capital. Other groups, such as an insurance company or water utility, may pay a percentage of their cost-savings as a result of restoration work.

Blue Forest has project partners, including an MOU with the U.S. Forest Service on the national level to see how new funds can be used to complement and leverage existing funds; a number of research partners; and grant and in-kind funders.

The need for restoration well exceeds the entire USFS budget. More than 50% of USFS's budget is currently allocated to fire suppression – up from 16% in 1995 - and projected to reach 67% by 2025. As such, there is need for an influx of private capital to support landscape restoration.



Advantages of Private Capital



Connecting Investor Capital to Conservation



Ecosystem Services


Forest restoration can contribute to improvements across a range of ecosystem services, enumerated below. With each local project, the Forest Resilience Bond works with local research groups to look at the benefits of forest restoration that can be by

realized by a broad range of beneficiaries, such as railroads, Cal Trans, ski resorts, insurance companies and many more. Water and electric utilities are a primary beneficiary of forest restoration, due to positive impacts on water quality and quantity, particularly in reservoirs.

-  Fire Severity
-  Water Quantity & Quality
-  Hydropower Generation
-  Air Quality & Emissions
-  Job Creation
-  Community Resilience
-  Recreation & Habitat

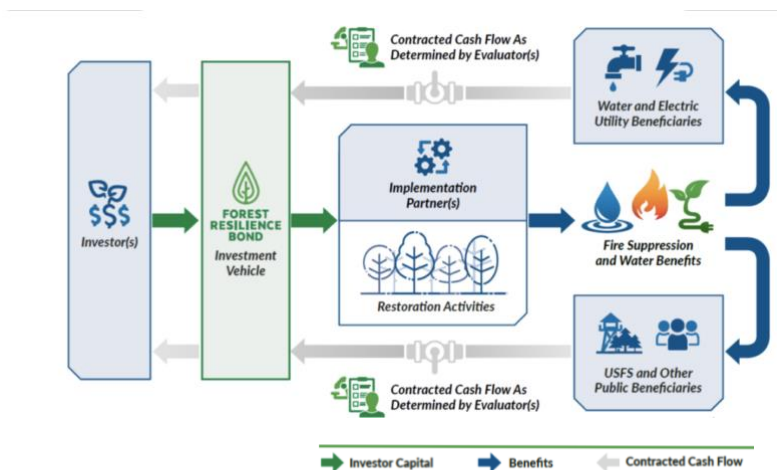
Blue Forest works collaboratively with local partners to **measure and evaluate benefits**, increasingly by remote sensing assessments and ecosystem modeling. Quantify benefits by measuring treated area against a predetermined control area.

Forest Resilience Bond Utilizes Innovative Contracts To Support Contracting Flexibility:

UTILITIES	 FOREST RESILIENCE BOND	RESTORATION
<ul style="list-style-type: none"> Flexibility to pay over time, to pay based on outcomes, and to reduce utility risk Accelerate restoration work that otherwise may not happen Science and evaluation services provided through FRB 	<ul style="list-style-type: none"> <u>Engagement</u> –beneficiaries, investors, communities, etc. <u>Contracting</u> – Implementation, investors, state, etc. <u>Science</u> – robust ecosystem service measurement <u>Financing</u> – deal structuring, fund management 	<ul style="list-style-type: none"> Reduced fire risk to infrastructure, reservoir sedimentation, and forests Protection of communities, rural economies, air quality Science and evaluation of outcomes provided through FRB to improve forecasting

Financial Structure

Investors put money into the Forest Resilience Bond as an investment vehicle (an LLC) that makes money available to implementation partners for on-the-ground work; details are worked out in the contract. For example, Calsters - the CA teacher retirement fund - has a green investments mandate. Beneficiaries contract based on terms that work for their legal authority and enter into a cost-share agreement with the state or other entity based on anticipated outcomes.



The up-front investment helps initiate the project and generates more confidence among beneficiaries about the value of the project; beneficiaries will in turn come forward with cost-share contributions. The repayment term is typically ten years.

Pilot Project: Yuba Headwaters, 15k acres

In the North Yuba Corridor, fire frequency has significantly departed from its historic interval. Blue Forest is financing a pilot on 15k acres that has preexisting support from a local collaborative group and for which NEPA was conducted prior to Blue Forest's involvement. This area will undergo a combination of broadcast burning, meadow restoration, and mechanical thinning. It would cost \$40-50 million to scale the pilot to the entire landscape. World Resources Initiative conducted a benefit/cost analysis that shows savings as a result of enhanced ecosystem services; this analysis serves as a template for a local assessment of the value of a resilient landscape.

Records from the Yuba pilot project are open, available and replicable for other projects; interested parties need only send Blue Forest a request. Further, foundations committed to provide a 1% return to investors for this pilot. The pilot aims to make the public case for this model of financing forest restoration work.

Opportunities to Partner with SOFAR Collaborative

Blue Forest is looking to work with groups on the ground that have a strong mission and governance structure. Blue Forest would be interested in partnering with the SOFAR Collaborative, as local leadership and a community stakeholder group like the Collaborative are important ingredients for implementation of the Forest Resilience Bond.

Next Steps

- Contact Blue Forest if interested in further discussing the Forest Resilience Bond.

2018 Meeting Calendar

Collaborative	Landscape Vision Committee
<i>The SOFAR Collaborative meets on the second Wednesday of each month, 1:30-4:30 pm.</i> May 9, 1:30-4:30 @ Office of Emergency Services	Location: Placerville Supervisor's Office, 100 Forni Rd, Placerville, CA • May 31, 2:00-4:00
Always check sofarcohesivestrategy.org for meeting location and latest information.	

Other Events

- **May 7 + 8, 2018** - SCALE meeting in Sacramento ([register](#))
- **June 8 + 9, 2018** - Steep Terrain Hazardous Fuels Treatment Demonstration near Ice House ([register](#))

April Meeting Participants (who signed in)

Carolyn Gravelle	
Lori Parlin	
Kathy Smith	
Phil Sarsa	Blue Forest Conservation

Nick Wobbrock	Blue Forest Conservation
Monte Kawahara	Bureau of Land Management
Tom Tinsley	CALFIRE
Mike Webb	CALFIRE
Steve Brink	California Forestry Association
Pamela Hoover	California Native Plant Society - El Dorado chapter
Scott Stephenson	Dudek
Brian Veerkamp	El Dorado County Board of Supervisors, District 3
Pat Dwyer	El Dorado County Fire Safe Council
Heather Campbell	El Dorado County Fire Safe Council
Rod Pimental	El Dorado Northern
Dan Corcoran	El Dorado Irrigation District
Vincent Cornish	K&S Oak
Kathy Lewin	Northern Sierra Summer Home Owner Associations
Mark Egbert	Resource Conservation District
Richard Harris	Resource Conservation District
Eric Brown	Sacramento Municipal Utilities District
Ethan Koenigs	Sacramento Municipal Utilities District
Steve Hertzog	Shingle Springs Miwok
Andrew Brey	Sierra-At-Tahoe
David Zelinsky	Sierra Club
Chris Dallas	Sierra Nevada Conservancy
Ben Solvesky	Sierra Forest Legacy
Craig Thomas	Sierra Forest Legacy
Chris Dow	Sierra Pacific Industries
Tim Tate	Sierra Pacific Industries
Jennifer Chapman	U.S. Forest Service – Eldorado National Forest
Michelle Havens	U.S. Forest Service – Eldorado National Forest
John Jue	U.S. Forest Service – Eldorado National Forest
Michael Woodbridge	U.S. Forest Service – Eldorado National Forest
Kendal Young	U.S. Forest Service – Eldorado National Forest
Laurence Crabtree	U.S. Forest Service – Eldorado National Forest