THE BOARD OF FORESTRY AND FIRE PROTECTION

ANNUAL REPORT 2020

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California State Board of Forestry and Fire Protection Mission

The mission of the Board is to lead California in developing policies and programs that serve the public interest in environmentally, economically, and socially sustainable management of forest and rangelands and a fire protection system that protects and serves the people of the state.

Board Background and Organization

The California State Board of Forestry and Fire Protection (Board) is a Governor-appointed body within the California Department of Forestry and Fire Protection (CAL FIRE). Members are appointed on the basis of their professional and educational qualification and their general knowledge or interest in problems that relate to watershed management, forest management, wildland fire management, fish and wildlife, range improvement, forest economics, or land use policy. Of its nine members, five are chosen from the public, three from the forest products industry, and one from the range-livestock industry.

The Board is responsible for developing the general forest policy for the State, determining the guidance policies of CAL FIRE, and representing the State's interests in federal land located within California. Together, the Board and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the State's unique forest and wildland resources.

Committees of the Board

Committees Required by Statute

1. Range Management Advisory Committee
2. Professional Foresters Examining Committee
3. Soquel Advisory Committee

Internal Standing Committees

1. Forest Practice: The mission of the Forest Practice Committee is to evaluate and promote an effective regulatory system which ensures the continuous growth and harvest of commercial forests and protects soil, air, fish, wildlands, and water resources.

2. Resource Protection: The mission of the Resource Protection Committee is to develop and promote a policy and regulatory program that implements fire safe land use planning and effective vegetation management, pursues a fire prevention program in alignment with the State Fire Plan, and improves forest and rangeland health in California.

3. Management: The mission of the Management Committee is to evaluate and promote long-term, landscape-level planning approaches to support natural resource management on California's non-federal forests and rangelands and to evaluate State Forest management plans.

External Advisory Committees

1. Effectiveness Monitoring Committee
2. California Forest Pest Council and the California Oak Mortality Task Force
3. Jackson Advisory Group
4. Joint Institute for Wood Products Innovation

Committee Updates

Range Management Advisory Committee

The work of the Range Management Advisory Committee (RMAC) was severely curtailed in 2020 due to the COVID-19 pandemic as well as multiple major fires affecting rangeland. Due to these emergencies, most Committee meetings this year did not reach a quorum of members, so forward action on 2020 was minimal. In November, RMAC successfully hosted a series of three virtual workshops on grazing for fire prevention – "Using Grazing to Help Keep Communities Safe." The workshop topics were: Wildland Fuels: A Primer for Concerned Citizens & Grazers; Using Grazing for Fuels Management 101: Practices & Strategies; Organizing Community-Based Wildland Fuels Management Projects: Approaches and Examples. Over 150 people attended each workshop.

Professional Foresters Examining Committee

In 2020, the Professional Foresters Examining Committee (PFEC) and the Office of Professional Foresters Registration began review and updates to several documents including the 2013 guidance document Role of the Registered Professional Forester and the 2007 Professional Forester Examining Committee (PFEC) Policy documents. The April 2020 Registered Professional Forester (RPF) and Certified Rangeland Manager (CRM) examinations were

canceled due to COVID-19. The October RPF and CRM exams were carried out at seven different locations and employed CDC and State Guidelines for preventing COVID. Forty-seven (47) RPF applicants and one (1) CRM applicant sat for this exam. The completion of grading and presentation of exam results will occur in January 2021.

- Licensing Fee Amendments, 2020 went into effect in April 2020 increasing the biennial renewal fee for RPFs from $190 to $350 and for Certified Specialists from $70 to $130. To address RPF retirements and incentivize RPF license retention, the new discounted biannual fee of $250 was implemented for RPFs with 30 years or more in the registry.

- Lastly, the Executive Officer for Professional Foresters Registration continues to perform outreach to increase awareness of careers in forestry in California and the licensing requirements for foresters. Outreach in the first part of 2020 required travel throughout the state to universities, community colleges, high schools, and California Conservation Corps. field offices to inform young people about the opportunities that exist in the California forestry sector. Later in the year these outreach efforts were conducted online utilizing zoom meeting and Go-To Webinar.

Effectiveness Monitoring Committee

The Board formed the Effectiveness Monitoring Committee (EMC) in 2014 to develop and implement a monitoring program to address both watershed and wildlife concerns and to provide a more effective feedback loop to policymakers, managers, agencies, and the public. Effectiveness monitoring is necessary to assess whether management practices are achieving the resource goals and objectives set forth in the California Forest Practice Rules (FPRs) and other natural resource protection statutes and regulations. This kind of monitoring is a key component of adaptive management. Effectiveness monitoring is also a crucial component for complying with the "ecological performance" reporting requirements outlined in AB 1492. The EMC and the Board developed a suite of critical monitoring questions based on input from a variety of stakeholders and organized them into 11 themes. The EMC uses these themes and critical questions as guidance to solicit and evaluate monitoring projects with the goal of developing a process-based understanding of the effectiveness of the FPRs and associated regulations in maintaining and enhancing water quality and aquatic and wildlife habitats.

No new projects were funded in 2020, but all ongoing projects received allocations as planned. EMC meetings continued to be held quarterly. The following is a summary of EMC activities and progress made in 2020.

- The EMC charter was updated by the committee and approved by the Board of Forestry and Fire Protection (Board).
- Strategic Plan themes and critical questions for 2019 were reviewed and retained. No additions or alterations were made to the priorities for 2020. The EMC committed to examining the research already funded and setting priorities by themes and critical questions in 2021.
- The EMC received an allocation of $267,841 for the 2020/21 fiscal year from the Timber Regulation and Forest Restoration Fund for ongoing projects.
- The EMC recommended that a grant program be considered as a means of distributing funding for future projects, and the Board approved a recommendation to ask Board staff to explore this option.

Joint Institute for Wood Products Innovation

The Joint Institute for Wood Products Innovation (Institute) was established in response to Senate Bill 859 (2016) and the California Forest Carbon Plan. The first meeting of the Institute was held April 24, 2019.

The first project undertaken by the Institute was a "Literature review and evaluation of research gaps to support wood products innovation," which was approved by the Board in January 2020 and submitted for a Governor's Office Action Request in March. Findings from the report included the identification of numerous innovative wood products with sufficient commercial and technical readiness as well as potential market size.

The Institute funded two contracts for the 2020-2021 fiscal year. The first was "Cross-Laminated Timber Layup Tests Using Western Wood Products Association White Fir Species Group." Results will help inform industry as to how white fir species in California will fare as a mass timber commodity. The second was "Opportunities for low-carbon and carbon-negative fuels from non-merchantable forest biomass in California." This contract will identify biofuels research gaps and it will convene key stakeholders to explore the potential for a low-carbon and carbon-negative fuels industry in California that includes the use of non-merchantable forest biomass.

At the request of the Forest Management Task Force, the Institute also developed "Joint Institute Recommendations to Expand Wood and Biomass Utilization in California." It was approved by the Board in November 2020 and

given to the Forest Management Task Force for cabinet-level discussions.

Chaptered Legislation with Future Regulatory Action by the Board

AB-92 Public resources: omnibus trailer bill.
Authorizes the State Water Resources Control Board (SWRCB) to issue a certificate or statement before completion of an environmental review, which is required under CEQA, if SWRCB determines that waiting until completion of the environmental review poses a substantial risk of waiver of the state's certification authority under federal water quality control laws.

Requires SWRCB, to the extent authorized by federal law, to reserve authority to reopen and revise the certificate or statement as appropriate based on the information provided in the environmental review document.

AB 2553 Shelter crisis declarations:

Expands the Shelter Crisis Act to all cities and counties in California, adds safe parking sites as an eligible form of shelter, and extends the sunset to 2026. The Shelter Crisis Act authorized certain local jurisdictions that have declared a shelter crisis to allow homeless individuals to occupy facilities designated as emergency housing for the duration of the crisis. It also provided limited liability and suspended local housing, health, and safety standards for public facilities if full compliance would hamper mitigation of the effects of the shelter crisis. It allowed a jurisdiction to adopt, by ordinance, reasonable local standards for design, site development, and operation of shelters. AB 2553 became effective immediately upon enactment.

AB 3074: Fire prevention: wildfire risk: defensible space: ember-resistant zones.

Existing law requires the Director of Forestry and Fire Protection to identify areas in the state as very high fire hazard severity zones based on specified criteria and the severity of the fire hazard. Existing law requires a person who owns, leases, controls, operates, or maintains an occupied dwelling or structure in, upon, or adjoining a mountainous area, forest-covered land, brush-covered land, grass-covered land, or land that is covered with flammable material that is within a very high fire hazard severity zone, as designated by a local agency, or a building or structure in, upon, or adjoining those areas or lands within a state responsibility area, to maintain a defensible space of 100 feet from each side and from the front and rear of the structure, as specified. A violation of these requirements is a crime.

This bill would require a person described above to use more intense fuel reductions between 5 and 30 feet around the structure, and to create an ember-resistant zone within 5 feet of the structure, as provided. Because a violation of these provisions would be a crime or expand the scope of an existing crime, the bill would impose a state-mandated local program. The bill would require each local agency having jurisdiction of property upon which conditions that are regulated by the defensible space provisions described above apply and the Department of Forestry and Fire Protection to make reasonable efforts to provide notice to affected residents of the above requirements before imposing penalties for a violation of those requirements. By expanding the duty of a local agency, the bill would impose a state-mandated local program.

Forest Health Trends

Monitoring Efforts

Monitoring of the Forest Practice Rules (FPRs) on private and public forestlands has shown generally high compliance with water-quality related rules, and that those rules are generally effective in preventing erosion and sedimentation when properly implemented (FORPRIEM, 2014). Additionally, since the passage of SB 901 in 2018, CAL FIRE has been engaged in the monitoring and reporting-on of nondiscretionary Exemption and Emergency Notice timber harvests in the state. Reporting from 2018 was published on May 7, 2019 (Olsen et al., 2019), and the results from 2019 were approved by the Board on December 30, 2019, however impacts related to COVID-19 and the fire-siege of 2020 may delay such efforts for the 2020 calendar year.

Pest Conditions

The following is a summary of notable insect, disease and forest health issues that continue to threaten and alter urban and wildland forests in California in 2020. Forest pest conditions can change dramatically from year to year. For a summary of forest pests and diseases, see the 2019 California Forest Pest Conditions Report. The 2020 California Forest Pest Conditions Report will be available on the California Forest Pest Council website in early 2021.

Invasive Shot Hole Borer (ISHB)

Polyphagous shot hole borer (PSHB) is established in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. Kuroshio shot hole borer (KSHB) is established in Los Angeles, Orange, Santa Barbara, San Diego, and Riverside Counties. Previously KSHB was found in a San Luis Obispo County trap. While no infestations have been found in the

landscape there to date, it is suspected to be present. A previous trap find in Santa Cruz County has never been confirmed and no infestations found. PSHB and KSHB are found associated with several fungi, including species of *Fusarium*, which are known plant pathogens. Extensive damage has occurred in parks, urban trees, and riparian areas. An ISHB zone of infestation (ZOI) was approved by the Board of Forestry and Fire Protection in counties impacted by the beetles in areas with known reproductive host trees, which support beetle reproduction. The ZOI includes all of San Diego, Orange, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties as well as portions of Riverside and San Bernardino Counties.

Goldspotted Oak Borer (GSOB)

GSOB continued to spread in southern California through localized beetle flight as well as firewood movement. It is now found in extensive areas of San Diego, Los Angeles, Orange, Riverside, and San Bernardino Counties. It attacks and can kill California black oak, coast live oak, and, to a lesser extent, canyon live oak, preferring larger diameter and older trees. The continued spread resulted in the expansion of the GSOB ZOI to include all susceptible hosts within the impacted counties. No new sites have been detected outside of the five-county area.

Bark Beetles

Conifer-killing bark and engraver beetle populations remained low in California. Small pockets of pine bark beetles and fir engraver beetles were found throughout the state, particularly at higher elevations. Bark beetle activity was increasing in some areas due to a return to drought conditions but remain low compared to the recent years of epidemic outbreaks.

Mediterranean Oak Borer (MOB)

The valley oak wilt of 2019 was determined to be caused by the non-native MOB ambrosia beetle (*Xyloborus monographus*) and its associated fungi. The pest complex has killed valley and blue oaks throughout Napa, Sonoma, and Lake Counties. In 2020, a separate infestation was found in Sacramento County around the community of Citrus Heights. All indications are the pest complex has been in California for 5 - 10 years. Surveys and trapping are ongoing to determine the extent of the infestation, in addition to research on trapping methods, lures, fungal associates/host pathogenicity, control options, spread rates, and overall tree impacts.

Sudden Oak Death (SOD)

SOD (caused by the plant pathogen *Phytophthora ramorum*) was officially confirmed in Del Norte County for the first time. Genotyping confirmed the European strain (EU1) of the pathogen instead of the North American strain (NA1) - the only strain previously found in infested natural areas of the state. The nearest known EU1 forest infestation is in Curry County, Oregon, around 35 miles to the north. Management is ongoing to slow the potential spread of the EU1 strain in California.

In other areas of the state, SOD-related mortality varied by region. Mortality levels were high around the Santa Cruz/Santa Clara County line and there were new expansions of the disease in Humboldt and Mendocino Counties. Infestations appeared to be increasing in more inland sites in many areas, with less activity in coastal zones.

Incense Cedar Dieback

High levels of incense cedar mortality were observed throughout the state. Often a few branches would fade and die, and sometimes the entire tree would exhibit thinning and discolored foliage and then die. Dieback tended to start at the tops of the trees then progress downward. A species of *Cytospora* fungus was often recovered from cankers in impacted trees, but not consistently. Studies are ongoing to determine the species and potential pathogenicity of the fungus. Many of the trees were also impacted by drought years with reduced fine feeder roots, so an abiotic cause of mortality remains a possibility.

Black Acacia Dieback and Mortality

Black acacia trees (*Acacia melanoxylon*) are dying in Oakland and surrounding parts of the Bay Area down to the coast in Half Moon Bay. Some individual trees are showing dieback and in other areas entire hillsides are dying. The trees show indications of dieback, cankering, and mortality. The cause is currently unknown. Several possible fungi are being investigated, including one that is invasive to California and previously caused dieback of lemonade berry shrubs in San Diego County.

Wildfire Damage and Mortality

Over 4.3 million acres burned in wildfires in California in 2020, making it the worst wildfire year on record for the state in terms of acres burned. Five of the six largest wildfires in state history burned simultaneously in 2020, including the August Complex, which was more than double the size of the previously largest wildfire, totaling more than one million acres. Tree health impacts and mortality levels from these fires are still being determined.

Several fires burned extensive areas impacted by SOD, pitch canker, MOB, and/or native bark and engraver beetles.

Forest Products Trends

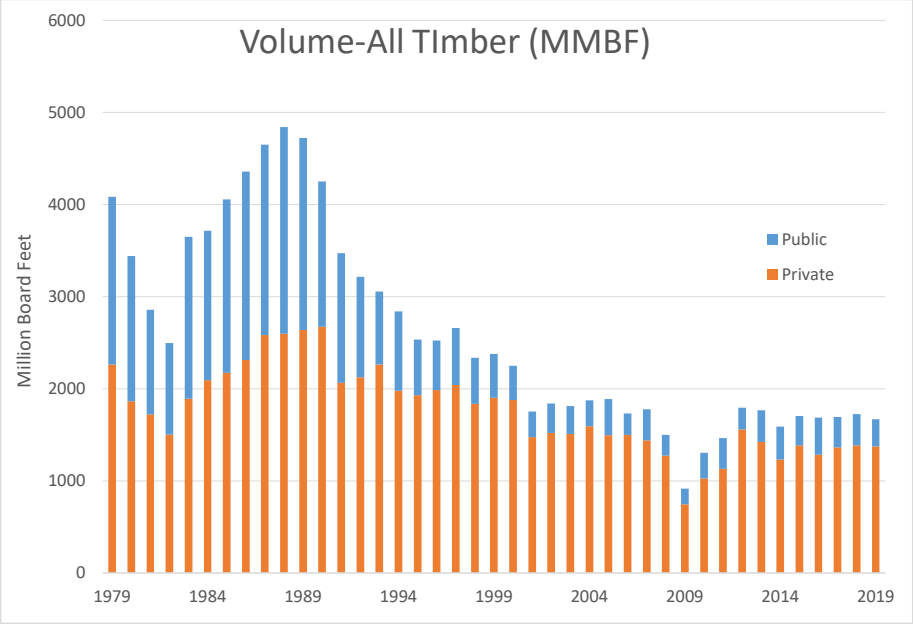
Commented [HE1]: Awaiting Updates from Program Staff

In-State Harvest and Production

About 80 percent of lumber and 90 percent of all wood products used in the state of California are imported. As of 2012, there were 52,000 workers in the forest products sector with total earnings of over $3.3 billion annually. There has been a major decline in timber harvesting that has resulted in a 72% decrease in volume since 1955. Sawmills have seen a similar decline in response to lower harvest volumes as well as improvements in technology and automation (about 675 sawmills were in operation in 1956 versus 28 in 2018). Softwood sawmill capacity in California has somewhat stabilized over the last several years after decades of constriction. In response to this decline in processing facilities, the state has shown growth in diversified markets for wood products. However, that diversification is not necessarily equivalent to the historic economic benefits of softwood sawmills (FRAP, 2017).

Generally, the volume of timber harvested has declined steadily from a high in 1988. It has recently started to level out after a significant drop in 2009 likely attributed to the housing market crash of 2008. Figure 2 below illustrates the changes in harvest levels for public and private lands, indicating that recently more volume has been harvested from private lands by a wide margin. In 2018 (not shown), approximately 1,670 million board feet (MMBF) were harvested, in line with the previous five years' approximate totals (CDTFA, 2020). Approximately 82 percent came from private land, and 18 percent from public land, again keeping with recent trends. The leading counties were Shasta with 219 MMBF, Humboldt with 216, Siskiyou with 206, and Mendocino with 120. These four counties accounted for just over half of all timber harvested in California in 2020.

Figure 2. Annual Volume of Timber Harvested in California (FRAP)



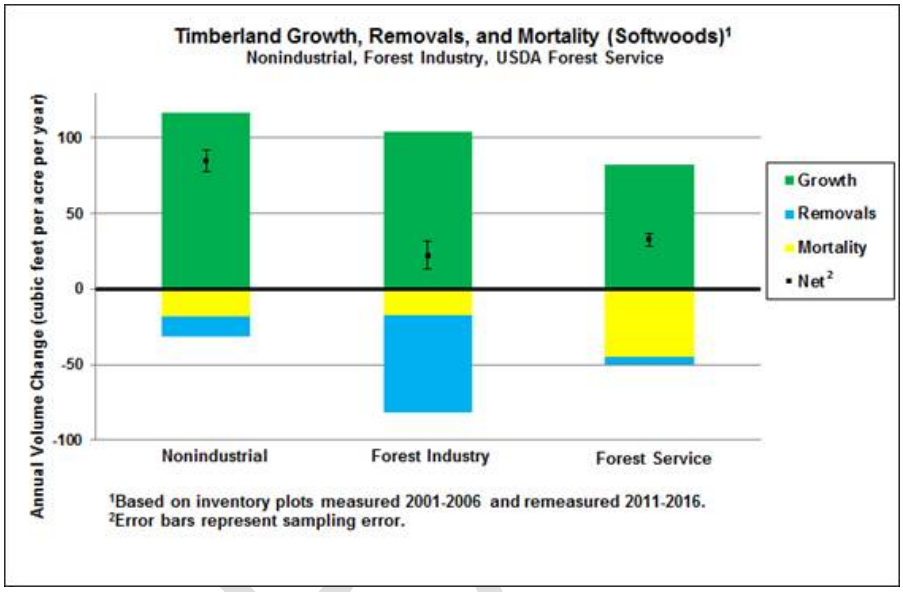
Note: PUBLIC refers to timber removed from local, state, and federal government lands. It does not include timber removed from tribal lands.

California has also been experiencing a fluctuating export market over the past few years, with logs being shipped via container to Asia. This is a very volatile market with demand ebbing and flowing dramatically from one year to another and even from month to month.

For managed timberlands, net growth of softwoods (commercial conifer species) provides a measure of whether harvest levels can be sustained. In California, commercial forest management is regulated under the Forest Practice Act and the Forest Practice Rules, which require maximum sustained production of high-quality timber products. A recent USFS Forest Inventory Analysis (USFS, 2017) of the re-measurement period between 2001-2006 and 2011-2016 produced key findings pertaining to net growth of softwoods. On industry-owned timberlands, the most actively managed timberlands within California, growth exceeded harvest and mortality by an average of 22 ft^3/acre/year over the re-measurement period. On nonindustrial timberlands, a portion of which are actively managed, growth exceeded harvest and mortality by an average of over 85 ft^3/acre/year. On Forest Service managed (i.e., non-wilderness) timberlands, which are managed for multiple objectives

including ecosystem services, growth exceeded harvest and mortality by an average of over 33 ft^3/acre/year. These values can be shown in Figure 3 (FRAP, 2017).

Figure 3. Net Softwood Timberland Growth



Of the approximately 33 million forested acres in California, about 57 percent are owned and managed by federal agencies, 3 percent by state and local agencies, and 40 percent by families or individuals, Native American tribes, and companies. Industrial timber companies own 14 percent of the total forested acres in California. 9 million acres are owned by individuals, with nearly 90 percent of these owners having less than 50 acres of forest land. (UCANR, 2019a). Ownership patterns have changed for large industrial forest landowners within California. All industrial ownerships are now privately held firms, in contrast with 1970 when 56 percent were publicly traded firms.

The utilization of exemptions, as allowed for under PRC § 4584 and 14 CCR § 1038, decreased in acreage, but increased slightly in number (Figure 4). Drought exemptions decreased substantially in number and acreage. Emergency Notices provided for under 14 CCR § 1052.1 increased substantially in number and in acreage (Figure 5). The Board and CAL FIRE recently completed the Exemption-Emergency Notice Pilot study. The study gathered data on the utilization of exemptions and emergency notices and

a variety of environmental indicators to begin to determine how the use of exemptions impacts the land. An initial report was published in May, 2019 (Olsen et al., 2019). Monitoring will continue with additional reporting to the Legislature required beginning December 2019 and going through 2024.

Individual Timber Harvesting Plans (THPs) decreased slightly in number and acreage in Fiscal Year 2018-2019 (Figure 6). The number of Non-Industrial Timber Management Plans (NTMPs) remained the same, but acreage was almost halved (Figure 7). The first Working Forest Management Plan (WFMP) was approved in 2019 (Figure 8).

Figure 4. Exemption Statistics for Fiscal Years 14/15-18/19

Fiscal Year	Harvest Document Type	Number of Notifications	Acres	Total Acres
2014/15	1038(b) Exemptions[1]	781	2,884,982	
	All other Exemptions[2]	1,009	41,563	
	Total Exemptions	1,790		2,926,545
2015/16	1038(b) Exemptions	697	2,589,358	
	1038(k) Exemptions[3]	776	110,224	
	All other Exemptions	1,003	27,433	
	Total Exemptions	2,476		2,721,015
2016/17	1038(b) Exemptions	522	2,592,252	
	1038(k) Exemptions	956	10,358	
	All other Exemptions	1,032	208,111	
	Total Exemptions	2,510		2,910,721
2017/18	1038(b) Exemptions	554	2,933,286	

[1] 1038(b) is the 10% or less Dead and Dying Exemption. Due to the lack of the requirement for mapping specific project areas, the numbers reported are elevated beyond what specific areas are managed by the exemption.

[2] This category includes 1038(a) Christmas Trees, 1038(c) Up to 300 Foot Habitable Structure, 1038(d) Biomass, 1038(g) Slash Pile Removal, 1038(i) the original Forest Fire Prevention Exemption (FFPE), and 1038(j) Pilot Project FFPE.

[3] 1038(k) Drought Mortality Exemption, adopted by the Board in July 2015.

Fiscal Year	Harvest Document Type	Number of Notifications	Acres	Total Acres
	1038(k) Exemptions	414	44,357	
	All other Exemptions	1,042	482,206	
	Total Exemptions	2,010		3,459,849
2018/19[4]	1038(a) & 1038(b) Exemptions (prior to 3/1/19)	320	1,310,933	
	1038(b) Exemptions (after 3/1/19)	131	999,762	
	1038(f) Exemptions (after 3/1/19)[5]	3	112	
	1038(k) Exemptions	94	7,464	
2018/19 (continued)	1038.3 Exemptions (after 3/1/19)[6]	15	1,892	
	All other Exemptions	1,605	454,582	
	Total Exemptions	2,168		2,774,745

Note: FY 2017/18 calculated as Exemptions accepted by CAL FIRE July 1, 2017-June 30, 2018. 2018/19 calculated as Exemptions validated by CAL FIRE review team between July 1 and June 30.

Note: 14 CCR §§ 1038 (e), (f), and (h) are not exemptions for the commercial harvesting of trees, but rather are regulatory provisions that apply to exemptions that address special conditions, such as geographic location or the presence of large trees that may be harvested under an exemption.

[4] On February 19, 2019, categories of many exemptions and reporting structures were changed, hence a change in the categories reported on March 1, 2019. Additionally, several new categories were added under "All other Exemptions", including several post-fire recovery exemptions.

[5] 1038(f) is a new Small Timberland Owner Exemption.

[6] 1038.3 is a new Forest Fire Prevention Exemption.

Figure 5. Emergency Notice Statistics for Fiscal Years 14/15-18/19.

Fiscal Year	Harvest Document Type	Number of Notifications	Total Acres
2014/15	Emergency Notice	266	66,735
2015/16	Emergency Notice	231	28,921
2016/17	Emergency Notice	81	15,123
2017/18	Emergency Notice	189	14,133
2018/19	Emergency Notice	289	42,247

Note: Calculated as Emergency Notices validated by CAL FIRE review team between July 1 and June 30 of each FY.

Figure 6. THP Statistics for Fiscal Years 11/12-18/19.

Fiscal Year	Harvest Document Type	Number of Plans	Acres
2011-12	THP	270	139,553
2012-13	THP	243	107,051
2013-14	THP	278	146,384
2014-15	THP	260	128,644
2015-16	THP	249	99,271
2016-17	THP	219	91,067
2017-18	THP	266	105,433
2018-19	THP	244	100,888

Note: FY 2017/18 calculated as THPs approved by CAL FIRE between July 1, 2017 and June 30, 2018. FY 18/19 calculated as THPs validated by CAL FIRE review team between July 1, 2018 and June 30, 2019.

Figure 7. NTMP Statistics for Fiscal Years 11/12-18/19

Fiscal Year	Harvest Document Type	Number of Plans	Acres
2011-12	NTMP	14	10,932
2012-13	NTMP	12	7,365
2013-14	NTMP	10	4,126
2014-15	NTMP	12	3,367
2015-16	NTMP	17	8,100
2016-17	NTMP	23	5,105
2017-18	NTMP	14	4,448
2018-19	NTMP	14	2,410

Note: FY 2017/18 calculated as NTMPs approved by CAL FIRE between July 1, 2017 and June 30, 2018. FY 18/19 calculated as NTMPs validated by CAL FIRE review team between July 1, 2018 and June 30, 2019.

Figure 8. WFMP Statistics for Fiscal Year 19/20

Fiscal Year	Harvest Document Type	Number of Plans	Acres
2019-20	WFMP	1	4,470

Biomass

Biomass utilization is recognized by many stakeholders as a carbon-neutral opportunity to facilitate management of California's forested ecosystems. The expenses of forest restoration and sustainable management on both public and private lands can be supported through the sale of biomass and forest products. However, for this sale to be profitable, there is a need for increased biomass processing capacity to handle dead trees and other traditionally unmerchantable vegetative material removed for hazard control (FCAT, 2018). In addition to producing electricity, biomass can also be used to produce other innovative short- and long-lived wood products with varying carbon benefits.

The forest products biomass market remains narrow. Challenges to biomass energy expansion include short-term contracts between energy producers and purchasers, fluctuating energy values, lack of energy sector subsidies, competition with other forms of renewable energy, and the economics involved in the treatment, handling, and transportation of forest material (FCAT, 2018).

Biomass facilities across the state have been closing for many years. The retention of the remaining biomass facilities has been a priority for the Legislature, largely due to high numbers of drought-killed trees and to the amount of biomass created by fuels reduction treatments. Thus, SB 859 (2016) was passed by the Legislature and ultimately chaptered by the Brown Administration. The bill, in part, calls on electricity retailers to enter into five-year contracts for 125 megawatts of biomass power from facilities that have the ability to generate energy from wood harvested from high fire hazard zones, as identified by the Tree Mortality Task Force. SB 901 (2018) both expanded the fuels and feedstocks which are eligible to meet those wildfire risk reduction requirements and requires that any organization which currently has an active contract for electricity generated from biomass expiring on or before December 31, 2023 seek to extend that contract for 5 additional years (FCAT, 2018).

The Forest Carbon Plan recommends building out the 50MW small scale wood-fired bioenergy facilities that were mandated through SB 1122 (2012). The California Energy Commission's Electric Program Investment Charge will continue public investment in this build out. Additionally, there will be an effort to expedite the siting and establishment of facilities fueled by biomass from tree mortality High Hazard Zones (FCAT, 2018).

There are also numerous innovative products with sufficient commercial and technical readiness, and potential market size, to justify increased public and private investments in their development. Earlier this year, under the umbrella of the Board, the California Joint Institute for Wood Products Innovation (Institute) produced a review of forest product innovation literature, gaps in forest product innovation research, potential strategic partnerships, and recommendations for near-term priorities to support the expansion of the innovative wood products sector in California (Sanchez et al. 2020). The most promising classes of innovative wood products identified by the Institute include: Mass timber; liquid and gaseous transportation fuels; and chemically and thermally treated wood.

From a policy perspective, the Institute's priority recommendations include: (1) Aligning State incentives to better account for the climate benefits of forest products; (2) Promoting infrastructure development for innovative wood product processing and; (3) Funding research to further innovation in wood products, including development of product layups for mass timber panels from California feedstock, identifying scalable structural wood products from small-diameter and non-merchantable biomass and investigating subsidy design for mobilization of nonmerchantable biomass to best serve California's climate change goals. (Institute, 2020)

Rangeland and Hardwood Trends

Rangelands and Range Industry

Cattle and calf production generated $2.63 billion in revenue in 2017 (up slightly from $2.56 billion in 2016), placing it as California's 5th most valuable agricultural commodity for 2017. California is also the 7th largest producer of cattle and calves in the nation, with 5.15 million raised in 2017, according to the California Agricultural Statistics Service Report. (CDFA, 2018). Most of this production comes from grazed forages, most of which are produced on rangelands.

The value of rangelands to the State extends well beyond their value for feeding domestic livestock. These ecosystems also contribute to environmental quality and ecosystem services by improving water quantity and quality, air quality, and atmospheric carbon capture. Additionally, rangelands serve as wildlife habitat for a variety of species, including many special-status species. Rangelands also provide opportunities for public recreation and production of wind and solar power. Overall, rangelands are an important California resource because they often occur in arid and semi-arid regions; as climate change continues to worsen the number, length, and severity of droughts, these arid communities become even more important for economic production and wildlife habitat due to their existing resilience to dry conditions.

Rangelands are being impacted by a variety of anthropogenic and environmental issues. Development is one of the greatest anthropogenic impacts to rangeland; since 1984, nearly 20,000 acres of rangeland have been lost per year to intensive agriculture and urbanization. Additionally, impacts from climate change and invasive species are resulting in changes in forage production and composition. Restoration of some functions will be difficult and expensive to accomplish. Therefore, the Range Management Advisory Committee has been engaging with users and managers of the State's rangelands to improve their beneficial and sustainable uses, protect their resources and productive capacities, and ensure that sound management and monitoring continues contributing to the State's environmental and economic objectives into the future.

Hardwoods Trends

California's hardwood resource provides value to landowners through firewood, opportunities for conservation easements, and opportunities for

recreation (FRAP, 2003). Oak woodlands support some of the most diverse assemblages of wildlife in California. In fact, California's oak woodlands support over 300 terrestrial vertebrates and a wide variety of insects (UCANR, 2019b). Hardwoods are found on rangelands, in montane regions, and in riparian corridors and play important ecological roles in each of these areas. They contribute significantly to carbon sequestration and are some of the most cost-effective tree species in areas where water availability is of concern. Most of the state's oak woodlands are found on privately owned rangeland and are threatened by pests and diseases such as the goldspotted oak borer (*Agrilus auroguttatus*) and sudden oak death (*Phytophthora ramorum*).

Hardwoods can also be found in conifer-dominated forests throughout the state, and provide important habitat for wildlife, including many threatened and endangered species. Hardwoods in these forests are generally replaced by conifers in the absence of fire or other disturbances. However, in a recent examination of trends from 1991 to 2016 (Long et al., 2018), most hardwood species in conifer-dominated forests experienced stable or increased basal area during the study period. One exception was black oak, which showed slight declines in smaller trees largely due to mortality from wildfire on National Forest lands. Larger, more severe fires may pose a greater threat to these hardwoods in the coming years due to direct mortality, but fire may also provide new opportunities for hardwood growth in a post-burn environment with reduced competition. In the absence of interventions, hardwoods can temporarily replace formerly softwood stands after severe fires, although this can often be a natural response and represent return to an earlier stage of ecological succession (White and Long, 2019). Some currently accepted reference conditions may underestimate the historic extent of hardwoods, due to bias from decades of fire suppression and timber management in favor of softwoods (White and Long, 2019).

Fire Protection Trends

Weather Patterns

The entire state of California emerged from drought status for a portion of 2019. According to the U.S. Drought Monitor, in the second full week of March 2019, "California emerged from drought conditions for the first week since December 11, 2011, breaking its 376-week streak," (USDM, March 19, 2019). However, as illustrated in Figure 9, nearly all of California was ranging from near average to record driest precipitation for calendar year 2020, especially near the northern Sacramento Valley (NOAA, 2020). Precipitation was also much below average for the water year (which ran January 1,

2020 through October 31, 2020, Figure 10), possibly reflecting a slightly shorter or later than average start to winter precipitation in 2019 (NOAA, 2020). Temperatures have generally been much above average for majority of the state, with greater departures in the Bay Area, and the San Joaquin Valley; (Figure 11) (NOAA, 2020).

The California Department of Water Resources reported a smaller snowpack conditions going into 2020, with snow water equivalent on April 1 between 53 and 66 percent of average levels for that date (DWR, 2019a). A lack of snow accumulation from reporting stations in the Southern and Central Sierra regions through at least May 15 and remained in the Northern Sierra/Trinity region through May 31. Snowpack water content was average for the 2019-20 winter, but falling significantly short of 2018-19 (Figure 12) (DWR, 2020b). Snowpack is incredibly important in California's Mediterranean climate as it typically predicts how much water will reach streams and reservoirs in summer months. Snowpack provides about one-third of the water used by State cities and farms as it melts during the summer months. Thanks largely to the average snowpack, the state began the new water year on October 1 with reservoir storage at 95 percent of average for that date (DWR, 2019c).

Figure 9. Precipitation Rankings for January-October 2020 When Compared with Local Averages from 1895-2019. NOAA National Centers for Environmental Information.

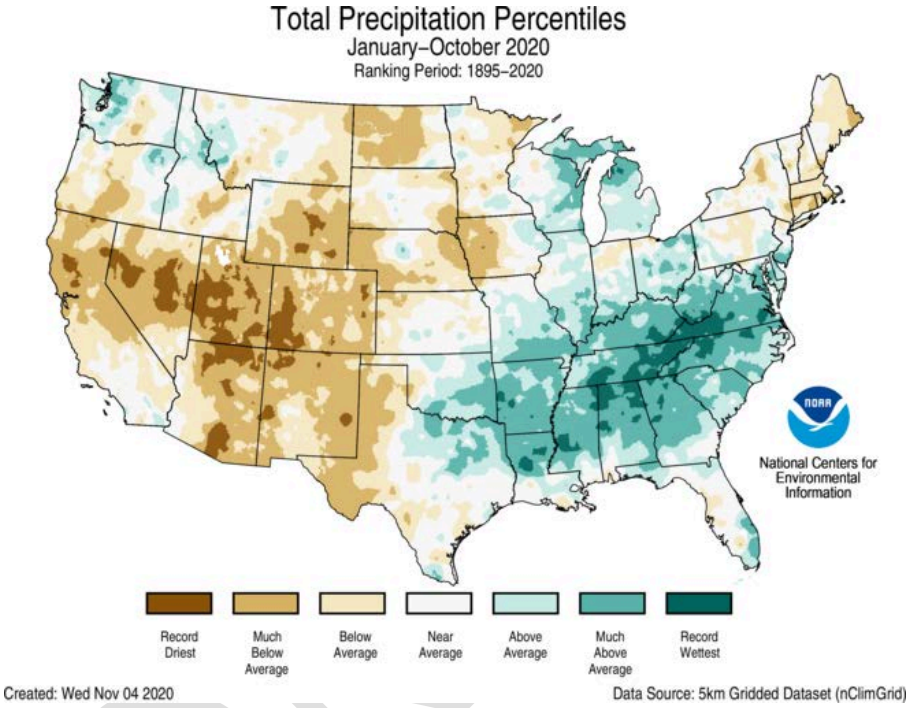
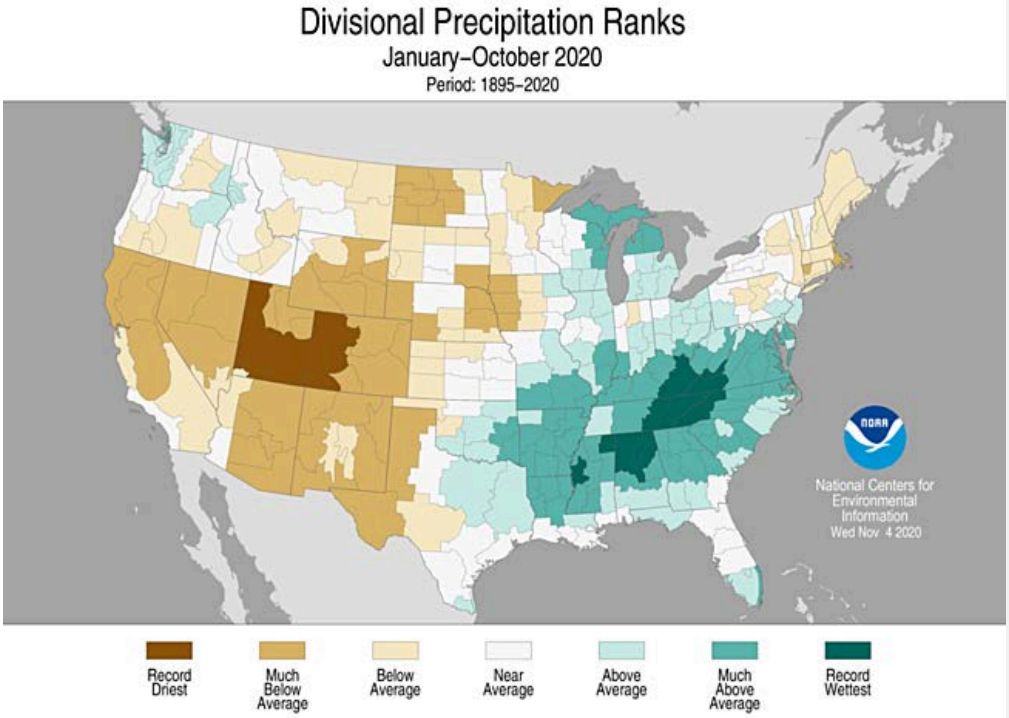


Figure 10. Precipitation Rankings for January - October 2020 When Compared with Local Averages from 1895-2019. NOAA National Centers for Environmental Information.[7]



[7] Note: Data for this period were not found presented at the same fine scale used for the annual data, Figures 9 and 11.

Figure 11. Temperature Rankings for January-October 2020 When Compared with Local Averages from 1895-2019. NOAA National Centers for Environmental Information.

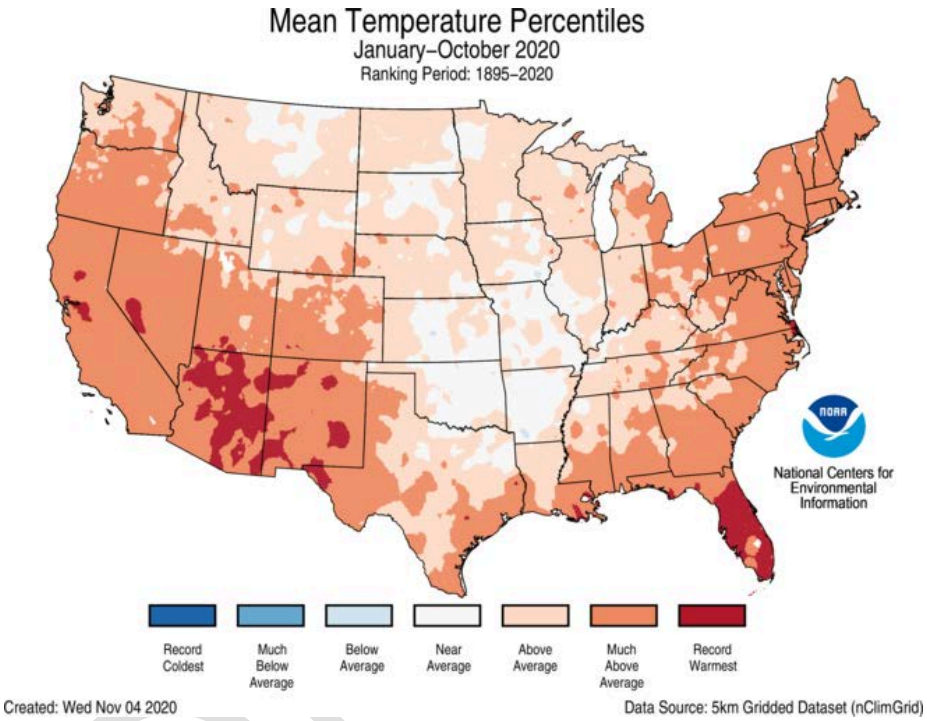
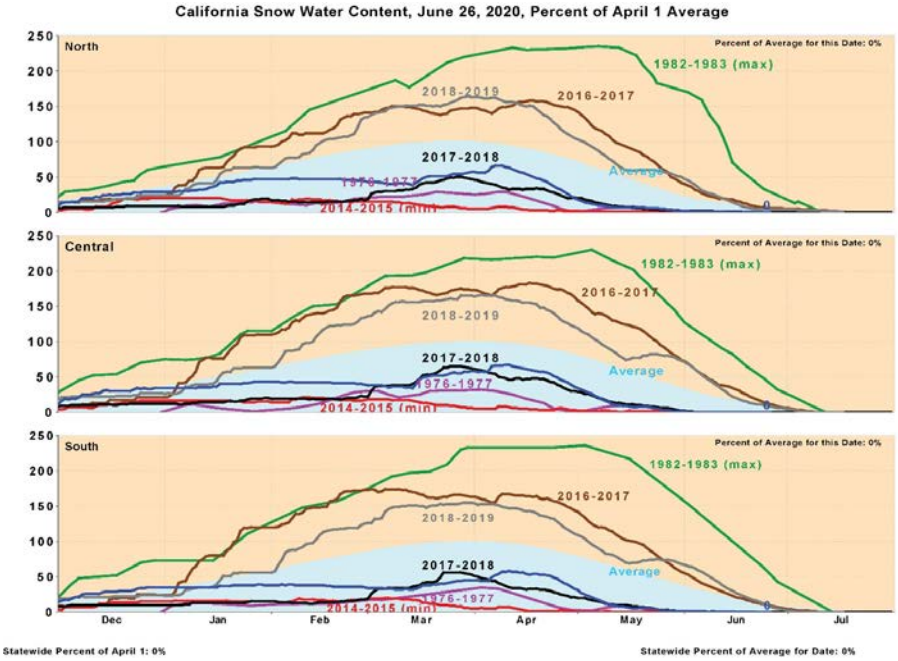


Figure 12. California Snow Water Content,[8] Jun 26, 2020, Percent of April 1 Average. California Department of Water Resources.[9]



Prescribed Fire and Fuel Reduction Efforts

Commented [HE2]: Awaiting Update from Program Staff

As fire size and severity have worsened over the past decade, mandates to focus on fuels reduction treatments have arisen. In 2018, Executive Order B-52-18 from then-governor Brown ordered the doubling of forest acres treated per year from 250,000 to 500,000 statewide within five years. The expanded use of fuels treatments to prevent catastrophic wildfire continues to be a high priority for the Board and CAL FIRE. Fuel treatments are intended to reduce the amount of surface and ladder fuels and thereby reduce the risk of catastrophic fires that burn longer, further, and hotter. The modification of fire behavior because of fuel reduction efforts may prevent loss of life, reduce fire

[8] The Y-axis of the figure is percent of April 1st average Snow Water Content, which refers to the depth of liquid that would result over the same land area if the entire snowpack were to be melted instantaneously.

[9] Image retrieved on 11/30/20 from http://cdec.water.ca.gov/reportapp/javareports?name=PLOT_SWC.pdf

suppression costs, reduce property losses, and protect natural resources. Fuel treatments utilized by CAL FIRE include, but are not limited to, prescribed fire, mechanical clearing, cooperative fuel reduction grants, and encouraging stand management by timber owners through application of the FPRs. EO B-52-18 also encouraged the use of prescribed fire as a management tool.

CAL FIRE's Vegetation Management Program (VMP) is a cost-sharing program that encourages fuel reduction in SRA and focuses on prescribed fire. The use of fire mimics natural processes, enables fuel reduction, and restores fire to its historic role in wildland ecosystems, which may improve native communities. The VMP can be utilized by private landowners to accomplish fuel reduction goals on their property using prescribed fire and other fuel management techniques. Figures 13 and 14 below illustrate the acreage goals and number of acres treated by the VMP in the three most recent fiscal years.

Figure 13. Broadcast/Prescribed Burn Targets and Acres Completed.
***FY 19/20 is through December 31, 2019**

Fiscal Year	Target	Completed	% Completed
2017/2018	20,000	19,413	97.07%
2018/2019	25,000	31,305	125.22%
2019/2020*	25,000	13,450	53.80%

Figure 14. All Other Fuel Reduction Method Targets and Acres Completed.
***FY 19/20 is through December 31, 2019**

Fiscal Year	Target	Completed	% Completed
2017/2018	20,000	13,344	66.70%
2018/2019	20,000	15,331	76.66%
2019/2020*	20,000	13,730	68.65%

Defensible space is managed space around a structure or other site of importance designed to reduce the risk of a fire spreading into adjoining wildland, and vice versa. Reduced natural fuel loads, decreased continuity of fuels, the removal of flammable materials from near structures, and the use of fire-resistant materials in landscaping and home construction are just some of the techniques that contribute to defensible space. These techniques reduce the chances of a structure igniting during a wildfire and increase

firefighter safety during structure defense operations. Defensible space and the management of fuels, particularly around homes and public buildings, have become increasingly important as the Wildland-Urban Interface (WUI) continues to expand and more severe fires threaten WUI areas. CAL FIRE recently updated the Defensible Space Collector App to make inspections more efficient and accurate. Figure 15 illustrates the goals for defensible space inspections and how many were accomplished within the three most recent fiscal years.

Figure 15. Defensible Space Inspections Completed.
***FY 19/20 is through December 31, 2019**

Fiscal Year	Target	Completed	% Completed
2017/2018	250,000	217,666	87.07%
2018/2019	250,000	204,341	81.74%
2019/2020*	250,000	115,117	46.05%

CAL FIRE also sponsors several grant opportunities which focus on fuels reduction and forest health. The California Forest Improvement Program (CFIP) can be used by small landowners for reimbursement of forestry practices that improve the health and resilience of their lands. These activities may include fuels reduction practices. Additionally, CAL FIRE sponsors the Forest Health, Urban and Community Forestry, and Fire Prevention grants, which are funded through the Greenhouse Gas Reduction Fund. Part of their overarching goal is improving carbon sequestration by reducing the risk of intense wildfires and improving general forest health.

Finally, CAL FIRE has developed designated fuels reduction crews. Previously, fuels reduction was often completed by local CAL FIRE teams when they were not fighting fire. The development of designated crews for fuels reduction is anticipated to increase prescribed fire and manual fuels treatment numbers in the coming years. Five crews are headquartered in the Northern Region and five in the Southern Region. CAL FIRE approved 318 applications to take the most recent Forestry Technician exam. The new members of these crews are currently rotating between their required trainings and working in the field.

California Statewide Vegetation Treatment Program

Commented [HE3]: Awaiting Update from Program Staff

On December 30, 2019, the Board certified a Program Environmental Impact Report (PEIR) and approved the California Statewide Vegetation Treatment Program (CalVTP), a Statement of Overriding Considerations, and a Mitigation Monitoring and Reporting program. This CalVTP and PEIR will

streamline California Environmental Quality Act (CEQA) compliance for CAL FIRE and other state and local public agencies' vegetation management projects. The CalVTP PEIR is intended for vegetation management activities that lower the risk of catastrophic wildfires on nonfederal lands by managing vegetation to modify or reduce hazardous fuels.

Wildfire Activity

The 2020 fire season, like much of the year, ravaged the state. A significant dry lightning storm that began on August 15th produced over 14,000 strikes that sparked more than 900 fires. With minimal precipitation and extreme weather experienced throughout the state over the course of the year, the conditions made the potential for significant fire behavior a reality.

In mid-August, 96% of CAL FIRE's engines were committed to wildfires. At peak, all 6 CAL FIRE Incident Management Teams (IMT) were activated, and more than 19,000 firefighters from nearly a dozen states across the nation were assigned to emergency incidents.

The magnitude and severity of wildfires CAL FIRE responded to was historic, surpassing previous years. This year, CAL FIRE experienced more than 7,600 fires that burned over 2,100,000 acres in CAL FIRE jurisdiction, compared to the 1,063,414 acres burned in 2018. Nearly 4.8 million acres have been scorched across State and Federal jurisdictional lands in California, destroying over 9,400 structures and killing 35 individuals.

Most Destructive Incidents, 2020

Name (Unit or Contract County Abbreviation)	Acreage	Structures Destroyed	Fatalities
August Complex	1,032,648	935	0
SCU Lightning Complex	396,624	222	0
Creek Fire	379,895	853	0
LNU Lightning Complex	363,220	1,491	5
North Complex	318,935	2,352	15
SQF Complex	174,178	228	0

*These are the Top 20 regardless of whether they were state, federal, or local responsibility.

Lightning Siege Comparison

	2020*	2008	1987
Lightning Strikes	nearly 14,000	5,000	11,000
Number of Wildfires	900+	1,459	1,100
Acres Burned	nearly 2.8 million	245,000	640,000
Personnel Committed	over 14,000	18,457	14,000
Engines Assigned	over 1,250	1,399	NA
Structures Destroyed	Over 6,900	8,400	40
Fatalities	26	42	11

* The 2020 Lightning Siege spanned from August 15 through August 30.

Note: Unless noted otherwise, these values tabulate wildfires responded to by CAL FIRE in SRA and LRA regions under contract with CAL FIRE.

Accomplishments 2020 – Regulatory

Appeal Amendments, 2019

Within the Professional Foresters Law, PRC § 765 provides that an applicant for registration as a professional forester or certified specialist who believes that they have been aggrieved by the PFEC with respect to their qualifications may appeal to the Board in accordance with regulations. These amendments provided additional clarity to both the applicant and those administering the appeals procedure and eliminated unnecessary and potentially burdensome aspects of the appeal procedures. Additionally, the amendments created a $100 fee for appellants to cover administrative costs of appeals. The amendments became effective November 1, 2020.

Southern Subdistrict and Marin County Stocking Amendments, 2020

These amendments addressed certain forest health and ecological goals to provide for increased forest resilience and suitable resource conservation within the Southern Subdistrict of the Coast Forest District by adjusting point count standards within the Subdistrict to a level that reduces competition between trees for the essential resources of sunlight, water and nutrients needed for photosynthesis and requisite for forest resilience to natural stressors. The amendments additional made point-count stocking standard requirements consistent throughout the coast forest district, eliminated provisions related to the even-aged management of eucalyptus, and generally improved the clarity of the regulations. These amendments will become effective January 1, 2021.

Fuel Hazard Reduction Amendments, 2020

These amendments made permanent those emergency regulations which were adopted in 2019 which were intended to increase the utilization of the regulatory permitting process of the Emergency Notice for Fuel Hazard Reduction of 14 CCR § 1052.4 in order to address the hazardous conditions across forested lands throughout the state, as well as to improve the efficacy of vegetative treatments in addressing the existing problem of hazardous fuel conditions within this process. The permanent regulations will become effective January 1, 2021.

Camping Fee Amendments, 2020

These amendments resulted in modest increases of overnight camping fees within Demonstration State Forests, as well as a simplification of those fee structures. It is anticipated that the regulations will become effective January 1, 2021.

Licensed Timber Operator Education and Limited License Timber Operator

These amendments were intended to improve the clarity and consistency of the existing regulations surrounding timber operator licenses, including making educational requirements of applicants consistent across all types of timber operator licenses. The amendments also limited the activities permitted under a limited timber operator license to avoid excessive risk, given the lack of insurance obligations. Finally, the amendments clearly implement existing conditional requirements within PRC § 4572. These regulations will become effective January 1, 2021.

Tethered Operation Amendments, 2020

These regulations were intended to provide for the implementation of

specific tethered logging systems for in use timber operations and to clarify what manner of system is intended for such use in those operations. The rule package additionally improved the clarity and consistency of certain existing regulations related to harvesting practices and erosion control by using modern and defined terminology and regulations, eliminated redundancy within existing regulations, and provided for appropriate disclosure in order to support the enforcement of those purposes described above. These regulations will become effective January 1, 2021.

Emergency Fire Safe Regulations Applicability

These emergency regulations provided clarity regarding the scope and application of the SRA Fire Safe Regulations and reduced overly burdensome requirements inhibiting increases in affordable housing and increasing housing supply generally in the state. These emergency regulations became effective July 27, 2020, and, unless further action is taken by the Board to adopt permanent regulations, will expire March 26, 2021.

Accomplishments 2020 - Policy

Local Government

General Plan Safety Elements

Under Government Code § 65302.5, the Board is required to review the General Plan Safety Elements for jurisdictions with SRA or VHFHSZ. Utilizing staff from CAL FIRE's Land Use Planning team, the Board has established a standardized method to review the safety element of general plans. The methodology includes:

1) Reviewing the safety element for the requirements in Government Code §65302, subdivision (g)(3)(A),
2) Examining the safety element for goals, policies, objectives, and implementation measures that mitigate the wildfire risk in the planning area (Gov. Code, § 65302, subd. (g)(3)(B) & (C)), and
3) Making recommendations for methods and strategies that would reduce the risk of wildfires (Gov. Code, § 65302.5, subd. (b)(3)(B)).

Once completed, the Safety Element Assessment should provide clear guidance to a city or county regarding any areas of deficiency in the safety element as well as specific goals, policies, objectives, and implementation measures the Board recommends adopting in order to mitigate or reduce the wildfire threat in the planning area. The Board does not have the authority to approve safety elements, but rather offers recommendations to improve fire hazard planning in the planning area. If jurisdictions choose not to implement the Board's recommendations, they must respond in writing to the Board discussing the reasons why not. SB 1260 (Jackson, 2018) now allows the Board to request a consultation with local jurisdictions who choose not to adopt the Board's recommendations and prevents the jurisdiction from approving the draft element or amendment if a consultation is requested. These changes will improve communication between the Board and local jurisdictions and enable further dialogue to better protect citizens. Regulations to implement this consultation process became effective January 1, 2020.

Figure 18. General Plan Safety Elements Reviewed by the Board

November 2019-December 2020

Region	Type	Jurisdiction	Received	Reviewer	Board Review
CSR	City	Cathedral City	11/22/19	Marcus Hernandez	12/11/2019
CSR	City	Sonora	10/15/19	Kevin Lindo	12/11/2019
CNR	City	Willits	10/28/19	Rudy Baltazar	12/11/2019
CSR	City	Corona	1/2/20	Melissa Curtis	1/22/2020
CNR	County	Lassen	3/18/20	Shane Vargas	4/8/2020
CNR	City	Novato	3/2/20	Jeff Hakala	4/8/2020
CNR	City	Dunsmuir	4/16/20	Shane Vargas	6/10/2020
CSR	City	Murrieta	5/18/20	Marcus Hernandez	6/10/2020
CNR	City	Hercules	6/23/20	No VHFHSZ	
CSR	County	Ventura		Gene Potkey	7/14/2020
CSR	County	Orange	6/82020	Marcus Hernandez	
CNR	City	Etna	4/16/20	Shane Vargas	7/14/2020
CNR	City	Dorris	4/16/20	No VHFHSZ	
CSR	County	San Bernardino	7/14/20	Melissa Curtis	8/18/2020
CNR	City	Auburn	10/26/20	Carmel Barnhart	12/8/2020

Fire Safe Regulations – Local Ordinance Certification

In early 2020, the Board began the process of updating the Fire Safe Regulations and in November 2020, the Board adopted a resolution to not consider any local ordinance for certification as equaling or exceeding the minimum standards as providing the same practical effect of the Fire Safe Regulations until the amendments to the Fire Safe Regulations are adopted and take effect.

Appointment of Authorized Designees for Less Than Three Acre Conversions

The Board has been working on issues of conversion of timberland to cannabis cultivation for the past several years. The conversion of timberland to a use other than growing timber requires, prior to conversion, a Timberland Conversion Permit (or its equivalent) to be approved by CAL FIRE or, if eligible, a Less Than 3 Acre Conversion Exemption to be accepted by CAL FIRE. In the context of cooperation with local entities, the Board, pursuant to §1104.1(a)(1)(D) of Title 14 of the California Code of Regulations

(14 CCR), gives the county the opportunity to determine if proposed timberland conversions are in conformance with all county regulatory requirements through the incorporation of a signed and dated statement from an authorized designee of the County Board of Supervisors.

When a county does not have an authorized designee, the authority falls to the RPF preparing the Exemption to certify that the county has been contacted and the conversion is in conformance with county regulatory requirements. RPFs have communicated that this determination can be challenging if they work in multiple counties, each of which may have different regulatory requirements. Consequently, the Board communicated with County Boards of Supervisors to encourage them, if they have not already done so, to appoint an authorized designee to ensure land uses conform to county regulatory requirements. Figure 20 below indicates the response to the Board's request for counties to appoint an Authorized Designee to determine if conversions are following county regulatory requirements. These efforts have been successful since their inception, with many counties appointing Authorized Designees. In 2020, the Board continued outreach and policy related to Less Than 3 Acre Conversions.

Figure 19. Response to Board's Request to Appoint an Authorized Designee

County	Appointed Prior to Request	Appointed After Request
Alameda	No	No
Alpine	No	Yes
Amador	Yes	N/A
Butte	No	Yes
Calaveras	No AD, does not sign exemption form	N/A
Colusa	No	Yes
Contra Costa	No	No
Del Norte	No	Yes
El Dorado	No	Yes
Fresno	No	Yes
Glenn	No	Yes
Humboldt	Yes	N/A
Imperial	No	No
Inyo	No	No
Kern	No	Yes
Kings	No	No
Lake	No	Yes
Lassen	Yes	N/A
Los Angeles	No	Yes
Madera	No	No
Marin	No	No
Mariposa	No	Yes
Mendocino	No	Yes
Merced	No	Yes
Modoc	Yes	N/A
Mono	No	Yes
Monterey	No	Yes
Napa	Yes	N/A
Nevada	No	Yes
Orange	No	No
Placer	Will no longer review	N/A
Plumas	Yes	N/A
Riverside	No	Yes
Sacramento	No	Yes
San Benito	No	No
San Bernardino	No	Yes

County	Appointed Prior to Request	Appointed After Request
San Diego	No	No
San Joaquin	No	No
San Luis Obispo	No	No
San Mateo	No	Yes
Santa Barbara	No	Yes
Santa Clara	No	No
Santa Cruz	Yes	N/A
Shasta	No	Yes
Sierra	Yes	N/A
Siskiyou	No	No
Solano	No	No
Sonoma	No	Yes
Stanislaus	No	Yes
Sutter	No	No
Tehama	Yes	N/A
Trinity	Yes	N/A
Tulare	No	Yes
Tuolumne	No	Yes
Ventura	No	Yes
Yolo	No	Yes
Yuba	No	No

AB 1504 California Forest Ecosystem and Harvested Wood Product Carbon Inventory

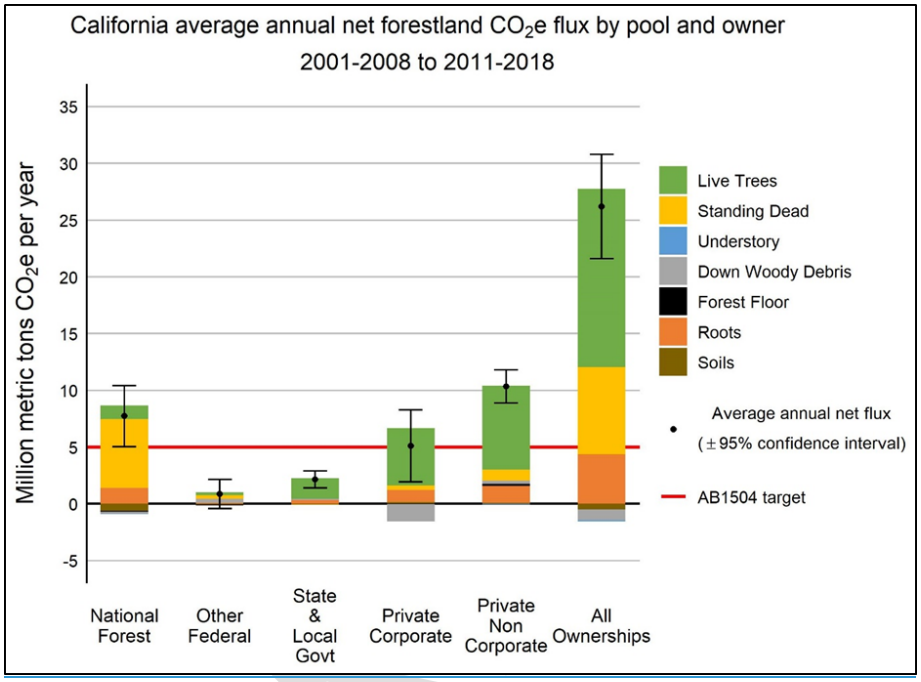
California has set a net carbon sequestration target for the forest sector of five million metric tons (MMT) of carbon dioxide equivalent (CO_2e) annually until 2020. The Board is required to analyze above ground and below ground carbon stocks within all forested landscapes in California (AB 1504, 2010). In response, the Board publishes annual reports which discuss several elements of the State's effort to meet these greenhouse gas (GHG) emissions reduction targets.

In September of 2020, the Board released an AB 1504 California Forest Ecosystem and Harvested Wood Product Carbon Inventory data update for the 2018 reporting period. The report indicates that California's forests are sequestering carbon at a rate of 24.9 MMT CO_2e per year, down slightly from the 2017 reporting period which estimated 27.9 MMT CO_2e per year. This value includes changes in forest ecosystem pools (26.2 MMT CO_2e per year), harvested wood product pools (0.7 MMT CO_2e per year), non-CO_2 emissions from wildfires (-0.6 MMT CO_2e per year), and forest land conversions (-1.5 MMT CO_2e per year).

In this report there was a revision of soil organic carbon stock and flux estimates based on refinements in the Digital General Soil Map of the United States (STATSGO2) dataset. Minor revisions of harvested wood product carbon stock and flux estimates also occurred following the discovery of errors in a couple input parameters and errors in the model code that resulted in an average of approximately 1% of the initial harvested carbon to disappear from storage pools and remain unaccounted for in emission categories. Model code was corrected through re-coding the model using R-script through an agreement between Oregon Department of Forestry, Oregon State University, and Groom Analytics, LLC. A remaining error that resulted in narrower confidences intervals than expected based on the parameters set for Monte Carlo Uncertainty Analysis will be corrected in the 2019 data update expected by the end of the calendar year.

A new agreement with the Forest Service Pacific Northwest Research Station (PNW) to complete the full 10-year measurement cycle carbon report following completion of data collection in 2020 was executed this year. Collaboration with the states of Oregon and Washington, British Columbia, PNW, and academia have been ongoing through the Pacific Coast Carbon Initiative led by PNW. The Oregon Board of Forestry has released a forest ecosystem and harvested wood product carbon inventory that mirrors California's AB 1504 inventory and the Washington inventory is in final stages of review. A new agreement was also established with PNW to complete a Pacific Coast Temperate Forest and Harvested Wood Product regional report that will incorporate results from the California, Oregon, and Washington forest carbon inventories as well as relevant data from BC. This report will also include a timber (i.e., log and chip) and finished wood product flow analysis of material within and beyond this region, funded by PNW.

Figure 20. California forest land statewide estimate of average annual carbon flux (MMT CO_2/year) by pool and ownership, 2001-2008 to 2011-2018.*



*Excludes contributions from forest land-use changes, non-CO_2 GHG from fire, and HWP C.

State Forests

The Board has changed the review periods for Initial State Forest Management Plans from five to ten years. This change was made following concerns expressed by forest managers, citing limited staffing, and increasing workload. The longer period will allow the plans to be broader, encompass longer-term changes and trends, and reduce pressures on staff. Figure 23 (below) outlines the proposed schedule for management plan updates.

Figure 21. Proposed Management Plan Update Schedule

Demonstration State Forest	Management Plan Update (Year)	Management Plan Status
LaTour	2022	Approved 2013
Soquel	2024	Approved 2014
Jackson	2026	Approved 2016
Boggs Mountain	2028	Approved 2018
Mountain Home	2020	Approved 2020

Stewardship Lands

The Stewardship Council Board has recommended fee title transfer of lands within the North Fork Mokelumne River, Pit River, Tunnel Reservoir, Battle Creek, Cow Creek, Lake Spaulding, and Bear River planning units to CAL FIRE. With the Stewardship Council Board recommendation for transfer of lands to CAL FIRE at Bear River in November 2018, fee title recommendations have been completed. In 2018, the Stewardship Council Board approved final Land Conservation and Conveyance Plans (conservation easements and agreements known also as LCCPs) for North Fork Mokelumne River, Pit River, and Tunnel Reservoir. The Stewardship Council continued to develop the final LCCPs for the remaining projects during 2020.

The Department of General Services and Pacific Gas & Electric (PG&E) have developed the final form and content for each of the transaction documents, which will be utilized to construct documents for each of the transactions going forward. The California Natural Resources Agency has also participated in these discussions and is working to bring along associated transactions with State Parks. CAL FIRE and PG&E signed the Property Acquisition Agreement for the North Fork Mokelumne property in 2019 and received subsequent approval from the California Public Utilities Commission on October 7, 2019 to proceed with closing the transaction. The acquisition was approved by the Public Works Board in December 2019 and CAL FIRE took fee title to 1,052 acres prior to the end of the year.

Conservation easement holders for each of the properties have been recommended by the Stewardship Council Board and include: Shasta Land Trust (Pit River, Tunnel Reservoir, Cow Creek), Western Shasta Resource Conservation District (Battle Creek), Mother Lode Land Trust (North Fork Mokelumne River), Placer Land Trust (Lake Spaulding), and Bear, Yuba, and Placer Land Trusts (Bear River). As currently written, CAL FIRE has successfully negotiated identical or very similar terms with each of the conservation

easement holders to reduce the number of unique restrictions on any property. CAL FIRE has been on site to document baseline conditions and discuss the intended management with each of the conservation easement holders.

It is expected that the Pitt River, Tunnel Reservoir, Lake Spaulding, and Bear River planning units will close in late 2021.

Professional Licensing and Forest Practice Enforcement

Pursuant to California Public Resources Code (PRC) § 750 *et seq.,* the Board is authorized to grant licenses to Registered Professional Foresters (RPFs) and specialty certificates (Certified Rangeland Managers (CRMs)). Earning either license is contingent upon meeting certain ethical standards, educational and work experience, and ultimately passing an examination specific to the license or specialty.

The term "Professional Forester" is defined in PRC § 752 and refers to a person who, by reason of his or her knowledge of the natural sciences, mathematics, and the principles of forestry, acquired by forestry education and experience, performs services, including, but not limited to, consultation, investigation, evaluation, planning, or responsible supervision of forestry activities when those professional services require the application of forestry principles and techniques. The CRM certification is the only "Certified Specialist" (pursuant to 14 CCR § 1600) credential bestowed and recognized by the Board. A CRM is defined in 14 CCR § 1651 as "… a person who provides services pursuant to 14 California Code of Regulations (CCR) 1602, at the request of the landowner or hiring agent, relating to the application of scientific principles to the art and science of managing rangelands and range."

Figure 22. Board Licensed Professionals

Year	RPFs	CRMs
2007	1341	80
2009	1285	81
2011	1251	78
2013	1254	79
2015	1205	86
2016	1194	85
2017	1161	84
2018	1132	88
2019	1126	89

Year	RPFs	CRMs
2020	1105	86

Professional Discipline

Most professional disciplinary matters are confidential in nature. They are handled administratively and do not culminate in a hearing before an Administrative Law Judge and/or the Board. In 2020, the Professional Foresters Examining Committee (PFEC) received no complaints.

Enforcement

PRC § 4601 *et seq.* authorizes the Board to investigate and discipline, "Any person who willfully violates any provision of this chapter or rule or regulation of the Board…." These civil penalties are identified, investigated, and pursued by CAL FIRE, with final adjudicative authority on these matters residing with the Board. During the 2019 calendar year, the Board deliberated and acted on nine civil penalties for non-compliance with the Forest Practice Act and/or the Forest Practice Rules.

Acronyms:

The following acronyms and abbreviations are used in this document:

APA: Administrative Procedure Act

Board: California State Board of Forestry and Fire Protection

CalEPA: California Environmental Protection Agency

CAL FIRE: California Department of Forestry and Fire Protection

CalVTP: California Vegetation Treatment Program

CDTFA: California Department of Tax and Fee Administration

CEQA: California Environmental Quality Act

CFIP: California Forest Improvement Program

CLFA: California Licensed Foresters Association

CRM: Certified Rangeland Manager

DWR: California Department of Water Resources

EMC: Effectiveness Monitoring Committee

FCAT: Forest Climate Action Team

FPA: Z'berg-Nejedly Forest Practice Act of 1973

FPRs: Forest Practice Rules

FRAP: Fire and Resource Assessment Program

FRID: Fire Return Interval Departure

LRA: Local Responsibility Area

NTMP: Nonindustrial Timber Management Plan

OAL: Office of Administrative Law

PG&E: Pacific Gas & Electric

PEIR: Program Environmental Impact Report

PFEC: Professional Foresters Examining Committee

RMAC: Range Management Advisory Committee

RPF: Registered Professional Forester

SRA: State Responsibility Area

SYP: Sustained Yield Plan

UCANR: University of California Agriculture and Natural Resources

USDM: United States Drought Monitor

USFS: United States Forest Service

VHFHSZ: Very High Fire Hazard Severity Zone

WFMP: Working Forest Management Plan

WUI: Wildland-Urban Interface

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APPENDIX A: 2020 Standing Committee Accomplishments & 2021 Committee Priorities