

California Fire Science Consortium

Annual Progress Report

March – September 30th, 2011

Project ID#: 09-S-04-18

Principal Investigator: Dr. Scott Stephens, University of California Berkeley

Coordinator: Tim Kline, University of California Berkeley

Progress Reporting Lead: Susan Kocher, University of California Cooperative Extension

I. Overview

After the launch of the California Fire Science Consortium (CFSC) in March 2011, we directed our activities towards publicizing the consortium's presence and sharing our mission statement with state and federal land management agencies, NGOs, and other stakeholders. Next we shifted our focus to expanding the scope and size of our email list, organizing and hosting existing fire resources on the CFSC website, establishing our presence through a monthly newsletter, and hosting seven well-attended webinars. These efforts were undertaken to launch outreach efforts and also to begin establishing the CFSC as a trusted institution in the state's fire community that can act as a liaison between the science and management spheres. During this period we also directed activities towards creating a body of research briefs and annotated bibliographies that both address the greatest science needs of our constituencies and synthesize new research. In addition, the consortium has begun to create partnerships with the California Landscape Conservation Cooperative, Southwest Climate Science Center, The Nature Conservancy, Sierra Forest Legacy, and other NGOs to combine resources and efforts on outreach and policy initiatives.

II. Consortium outreach and participation

The "hub and spoke" structure of the California Fire Science Consortium, comprised of a central group with five regional teams, includes many agencies and universities in its staff. This diverse and inclusive structure inherently encourages cooperation across agencies and universities. The role of the members of the regional teams is to engage local managers and stakeholders and to address their science needs through written/web resources and local field demonstrations and webinars.

The organizations comprising the CFSC teams are listed below:

- *Statewide/Central* – UC Berkeley, UC Cooperative Extension (UCCE)
- *Northern California* – Humboldt State University, UC Center for Forestry, UCCE, USFS Pacific Southwest Research Station
- *Sierra Nevada* – UC Davis, UCCE, USFS
- *Central and Southern California* – National Park Service (NPS), UC Los Angeles, U.S. Geological Survey (USGS)
- *Mojave and Sonoran Deserts* – Bureau of Land Management (BLM), USGS
- *Wildland-Urban Interface* – California Polytechnic Institute, CALFIRE, UCCE

CFSC Advisory Committee – The consortium's advisory committee is comprised of members representing the land and fire management agencies of California. This committee is charged with reviewing the consortium's activities and recommending specific courses of action as well as more broad strategies regarding the consortium's mission.

CFSC Advisory Committee Members

- Robin Wills, National Park Service Pacific West Region Fire Ecologist (Chair)
- Phyllis Banducci, CALFIRE Chief of Fire Plans and Fire Statistics

- Denise Blankenship, BLM State Fuels Specialist
- Mark Borchert, US Forest Service Province Ecologist
- Dean Cromwell, CALFIRE FRAP Program Manager
- Jared Hammatt, BLM Fire Ecologist
- Gus Smith, National Park Service, Yosemite NP Fire Ecologist
- Neil Sugihara, USFS Region 5 Fire Ecologist
- Robert Taylor, National Park Service, Fire GIS Specialist
- John Todd, Los Angeles County Fire Dept. Forestry Chief

Table 1, Consortium participants by organization, as of September 30th 2011. (Determined using CFSC email list data)

<i>Organizations represented</i>	<i>Number of people</i>
USDA Forest Service (USFS)	585
USDI National Park Service (NPS)	39
USDI Bureau of Indian Affairs (BIA)	5
USDI Bureau of Land Management (BLM)	50
US Fish and Wildlife Service (USFWS)	45
Universities	53
State agencies	70
Non-governmental organizations (NGOs)	41
Landowners	98
Unknown	36
<i>Total</i>	<i>1022</i>

Collaboration with other partnerships - The CFSC has been collaborating with a wide range of groups, including:

- *Southern Sierra Nevada Fire Science Working Group* – we are collaborating to help publicize a GTR regarding smoke management issues in the southern Sierra Nevada that this group is currently working on and will host a collaborative webinar with the group in spring/summer 2012.
- *Southern Sierra prescribed fire umbrella group* – we are working with individuals from The Nature Conservancy, Sierra Forest Legacy, the USFS, and the NPS to form an umbrella group of all agencies and organizations in the state that support increased use of prescribed fire. This group then plans to work with air quality regulators to improve the framework for managing emissions and granting burn permits, possibly through the formation of a Fire Learning Network. Other possible outcomes for this group include the formation of a Fire Learning network or a Prescribed Fire Council for the southern Sierra region.
- *California Landscape Conservation Cooperative* - we are in the early scoping/planning phases, laying the groundwork for future collaborations on publications, webinars, and conferences where the potential for cooperation exists between our two groups.
- *Southwest Climate Science Center* - we are in the early scoping/planning phases, laying the groundwork for future collaborations on publications, webinars, and conferences where the potential for cooperation exists between our two groups.

III. Deliverables

1. Deliverables: During the first nine months following the CFSC’s start date, efforts were focused on the development of the regional hub structure, collaboration, planning activities, and beginning work. A number of outreach activities were completed during this time, including in-person events such as

outreach presentations, presentations and involvement in previously scheduled conferences, and a new series of webinars planned by consortium members. Events in FY 2011 involving personal contact included: 11 CFSC outreach presentations about the consortium reaching 876 people, representation and content delivery by consortium members at three already planned conferences reaching 290 people, and four webinars reaching 143 people.

Table 2, In-person events with participation by the CFSC

Outreach Talks/Poster presentations about CFSC			
<i>Group reached</i>	<i>Date</i>	<i>Partici -pants</i>	<i>Region - Poster/Talk</i>
California Fuels Committee meeting	1/26/2011	NA	Sierra –presentation
Santa Monica Mountains Fire Safe Alliance	2/1/2011	51	Southern - presentation
USFS Region 5 Ecology Program annual meeting	3/10/2011	15	Sierra - presentation
UC Davis Picnic Day – science education	4/16/2011	200	Sierra - poster
California Firesafe Council Southern Regional Meeting	5/4/2011	75	UCB - poster
Northern CA Prescribed Fire Council	5/13/2011	35	Northern - presentation
Regional Area Safety Task Force (RAST) 2011 Fire Summit	5/24/2011	120	Southern - poster
Joint Fire Sciences Program Board of Directors about CFSC	5/25/2011	30	UCB and Sierra - presentation
PALA Wildfire Prevention Conference	6/7/2011	NA	Southern - presentation
MEDECOS XII	9/7/2011	300	Southern - Poster
UC Sustainable Natural Ecosystems Conference	9/20/2011	50	UCB - presentation
<i>Total Reached</i>		876	
Workshops and Conferences			
<i>Conference Name</i>	<i>Date</i>	<i>Parti- cipants</i>	<i>Topic</i>
Building on Science to Implement Landscape Level Treatments for Fire Resilience – Federal forest managers, scientists, public	4/27/2011	160	Developing fire resilient landscapes in the Sierra Nevada
Redwood Science Symposium – Federal/state and private forest managers, scientists, public	6/22/2011	40	Sudden oak death effects on surface fuel loading in Doug-fir-tanoak forest
Lake Tahoe Wildfire Summit - Annual workshop for fire and file management professionals and private homeowners	6/24/2011	90	Climate and fire trends and role of fuel treatment and wildland fire use
<i>Total</i>		290	
Webinars			
<i>Webinar Topic</i>	<i>Date</i>	<i>Partici -pants</i>	<i>Comments/ Presenter</i>
Mixed Conifer Fuels Treatment Guide	6/29/2011	30	Dr. Zander Evans (Forest Guild)
Presenting the CFSC to the California Desert Managers Group meeting webinar	7/21/2011	8	Dr. Matt Brooks, USGS
Fuel Treatments & Their Effects on Fire Behavior, Wildlife, & Other Resources	8/18/2011	30	CA Board of Forestry, CA State Parks, USFS PSW

A holistic framework to sustainably manage the wildland-urban interface	9/26/2011	75	Dr. Chris Dicus, Cal Poly
<i>Total</i>		<i>143</i>	

Written materials on priority fire science topics and electronic communications methods were also developed. The California Fire Science Consortium website (<http://www.cafiresci.org/>) was made public in June with a wide variety of fire science resources and a blog. A total of 17 blog entries were made on the website to announce the availability of new resources. The Consortium's monthly newsletter was opened at least 882 times in the reporting period. A total of four research briefs, three bibliographies and a science synthesis document were completed and posted on the website.

Table 3, Written materials, electronic and website work by the CFSC

Newsletters			
<i>CFSC Electronic Newsletter</i>		<i>Opens</i>	
CFSC June Newsletter		367	CFSC Announcements
CFSC July Newsletter		195	
CFSC August Newsletter		184	
CFSC September newsletter		136	
<i>Total Newsletter Openings</i>		<i>882</i>	
Blog/online discussion			
<i>Blog title</i>	<i>Period</i>	<i>Entries</i>	<i>Content</i>
CFSC blog	6/15-9/30/2011	17	Announcing fire science news, and new CFSC resources
Fact Sheets and Briefs			
<i>Title/Topic</i>	<i>Completed</i>	<i>Paper date</i>	<i>Author of Original Paper</i>
Analysis of trends in burn severity in NW CA	9/1/2011	2011	Skinner et al
Prescribed fire and season of burning influence levels of direct and beetle-caused tree mortality	9/9/2011	2010	Fettig, C.J., S.R. McKelvey, D.R. Cluck, S.L. Smith, W.J. Orosina
Climate change in California: vegetation, wildfire, and carbon dynamics	9/10/2011	2008	Lenihan JM, Bachelet D, Neilson RP, Drapek R
Is prescribed fire an ecological surrogate for wildfire in riparian and stream ecosystems?	9/11/2011	2010	Arkle R.S., Pilliod D.S.
<i>Total Research Briefs</i>		<i>4</i>	
Bibliography for Resource Managers			
<i>Topic</i>	<i>Date completed</i>	<i>Posted on-line</i>	<i>Lead</i>
Fire ecology and management papers for the Mojave and Sonoran Desert Region	7/19/2011	Yes	Dr. Matt Brooks, USGS Desert lead
Fire ecology and management papers for the Sierra Nevada Region	8/1/2011	Yes	Chris Mallek, Sierra Nevada coordinator, UC Davis
Fire ecology and management papers for Northern California	8/19/2011	Yes	Dr. Carl Skinner, Northern lead, USFS PSW
<i>Total Bibliographies</i>		<i>3</i>	

Syntheses / Guidebooks			
<i>Title</i>	<i>Producer</i>	<i>Posted</i>	<i>Topic</i>
Balancing the Carbon Costs and Benefits of Fuels Management	CFSC	2011	Managing for carbon resources in fire-adapted ecosystems

In addition, advisory committees were developed for the Northern, Central and Southern, and Sierra Nevada regions with four meetings and calls that were convened to receive input on the issues and needs that should be addressed by the regional teams. Additional collaboration efforts included meetings, workshops and conference calls to facilitate collaboration between other fire working groups, between CFSC regions, and to assess the potential for formation of a fire learning network.

Table 4, Advisory Committee Meetings and Collaboration Events by the CFSC

Regional Advisory Committee Meetings			
<i>Region</i>	<i>Date</i>	<i>Event</i>	<i>Topic</i>
Southern California	5/11/2011	Workshop	Needs and priorities for the Central and Southern region
Sierra Nevada	3/4/2011	Call	Needs and priorities for the Sierra region
Sierra Nevada	5/27/2011	Meeting	Needs and priorities for the Sierra region
Northern	9/29/2011	Meeting	Needs and priorities for the Northern region
Collaboration Events			
<i>Group</i>	<i>Date</i>	<i>Event</i>	<i>Purpose</i>
Southern Sierra Fire Science Working Group meeting	2/16/2011	Meeting	Working group coordinating fire management plans across federal management units in the S. Sierra
Southern region CFSC workshop	5/11/2011	Workshop	Attended by Sierra region staff to facilitate collaboration between regions
Northern California Prescribed Fire Council	5/13/2011	Workshop	Attended by Sierra region staff to facilitate collaboration between regions
The Nature Conservancy, Sierra Forest Legacy, US Forest Service, National Park Service	9/9/2011	Conference call	Collaborative talks on smoke management issues and possible Fire Learning Network / Prescribed Fire Council creation

2. Consortium web page use: The CFSC's website, CaFireSci.org, was launched in June 2011. It hosts a combination of consortium-generated resources, blog postings, and locally relevant fire science/management links and resources from other agencies and organizations. Website traffic has increased significantly over the past two months as a result of increased outreach to users through the CFSC's Fall Webinar Series – the average number of unique visitors per day has increased to 22, with average visitors viewing 3 pages and spending 4 minutes on the website.

Website features include:

- *Blog:* Spotlights particular resources/events, re-posts relevant fire postings from other science blogs
- *Links:* Collects and organizes links to California-specific and general fire science and management resources, groups, and online tools.
- *Resources:* A collection of CFSC and non-CFSC fire resources, organized into the following subjects: Research Briefs, Fire GTRs, Management Guides, Science Citations, Forest Steward Blog, and Fire Science papers.
- *Science Map:* Shows a map of California with an overlay of points whose locations represent the

specific area of study for published fire science articles. [Still in beta, waiting for bibliographies from regional teams to identify “critical” papers to map]

- *Ask a Scientist*: Allows users to submit science questions to the researchers and managers who comprise the CFSC’s regional teams.
- *Calendar*: Includes upcoming events and webinars put on by the CFSC as well as other organization’s events that are relevant to the state’s fire community.

IV. Program effectiveness

1. Local Evaluation Approach: Evaluation of the California Fire Science Consortium is being carried out by the University of California Cooperative Extension. The first step was development of a logic model that specifies project inputs, outputs, and short, medium, and long-term outcomes (see appendix). These were divided into four basic delivery methods to simplify data collection. The four primary activities of the consortium are web-based outreach, in-person outreach, development of written information, and development of relationships between scientists and managers. Desired short-term outcomes for each activity type are listed below:

Consortium activity 1 – Development of written information

- Outcome 1.1 Increased access to fire science information
- Outcome 1.2 Increased understanding of fire science information

Consortium activity 2 - Web-based outreach

- Outcome 2.1 Increased awareness of fire science information available
- Outcome 2.2 Increased use of EndNote Web across agencies
- Outcome 2.3 Increased awareness of experimental and demonstration sites

Consortium activity 3 - In-person outreach

- Outcome 3.1 Improved communication between scientists and managers
- Outcome 3.2 Improved understanding and use of fire science information

Consortium activity 4 – Development of relationships

- Outcome 4.1 Improved communication between scientists and managers
- Outcome 4.2 Improved collaboration on research needs between scientists and managers
- Outcome 4.3 Improved consortium program delivery

Not all means to measure outcomes have been developed to date since some of the related program activities have not yet commenced (e.g. mapping of demonstration sites). The evaluation of all indicators will be completed by spring 2013 for the grant application renewal effort.

The next step of the evaluation process was development of a data collection system to quantify the consortium’s outputs so that each of the five sub-regions could consistently report their activities, events and participants. These sub-regional reports are being collected by the central Berkeley hub every six months and were used to develop tables 2, 3 and 4 above.

2. Consortium Effectiveness: A major accomplishment of the reporting period is the development of the capacity for consortium members to communicate with each other. The development of the website, email lists, web newsletter and the fall webinar series have all established the consortium as a new resource for fire managers and researchers in the state. The CFSC’s participant email list, as of the end of FY 2011, totaled 1,022 members. Available data shows good progress towards achieving increased awareness of and access to fire science information, understanding of fire science information and improved communication between scientists and managers through consortium activities.

National evaluation data: California specific data from the Spring 2011 National Evaluation Survey was provided to us and illustrates some early success. A total of 126 California respondents filled out the survey in June 2011, during the very early stages of program implementation. Of the 85 fire science consumers responding, two-thirds (66%) were aware of the CFSC. More (85%) of the 29 fire science producers responding were already aware of the Consortium. More than half agreed that the CFSC had already improved the accessibility of fire science information and improved communication among fire managers and researchers in the region. Over half of fire science producers agreed that the CFSC had improved the use of fire science in the region. About three quarters of consumers (73%) and producers (76%) said they would recommend involvement with the CFSC to co-workers.

Table 5, California results from the Spring 2011 national on-line evaluation survey

<i>The CFSC has already helped to....</i>	<i>Fire Science Consumers (N=85)</i>	<i>Fire Science Producers (N=29)</i>
	<i>Percentage agreeing</i>	
....improve the accessibility of fire science information	53%	60%
....improve the use of fire science in the region	36%	54%
....improve communication among fire managers and researchers in the region	54%	50%
....improve policy regarding fire management in the region	13%	24%

Less than half (44%) of fire science consumers had visited the CFSC website, while almost 2/3rds (61%) of fire science producers responding had. In general, many more than half of fire science consumers and producers agreed that the website is user friendly, provides a wide variety of fire science information, including up to date and current practical information that can be used on the job. More than half also said the website provides a forum where information can be shared and questions asked.

Table 6, Rating of the CFSC website from the Spring 2011 national on-line evaluation survey

<i>The CFSC website</i>	<i>Fire Science Consumers (N=85)</i>	<i>Fire Science Producers (N=29)</i>
	<i>Percentage agreeing</i>	
....is user friendly	66%	72%
....provides a wide variety of fire science information	64%	78%
....provides practical information I can use in my job	58%	55%
....provides information that is current and up to date	64%	61%
....organizes the information I need in one convenient place	46%	72%
....provides a forum where I can share information and ask questions	56%	61%

Webinars: A total of 85 participants in the first four Fall CFSC webinars filled out on-line evaluation surveys after participating. The survey results indicate that the webinar had knowledgeable presenters (97%), the instructions for accessing the webinar and using the features were helpful (94%), the subject matter was presented effectively (91%), and the webinar provided useful information (87%). Over two thirds (68%) said that they plan to apply what they learned from the webinar.

The webinar technology as a means of increasing access to scientists through presentations was also viewed mostly favorably with participants who agreed that instructions for accessing the webinar and using the features were helpful (94%), the webinar was the right length (83%), and the content met their expectations (81%). However only about 2/3rds agreed that they were able to communicate effectively during the webinar.

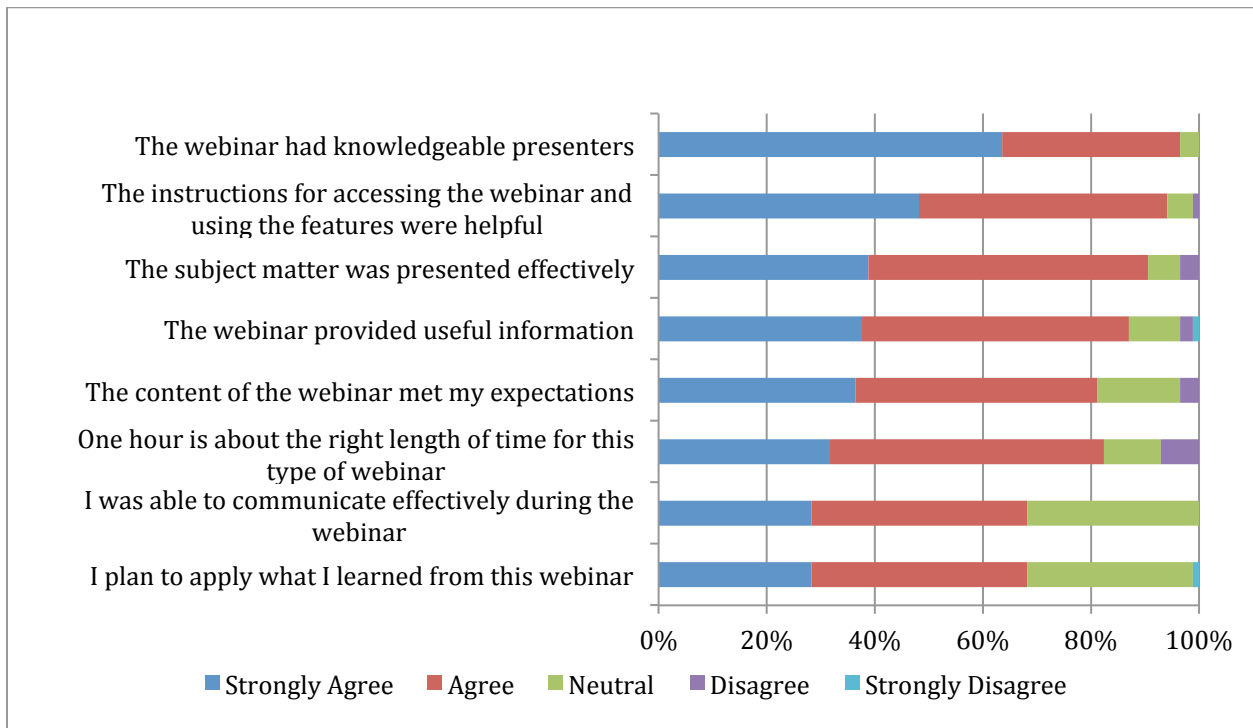


Figure 1 - Average of 85 evaluation surveys taken by Fall CFSC webinar series participants.

Governance structures: Collaborative governance structures including regional advisory committees and a statewide advisory committee were developed to improve communication between institutions, managers, researchers and the public. A number of these committees have met and are increasing their collaboration. An evaluation of this will be conducted in Winter 2013.

V. Budget

The majority of our funds to date have been spent on staff time for the members of our central and regional teams. In many cases, funding was delayed in reaching our team members due to the multiple agencies involved in the funding process – in some cases until as late as July 2011 and in one case until September 2011. As a result, our regional teams were not able to spend allocated funds immediately. However, the various teams of the CFSC are all currently funded and are increasing the amount of spending on resources (seminars, conferences, mini-grants, etc.) in addition to staff time. We are also working on developing no-cost extensions with our sub-grantees to allow funds to be spent through March 2013 rather than July 2012, as was originally planned.

The CFSC also saved a considerable amount of funding originally allocated for website development by developing the CFSC’s website in-house. Staff time was used to develop the website using Squarespace, a website hosting platform, rather than paying a third party for website development. Saved funding is being re-allocated to other consortium activities.

While no specifics have been formalized as of yet, the CFSC has made plans with the California Landscape Conservation Cooperative and Southwest Climate Science Center to pool efforts and resources on written publications and in-person events such as summits and conferences.

VI. Future plans

Plans for the 2011/12 fiscal year include the following:

- Release 15-25 additional research briefs on pertinent science and management topics
- Release 20-30 briefs of classic fire science papers (Central and Southern CA)
- Release 5-10 annotated bibliographies, organized by region and management topic
- Develop and implement a “mini-grant” program to encourage local meetings of scientists, managers, and stakeholders around current science issues
- Host Spring 2012 and Fall 2012 Webinar Series
- Coordinate with the CA Landscape Conservation Cooperative and Southwest Climate Science Center to combine efforts on written products and in-person events with participants
- Develop regional email lists for targeted outreach and organizing

Adapting and responding to evaluation findings: Since the project was only recently implemented, evaluation findings are not comprehensive. This progress report will be shared with the sub-regions, their advisory committees, and the state-wide advisory committee so that the diverse participants can be informed about Consortium activities to date and provide input and direction to organizers. The new evaluation tools produced for all the consortia will be shared with each sub-region in order to develop satisfaction surveys for events they host. Additional adaptation will occur after more Consortium activities have been implemented and more evaluation results are available.

So far, the webinar series has worked particularly well. We anticipate expanding these offerings and making the technology and hosting more widely available to partners. Funding in the UCCE subcontract has been reallocation to enable additional support for hosting future webinars. The “Ask a Scientist” feature has not yet been utilized by the public – accordingly, we anticipate advertising this feature more heavily in the future.

Results for the California data of the national evaluation also consistently show that though both science producers and consumers gave the fledgling effort positive marks, science producers consistently rated Consortium efforts higher than science consumers did. This may be because the survey was done at the beginning of CFSC implementation, before science consumers were fully informed about outreach efforts and before those were occurring at the current scale. We expect ratings from fire science consumers to improve and become more similar to ratings by science producers in future national evaluations. Efforts to market information to and increase collaboration with science users will be ongoing.