

FIVE YEAR REVIEW OF FOREST ACTION PLAN – Update Report

Review of Forest Action Plan Status – Implementation Highlights

STATE OF CALIFORNIA 2015

The 2008 Farm Bill, under Title VIII – Forestry, amends the Cooperative Forestry Assistance Act of 1978, to include the requirement that each state develop a long-term, state-wide assessment and strategies for forest resources. These assessments and strategies focused on three national priorities:

- Conserve and Manage Working Forest Landscapes for Multiple Values and Uses
- Protect Forests from Threats
- Enhance Public Benefits from Trees and Forests

California has a State requirement (PRC 4789) to assess the condition of Forest and Range lands that dates back to the late 1970's. In 2010, California followed guidance from USFS State & Private Forestry Redesign and incorporated the National Priorities listed above into our reporting framework. This included an assessment report and a strategies document that follows the Redesign format. These documents were developed with a team of stakeholders to address cross-boundary, landscape scale actions that would be the most efficient activities to address issues of concern developed for the assessment phase of the Forest Action plan.

This document serves as a record of activities taken to address strategic actions taken as part of California's Forest Action Plan, which was completed in 2010 according to the guidelines articulated in Redesign.

1. Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

Issues Addressed: Population Growth and Development Impacts; Sustainable Working Forests (and Rangelands)

GOALS:

- Conserve, protect and connect ecosystems most threatened by development
- Promote the long-term economic and ecological sustainability of forest and range lands

Implementation Highlights and Challenges (past 5 years):

Action(s):

- ***Foresters Assisting County Planners***
Funded by State Responsibility Area (SRA) fees, in the past few years CAL FIRE has hired more than 40 Foresters statewide to assist county-level planning for new areas of wildland-urban interface and intermix (WUI) development. The net effect of their

efforts will be better statewide planning of new housing and commercial development at the county level, especially with regard to reducing exposure of new structures and neighborhoods to wildfire damage. New rural communities that are well-planned and fire resilient should entail less sprawl.

- ***Forest Legacy Program***

In 2014, after many years of meetings and reviews with The Conservation Fund, the Wildlife Conservation Board, the CA Board of Forestry, the CA Department of Finance and CA Department of General Services, as well as the landowners the Redwood Forest Foundation Inc., CAL FIRE closed on the Usal Redwood Forest conservation easement. This will add 49,576 acres to the Forest Legacy Program. The conservation easement was funded entirely with state and private dollars but the due diligence for the transfer came from the FLP administrative grant. The Usal Redwood Forest is located in Northern California's Humboldt County and is the largest "working-forest" conservation easement in the state.

- ***Landowner Assistance***

The California Forest Improvement Program (CFIP) is the State's primary landowner assistance program providing eligible landowners with technical and financial assistance for planning, reforestation and resource management investments that improve the quality and value of forestland. In 2014 the program provided substantial subgrants to landowners for management plans, fuel hazard reduction projects, and forest thinning projects. For 2015 substantial state funding will be added from the Greenhouse Gas Reduction Fund (GGRF) to address climate change using reforestation and vegetation management cost-share practices. CFIP is a forestry cost-share program that provides funds to non-industrial private forest landowners with ownerships of less than 5000 acres of timberland for a variety of practices including: management plans, supervision, site preparation, planting, thinning, pruning, release, land conservation, and improvement of fish and wildlife habitat and fuels reduction. CFIP's purpose is to encourage private and public investments in forestlands and resources within the state to ensure adequate future high quality timber supplies, related employment and other economic benefits, and to protect, maintain, and enhance the forest resource for the benefit of present and future generations. Since its establishment CFIP has helped landowners with forest improvement activities on over 1,000,000 acres.

- ***Forest Stewardship***

CAL FIRE is utilizing the California Cooperative Forest Management Plan template which will satisfy multiple program requirements and allow a landowner(s) to produce one plan that qualifies for a variety of State and Federal cost-share funding. The federal Forest Stewardship Program and Forest Health Management Program in combination with California's Forest Improvement Program (CFIP) provided valuable technical assistance and funds for Stewardship Planning, timber stand improvement, forest rehabilitation, reforestation and fuels reduction. The funding allows many landowners to work with California Registered Professional Foresters to develop Stewardship plans to help them achieve their management goals. These plans will also assist landowners to participate in the Greenhouse Gas Reduction Fund (GGRF) to address climate change. The GGRF provides significant funding for incentives to reforest and or reduce fuels on forestlands. In addition, the USDA-CAL FIRE programs have provided a broad scope of

educational forums including the Forest Landowner Stewardship Curriculum, the quarterly Forestland Steward Newsletter that reaches over 7000 readers via hard and electronic copies, and the toll-free HELPLINE. The HELPLINE provides valuable assistance over the phone to anyone who calls. There is always a Registered Professional Forester to answer questions regarding forest health, harvesting, insects and diseases, fire, reforestation., etc. as well as information on where the caller can receive more information on State Forest Practice Regulation or Federal Policy. Additionally, the service mails out brochures and pamphlets as available.

Implementation Focus (next 5 years):

- ***Land use planning***

General plans, new development, and existing developments that ensure increased fire safety. Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.

- Assist the appropriate governmental bodies in the development of a comprehensive set of wildland and wildland urban interface (WUI) protection policies for inclusion in each county general plan or other appropriate local land use planning documents.
- Identify the minimum key elements necessary to achieve a fire safe community, and incorporate these elements into land use planning, CWPPs and regional, county and Unit fire plans.
- Engage in the development, review and adoption of local land use plans to ensure compliance with fire safe regulations and current building standards.
- Promote the consolidation and broad availability of project-level land use planning, project implementation and wildland fire occurrence data developed throughout each county for use by all cooperating agencies.
- Improving fire resistance of homes and other constructed assets

New Data Needs and Issues:

Currently CAL FIRE/FRAP is in the process of determining these, based on the data needs for the final approved list of Montreal Process Criteria indicators for California. The USFS publication on Family Forest Owners surveys (http://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs27.pdf) may be helpful to assessing data needs for this set of goals for the next Forest Action Plan.

Informal check-in with stakeholders regarding implementation:

Action(s):

Stakeholder, agency and public outreach through Fire and Resources Assessment Steering Committee (FRASC) Meetings and Webinars

- Overview of Forest Action Plan
 - Held in March 2012, NRCS Office, Davis, CA 9:00 – 12:00
 - Approximately 40 attendees
 - Speakers from FRAP reporting results of the Forest Action Plan (2010)
 - Open public discussion for 1.5 hours

- Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/Kickoff_3_1_2012/frasc_past_meetings-3_1_12_Kickoff
- Sustainable Forest Management
 - Held in June 2012, NRCS Office, Davis, CA 9:00 – 12:00
 - Approximately 35 attendees
 - Guest panel speaker: Mike Jani, President and Chief Forester, Mendocino and Humboldt Redwoods Companies
 - Open public discussion for 2 hours
 - Meeting Notes at http://frap.fire.ca.gov/frasc/Topics/frasc_topics-sustainability
- Sustainable Rangeland Management
 - Held in March 2014, Wildland Fire Training and Conference Center, McClellan, CA 9:00 – 12:00
 - Approximately 30 attendees
 - Panel guest speakers:
 - Pelayo Alvarez, California Rangeland Coalition
 - Ceci Dale-Cesmat, State Rangeland Management Specialist, NRCS
 - Frank Dawley, Owner, Big Bluff Ranch, Red Bluff, CA
 - Jack Hamby, California Desert District, BLM
 - Open public discussion 1.5 hours
 - Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/rangleands/frasc_meetings-sustainable_range
- Sustainable Rural Economies
 - Held in June 2014, Wildland Fire Training and Conference Center, McClellan, CA 9:00 – 12:00
 - Approximately 25 attendees
 - Panel guest speakers:
 - Michael Smith, AECOM
 - Deb Whittall, USFS Region 5
 - Fatuma Yusuf, CH2MHill Consulting
 - Open public discussion 2 hours
 - Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/rural_economies/frasc_meetings_rural_economies

Action:

Stakeholder, agency and public outreach for input on best Montreal Process Criteria indicators for California, for tracking changes in forest and rangeland development, sustainable forestry and sustainable rangeland management.

- Interactive online web survey developed and hosted by U C Davis, open to the public and sent to 8700 invitees (via email) nationwide: <http://indicators.ucdavis.edu/forest/indicators/candidate>

2. **Protect Forests from Threats**

Issues Addressed: Wildfire Threats to Ecosystem Health and Community Safety; and Forest Pests and Other Threats to Ecosystem Health

GOALS:

- Prevent damaging wildfires, protect life and property and restore wildfire impacted areas to maintain ecosystem health, ecosystem services and public safety.
- Restore areas damaged by forest pests and to prevent, minimize and control to the extent feasible, future pest outbreaks, in order to maintain ecosystem health, preserve ecosystem services and avoid public safety hazards associated with large scale tree mortality events

Implementation Highlights and Challenges (past 5 years):

- ***Cooperative Fire Protection***
The State Fire Assistance funding has assisted in training approximately 2,000 firefighters, funding fire prevention/education/detection programs and both communications and safety equipment upgrades. The Volunteer Fire Assistance program serves approximately 146 rural departments and helps to purchase much-needed equipment and supplies. Funding is getting harder for small fire departments to come by and this program assists those rural departments in keeping pace with safety, training and equipment updates.
- ***Forest Health Protection***
California is experiencing a drought expected on order of once in a thousand years. This has led to the deaths of at least 22 million forest trees. On October 30, 2015, Governor Jerry Brown released an Executive Order to address elevated tree mortality with a strong emphasis on mitigation of hazard trees threatening public safety. In addition, exotic pests remain a significant threat to California's forests. Sudden oak death (SOD) is found in 15 counties infecting over 100 species. SOD was largely stagnant in 2014 due to drought conditions, but sites at the northern end of the range continued to expand including spread into the first new county (Trinity) in about a decade. Aerial surveys of tree mortality in 2014 covered millions of acres. Goldspotted oak borer continues to expand in San Diego and Riverside Counties with a recent find in Orange County. The new polyphagous shot hole borer complex in southern CA has rapidly spread to 5 counties, attacking native and exotic hardwood trees. A new pest complex called foamy bark canker is killing oaks in southern CA. CAL FIRE staff assist in early detection/rapid response trapping for exotic bark beetles and the emerald ash borer. Native bark beetle activity increased due to drought conditions, resulting in an increase in requests for field evaluations. Staff serve on the CA Forest Pest Council, GSOB Task Force, Oak Mortality Task Force, Pitch Canker Task Force, Invasive Species Advisory Committee, Firewood Task Force and National FH Monitoring Mgmt Team. Staff reviews timber harvest plans and respond to pest requests from the public. Trainings were held for gov personnel, forest industry and private citizens (>2000 trained). Forest Health surveys included 17,500 ac for Douglas fir tussock moth, 1,500,000 ac for SOD (aerial and stream), 800,000 ac for GSOB and 5000 ac for general pest evaluations. FHP funds are also used by CA Food and Ag Agency to manage invasive plants throughout the state in cooperation with county-level weed management areas. A project began in 2014 in NE CA to establish management and early detection/rapid response priorities resulting in

management of invasive plants on 500 acres. New technologies for managing invasive plants are being developed by nonprofit groups, California Invasive Plant Council and CalFlora, using FHP funds.

Implementation Focus (next 5 years):

- ***Identify and Evaluate Wildland Fire Hazards and Assets at Risk***
Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems.
 - Identify and provide appropriate automated tools to facilitate the collection, analysis and consistent presentation of datasets.
 - Update and maintain consistent, detailed vegetation and fuels maps across all ownerships in an efficient and cost-effective manner.
 - Provide regular updates to the Department's Very High Fire Hazard Severity Zone maps.
 - Develop and validate weather and climatology information for use in predicting fire behavior.
 - Update fire history information and re-evaluate existing fire prediction models to obtain composite fire threat across all ownerships.
 - Update existing data for values and assets at risk utilizing geographic information systems (GIS) data layers and other mapping solutions, including fire behavior-specific effects.
 - Use science-based approaches to evaluate, understand and protect against the negative impacts of new and emerging threats such as climate change, insect and disease outbreaks or land use changes on forest health and public safety, including the build up of hazardous fuel conditions and resulting fire behavior.
 - Engage and participate with local stakeholder groups (i.e., fire safe councils and others) to validate and prioritize the assets at risk.

- ***Collaborative Wildfire Protection Plans***
Support and participate in the collaborative development and implementation of wildland fire protection plans and other local, county and regional plans that address fire protection and landowner objectives.
 - Establish a working group, consisting of Board members and Department staff, to develop minimum standard elements for inclusion in Unit fire plans.
 - Emphasize coordination of Unit fire plans with community wildfire protection plans to encourage and support one consistent approach.
 - Develop county or regional fire plans by bringing together community based groups, such as fire safe councils and affected fire and land management agencies.
 - Create and support venues in which individual community members can be actively involved in local fire safe councils, community emergency response teams, FIREWISE and other community-based efforts to develop readiness plans and educate landowners to mitigate the risks and effects of wildland fire.

- Collaborate with federal and local governments, other state agencies, fire service and other organizations, to maintain and improve emergency response plans.
 - Ensure planning efforts are consistent with the National Fire Plan, the Healthy Forest Restoration Act, the Statewide Hazard Mitigation Plan, as well as local hazard mitigation plan and other relevant statewide strategic planning documents.
 - Maximize available resources to strengthen planning efforts through the development of public/private partnerships.
 - Develop fire risk mitigation treatment decision support tools to assist in project design, implementation and validation.
- ***Increased Awareness to Reduce Losses of Life and Property***
 Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuels reduction activities, fire prevention and fire safe building standards.
 - Educate landowners, residents and business owners about the risks and their incumbent responsibilities of living in the wildlands, including applicable regulations, prevention measures and preplanning activities.
 - Educate landowners, residents, fire safe councils and business owners to understand that fire prevention is more than defensible space, including why structures ignite, the role embers play in such ignitions and the importance of fire safe building designs and retrofits.
 - Facilitate activities with individuals and organizations, as appropriate, to assist individual property owners in complying with fire safe regulations.
 - Improve regulatory effectiveness, compliance monitoring and reporting pursuant to Public Resources Code (PRC) §4290 and §4291.
 - Increase the number and effectiveness of defensible space inspections and promote an increasing level of compliance with defensible space laws and regulations through the use of CAL FIRE staffing as available, public and private organizations, and alternative inspection methods.
 - Promote the consolidation of Fire Safe Regulations contained in California Code of Regulations (CCR) Title 14, with CCR Titles 19 and 24, to achieve uniform application of building standards.
 - Continue to evaluate new, ignition-resistant construction technologies and materials, and promote the strengthening of California building standards.
 - Seek out incentives to promote the retrofit of existing structures to meet ignition-resistant building codes.
 - Actively enforce and seek updates as necessary to fire prevention codes and statutes, including those regulating utilities, railroads, small engines and other categories of equipment use that contribute to fire ignition.
 - Actively investigate all wildland fires. For those resulting from negligent acts, pursue appropriate civil and/or criminal actions, including cost recovery.
 - Analyze trends in fire cause and focus prevention and education efforts to modify behavior and effect change.
 - ***Integrating Fires and Fuels Management Practices***

Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, state and federal responsibility areas.

- Increase support of landowner-initiated hazardous fuels reduction using all available authorities, including the Vegetation Management Program.
 - Work to remove regulatory barriers that limit hazardous fuels reduction activities.
 - Promote and enhance programmatic documents that assist and streamline regulatory processes.
 - Assist collaborative partners by educating, improving grant capacity and other means that provide tools to achieve fuels reduction work on the landscape.
 - Promote forest and rangeland health and hazardous fuels reduction. Improve utilization of all forest products, including small logs, urban green waste and biomass.
 - Increase public education and awareness in support of ecologically sensitive and economically efficient vegetation management activities, including prescribed fire, forest thinning and other fuels treatment projects.
 - Promote the development of multi-agency/landowner fuels reduction policies and activities at the watershed and fire shed level.
 - Support the availability and utilization of CAL FIRE hand crews and other CAL FIRE resources, as well as public and private sector resources, for fuels management activities, including ongoing maintenance.
 - Support efforts to restore the ecological role of fire in areas and upon jurisdictions where doing so is consistent with local land management objectives and does not present an unacceptable risk to human health and safety or security of adjacent ownerships.
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- ***Determining Needed Fire Suppression Resources***

Determine the level of fire suppression resources necessary to protect the values and assets at risk identified during planning processes.

 - Maintain an aggressive wildland fire initial attack policy that places a priority on protecting lives, property and natural resources. At the same time consider suppression strategies that incorporate values and assets at risk, as well as cost factors wherever possible.
 - Develop criteria for determining suppression resource allocation based on elements such as identified values and assets at risk, ignition density, vegetation type and condition, as well as local weather and topography.
 - Initiate studies and analyses to identify appropriate staffing levels and equipment needs commensurate with the current and projected emergency response environment.
 - Seek to increase the number of CAL FIRE hand crews for use in fighting wildland fires and other emergency response activities.
 - Initiate and maintain cooperative fire protection agreements with local, state and federal partners that value the importance of an integrated, cooperative, regional fire protection system and deliver efficient and cost effective emergency response capabilities beneficial to all stakeholders.

- Improve policies and strategies to minimize injuries or loss of life to the public and emergency responders during emergency response activities throughout the state.
- Ensure all firefighters are provided the appropriate training, equipment and facilities necessary to successfully and safely meet the increasingly complicated and challenging fire and emergency response environment.
- Continue to evaluate and implement new technologies to improve firefighter safety, situational awareness and emergency response effectiveness.
- Provide for succession planning and employee development at all levels within CAL FIRE to maintain emergency response leadership capabilities, administrative management skills and pre-fire planning expertise.
- Effectively engage and train employees across all disciplines to address both planning and emergency response utilizing a “total force” approach.

New Data Needs and Issues:

Currently CAL FIRE/FRAP is in the process of determining these, based on the data needs for the final approved list of Montreal Process Criteria indicators for California. One main national GIS data source being widely used by the USFS and other agencies for wildfire fuels and behavior modeling is LANDFIRE. Unfortunately, some areas of the data are inaccurate at a level that it adversely affects fire behavior modeling. CAL FIRE is looking at ways of correcting problem areas for future modeling efforts.

Informal check-in with stakeholders regarding implementation:

Action(s):

Stakeholder, agency and public outreach through Fire and Resources Assessment Steering Committee (FRASC) Meetings and Webinars

- Wildland Fire in California
 - Held in April 2014, NRCS Office, Davis, CA 9:00 – 12:00
 - Approximately 40 attendees
 - Panel guest speakers:
 - Chris Dicus, Research Scientist, Cal Poly San Luis Obispo
 - Jon Keeley, Research Ecologist, USGS, National Park Service (SEKI)
 - Hugh Safford, USFS Region 5 Ecologist
 - Scott Stephens, Scientist and Professor, UC Berkeley
 - Open public discussion for 1.5 hours
 - Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/Wildfire_April_4_2013/frasc_meetings-Wildfire_April_4_2013

Action:

Stakeholder, agency and public outreach for input on best Montreal Process Criteria indicators for California, for tracking changes in forest and rangeland development, sustainable forestry and sustainable rangeland management.

- Interactive online web survey developed and hosted by U C Davis, open to the public and sent to 8700 invitees (via email) nationwide:
<http://indicators.ucdavis.edu/forest/indicators/candidate>

3. Enhance Public Benefits from Trees and Forests

Issues Addressed:

Water Resources: Assessing Water Quantity and Water Quality;

Urban Forests;

Community Wildfire Planning; Emerging Markets for Forest and Range Lands; Plant, Wildlife and Fish Habitat Protection, Conservation and Enhancement; Green Infrastructure for Connecting People to the Natural Environment;

Climate Change Impacts

GOALS:

- Maintain and enhance water supply and water quality in forested watersheds that support a broad range of downstream uses.
- Improve air quality and reduce energy consumption through expansion management and restoration of urban forests.
- Increase the number of communities directly involved in coordinated wildfire planning and the number of community wildfire protection plans where needed to reduce wildfire risks.
- Facilitate the sustainable development of a biomass industry and to develop carbon and other ecosystem service markets as a way to achieve hazard reduction, improved ecosystem health and services, and lowered greenhouse gas emissions in California.
- Address the broad need to protect and conserve wildlife and fish habitat in order to enhance high species richness, endemism and core habitat. The strategies are also intended to address the more focused issue of restoring wildfire-impacted lands and reducing risk of wildfire impacts on protected lands that the priority landscape has identified.
- Improve the opportunities for people to connect with the natural environment through conserving and enhancing green infrastructure.
- Promote actions to preserve and enhance carbon sequestration (i.e. mitigation) and actions to promote ecosystem health and resilience under changing climate conditions (i.e., adaptation).

Implementation Highlights and Challenges (past 5 years):

- ***Urban and Community Forestry***
The CAL FIRE U&CF Program has forged strong partnerships with local governments and non-profits to advance its objectives. With some of the largest population centers in the U.S., CA has a great need for urban forestry. Projects involving CAL FIRE and partners include the Million Tree initiative in Los Angeles, the Greenprint for 26 local governments in the Sacramento region to double the canopy, and numerous other

projects. CAL FIRE helped develop materials for the Urban Forestry, Green Infrastructure, and Climate Change portions of the Forest Action Plan and are implementing the program based on the plan. \$4.4 million in state funded grants in the past. There are approximately 55 urban forestry grants currently wrapping up. These are, with very few exceptions, state funded grants. In addition, CAL FIRE is still loaning out portable saw milling equipment to foster urban wood utilization. CAL FIRE Urban and Community Forestry is still actively reviewing grants related to urban forestry and urban greening for other state agencies as well. This gives CAL FIRE a say in nearly all urban greening dollars spent by California. CAL FIRE is represented in the state's climate change strategies and will be assisting with implementation of these strategies. CAL FIRE is leading the Urban Greening Health In All Policies Implementation for California. Numerous state level policy advancements were made as well. The U&CF program has worked with CUFAC (the California Urban Forestry Advisory Committee) to create a new five year strategic plan. It is available on the CAL FIRE website. CAL FIRE has received a significant new funding source for both personnel and grants related to urban forestry. The California Greenhouse Gas Reduction Fund (GGRF) has provided \$17.8 million for urban forestry in California for fiscal year 14/15. This is more than double what was received in any previous year from any funding source. The GGRF is the fund created from cap and trade auction proceeds.

- ***Urban Tree Benefits Study***

With funding provided through a Western States Competitive Grant a statewide assessment of urban tree canopy and environmental benefits of urban trees was conducted. The project created a statewide source of information on urban tree canopies that utilizes California specific data for estimating CO2 sequestration and additional environmental benefits (i.e. air pollution reduction, water quality mitigation). The analysis made use of data from existing FIA, UFORE, i-Tree and other tree inventories for urban areas in California, and filled data gaps where possible. This information will support development of accurate CO2 storage values and refinement of priority areas that are consistent with the California's Forest Action Plan (2010). Information on CO2 stored in UFs is also being used to update state emissions inventory and support climate change programs.

- ***Greenhouse Gas Reduction Fund: Reforestation & Fuels Management & Biomass Utilization***

CAL FIRE has become a state lead in forest conservation incentives for climate change and fuels management with an infusion of 21 million dollars in new funding. In place of the Proposition 40 Fuels Management Program, the CFIP and CARCD Reforestation Program are funded by GGRF and the new SRA fee fund now supports Community Assistance (CAGs) grants. Grants and Cost-share contracts for these programs will be fully implemented in 2015. CAL FIRE programs offer grants or cost share contracts to landowners or non-profit organization to address fire hazard reduction through vegetation management. Funding for vegetation management is provided by State of California Greenhouse Gas Reduction Fund (GGRF). In addition, through an agreement with CARCD, RCDs, landowners and NGOs, have reforestation grant opportunities for select for watershed-based projects where catastrophic events like wildfire require

extensive reforestation. Biomass Utilization grants are also incorporated in the incentive mix of conservation practices and programs to provide harvesting and chip transportation subsidies for utilization of unwanted biomass for green energy from vegetation management projects near communities. For an example, a previously awarded project in central Humboldt County completed treated over 300 acres and generated 5000 dry tons of biomass.

- ***Conservation Education***

The California Project Learning Tree (PLT) program continues to provide professional development trainings for California educators. Highlights of 2014 include the shaping of several partnerships with other University of California Cooperative Extension programs such as the UC Agriculture and Natural Resources Research and Extension Centers (<http://recs.ucanr.edu/>), as well as cross program collaborations with the UC California Naturalist Program. Both of these new partnerships will strengthen PLT's ability to establish and strengthen new and existing programs across the state, resulting in a greater number of educators using PLT materials. In addition, over 2000 educators working within formal and non-formal settings participated in one of the 60+ workshops, conferences, and outreach events that provided Project Learning Tree training, materials and networking opportunities. More than 30% of those trained were teachers-in-training at California universities in urban areas. PLT's early childhood program continues to be very popular and well received, with an emphasis being to bring the classroom out into nature. In response to the nationwide shift towards a future that encourages environmental literacy for all and the prioritizing of processes and practices of science in teaching and learning, CA PLT continues to work closely with several Forest Service partners across the state to highlight the real world issues of forestry management and fire education in PLT programs. In July 2014, Darla Mills joined the CAL FIRE PLT program as Grant Administrator. The Coop Extension and CAL FIRE entered into a new grant agreement to continue the PLT program for another year.

- ***Forest Carbon Plan***

As part of Assembly Bill 32, the California Global Warming Solutions Act, state agencies are developing a Forest Carbon Plan to look at management strategies that will enhance carbon sequestration and related co-benefits (see <http://www.fire.ca.gov/fcat/>). It has also developed forestry offset protocols that allow the development of offset projects that generate additional carbon storage and credits that are part of the Cap and Trade program.

- ***Renewable Energy Portfolio***

California has initiated programs to promote forest biomass utilization as a part of the state's renewable energy portfolio.

- ***Safeguarding Plan Update***

An interagency plan was developed to address climate adaptation needs for natural resources. It includes specific recommendations for forestry.

- ***Climate Change and Drought –related Research, Development and Monitoring***

CAL FIRE has funded research to address the potential shift in the distributions and ranges of dominant tree and shrub species that are likely to result from projected future

climatic changes. It has recently increased resources to monitor elevated tree mortality that has resulted from prolonged drought conditions. Future forest management actions and investment will likely target forest areas with high tree mortality to improve forest health. These actions are a part of a suite of ongoing forest management activities to promote ecosystem resilience and forest health.

Implementation Focus (next 5 years):

- **Post-fire recovery**

Address post-fire responsibilities for natural resource recovery, including watershed protection, reforestation and ecosystem restoration.

- Encourage rapid post-fire assessment, as appropriate, and project implementation to minimize flooding, protect water quality, limit sediment flows and reduce other risks on all land ownerships impacted by wildland fire.
 - Work with landowners, land management agencies and other stakeholders across the state to design burned area rehabilitation actions that encourage salvage and reforestation activities, create resilient and sustainable landscapes, and restore functioning ecosystems.
 - Effectively utilize available resources, including CAL FIRE hand crews, to accomplish restoration and protection activities.
 - Assess the effects of pre- and post-fire treatments to refine best management practices.
 - Assist landowners and local government in the evaluation of the need to retain and utilize features (e.g. roads, firelines, water sources) developed during a fire suppression effort, taking into consideration those identified in previous planning efforts.
 - Aid landowners in recently burned areas in developing and implementing vegetation treatment plans to manage the re-growth of fuels to maintain reduced hazardous conditions.
 - Promote the maintenance of a native species seed bank and seedling production capacity to provide the availability of appropriate tree species for reforestation within all of the state's diverse seed zones.
 - Use after-action reports to evaluate and implement new technologies and practices to improve future firefighting efforts.
- Establishing fire resistance in assets at risk, such as homes and neighborhoods
 - Creation of defensible space for survivability of established homes and neighborhoods
 - Fuel hazard reduction that creates resilient landscapes and protects the wildland and natural resource values
 - Shared vision among multiple fire protection jurisdictions and agencies
 - Commitment by individuals and communities to wildfire prevention and protection through local fire planning
 - Levels of fire suppression and related services
 - Adequate and appropriate levels of wildland fire suppression and related services
 - Post fire recovery

New Data Needs and Issues:

Currently CAL FIRE/FRAP is in the process of determining these, based on the data needs for the final approved list of Montreal Process Criteria indicators for California.

Informal check-in with stakeholders regarding implementation:

Action(s):

Stakeholder, agency and public outreach through Fire and Resources Assessment Steering Committee (FRASC) Meetings and Webinars

- Water Supply and Water Quality
 - Held in July 2013, Wildland Fire Training and Conference Center, McClellan, CA 9:00 – 12:00
 - Approximately 35 attendees
 - Panel guest speakers:
 - Lorraine Flint, Research Hydrologist, USGS
 - Cajun James, Hydrologist, Sierra Pacific Industries
 - Frank K Lake, Research Ecologist, USFS PSW
 - Phil Saksa, Hydrologist, Sierra Nevada Adaptive Management Project Water Team
 - Open public discussion for 2 hours
 - Meeting Notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/water_7_11_2013/frasc_meetings-water_7_11_2013
- Community Planning to Mitigate Wildfire Hazards
 - Held in November 2014, Wildland Fire Training and Conference Center, McClellan, CA 9:00 – 12:00
 - Approximately 40 attendees
 - Panel guest speakers:
 - Christina Carroll, Legal Division, CA Dept of Insurance
 - Edith Hannigan, Planner, Board of Forestry
 - Alexandra Syphard, Research Scientist, Conservation Biology Institute
 - Open public discussion 2 hours
 - Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/Communities_11_20_2014/communities_12_29_2014
- Wildlife Habitat Conservation
 - Held in October 2012, NRCS Office, Davis, CA 9:00 – 12:00
 - Approximately 45 attendees
 - Panel guest speakers:
 - Armand Gonzales, CA Dept of Fish and Wildlife

- Dan Porter, The Nature Conservancy
 - Jim Weigand, California Branch, Bureau of Land Management
- Open public discussion 2 hours
- Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/Wildlife_10_4_2012/frasc_meetings-Wildlife_10_4_2012
- Green Infrastructure and Connecting People to Nature
 - Held in November 2013, Wildland Fire Training and Conference Center, McClellan, CA 9:00 – 12:00
 - Approximately 45 attendees
 - Panel guest speakers:
 - Larry Orman, GreenInfo Network
 - Bob Kingman, Sierra Nevada Conservancy
 - Trini Juarez, USFS Region 5 Landscape Architect
 - Open public discussion 2 hours
 - Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/GI/frasc_past_meetings_GI
- Climate Change
 - Held in January 2013, NRCS Office, Davis, CA 9:00 – 12:00
 - Approximately 40 attendees
 - Panel guest speakers:
 - Ellie Cohen, Point Blue Conservation Science
 - Dave Graber, National Park Service
 - Chrissy Howell, USFS Region 5
 - Klaus Scott, CA State Air Resources Board
 - Open public discussion 2 hours
 - Meeting notes at http://frap.fire.ca.gov/frasc/Meetings/Past_Meetings/Climate_1_10_2013/frasc_meetings-Climat_1_10_2013

Action:

Stakeholder, agency and public outreach for input on best Montreal Process Criteria indicators for California, for tracking changes in forest and rangeland development, sustainable forestry and sustainable rangeland management.

Interactive online web survey developed and hosted by U C Davis, open to the public and sent to 8700 invitees (via email) nationwide: <http://indicators.ucdavis.edu/forest/indicators/candidate>