Report to the Joint Legislative Budget Committee on the Timber Regulation and Forest Restoration Program Assembly Bill 1492

Fiscal Year 2019-20

In Fulfillment of the Annual Reporting Requirement of Public Resources Code Section 4629.9

CALIFORNIA natural resources AGENCY

CalEPA California Environmental Protection Agency

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CONTENTS

1. EXECUTIVE SUMMARY

The Timber Fund, established in 2012 under Assembly Bill 1492, places a one percent tax on lumber to pay for the staffing, permits, oversight and environmental protection of California's timberlands. The fund currently supports 247 core oversight staff, improves efficiencies in permitting, drives ecological oversight, and provides ecological restoration grants to ensure California's forests are resilient to wildfire.

During this reporting period (July 2019 to July 2020) and the months immediately following, California faced some of the most significant and consequential disasters in State history. The emergence of a global pandemic followed by unprecedented megafires significantly impacted every aspect of the Timber Fund, including State operations shifting to remote working, staff furloughs, a drop in the expected revenue that supports the fund, and the prospect of needing to pivot staff oversight expertise to questions of post-fire recovery and expediting pre-fire mitigation activities.

Despite this, the Timber Fund continues its work to support sustainable timber harvest, enact fuel reduction projects, protect vital ecosystem services and public safety, and ensure regulatory and policy support towards more resilient and productive California forests. Staff delivered key accomplishments in this period:

- Reduced the timeline for the Timber Harvest Permits down from a median of six months to three months per permit;
- Expansion of on-line timber harvest permits, one of the first CEQA equivalent documents with on-line submission;
- Reduced the timeline for CEQA approval for wildfire fuel reduction projects from years to several months through a 20-million-acre environmental impact review;
- Provided grants for research, ecological restoration, and supporting forest economies;

- Planted the first round of seedlings at the new state nursery and expanded seed bank to support reforestation efforts;

1.1 Fund Status

In fiscal year 2019-2020, The Timber Fund had $69.6 million in available resources, of which $46 million came from annual forest product sales tax revenues. Of the $69.6 million, $54 million was expended to all Timber Fund operations statewide, about a 1 percent decrease from FY 2018-19. By the end of Fiscal Year 2019-2020, The Timber Fund had a balance of $15.6 million.

Expenditures included supporting nearly 247 staff largely in technical and administrative capacities responsible for:

1) Timber harvest review;
2) Policy and oversight functions including regulation development, and enforcement;
3) Transparency and efficiencies through monitoring and online permit innovations; and
4) Forest and watercourse restoration.

During the global shutdown in the spring of 2020 the lumbers markets experienced a 25% drop in lumber sales. Given that the sales tax revenue can take up to two years to be reported and realized in the Timber Fund, at the end of FY 2020, the Timber Fund leadership decided to scale back activities the following year, pausing new grant or research programs to ensure fiscal balance for the Timber Fund, given the uncertainty and volatility in the lumber markets.

1.2 FY 2019-2020 Accomplishments of the Timber Fund

There are roughly 8 million acres of private timberlands in California. California approves roughly 100,000 acres/year of Timber Harvest Plans. These plans are valid for 5-7 years, meaning that between 600,000 and 700,000 acres of timberlands have an active permit where a harvest could take place. Most California timber harvest comes from industrial timber operators who own their own land and run tree plantations, which are considered agriculture land.

Natural Resources Agency (CNRA)

- Developed and Signed Shared Stewardship Agreement with USDA, Forest Service, Pacific Southwest Region, establishing a joint, science-based approach to protecting California's forests in the age of climate change.

- Interagency launch of statewide forest ecosystem monitoring and prioritization planning initiative to assess management impacts on wildfire resilience and broader ecosystem condition and determine priority locations for multi-benefit forest restoration.

Board of Forestry and CAL FIRE

- Promulgation of additional "exemption" and "emergency" measures to allow for more commercial harvesting for primarily fuels reduction purposes without requiring the costs and time required for preparation of a full Timber Harvesting Plan (THP).
- Completed important Forest Practice Rule revisions and amendments, including to:
  a) increase usability of and access to Fuel Hazard Reduction Emergency Notices;
  b) create new Forest Fire Prevention and Small Landowner Exemptions;
  c) establish a permanent post-fire recovery/salvage exemption; reducing minimum stocking standards to allow dedensification of forest stands for wildfire resilience.
- Certified California Vegetation Treatment Program (CalVTP) environmental impact report in December 2019, which expedited the CEQA process from several years to two months, to expedite environmental review for non-commercial forest health and fuels reduction projects allowing CAL FIRE and partners to expand fuel reduction and forest health efforts across California.
- Completed priority forest management projects which would have taken several years in time for fires season 2020. These protect more than 200 of California's highest-risk communities in time for the 2020 wildfire season and redirected National Guard members from the border to undertake fire prevention activities throughout the state.
- Monitoring of Forest Practice Act emergencies and exemptions to ensure environmental compliance and effectiveness.
- Utility Wildfire Mitigation plan review and right-of-way exemption coordination.
- Reestablishment of active reforestation seedling production program at CAL FIRE's L.A. Moran Reforestation Center, using monies from The Timber Fund.

- Legislative authorization and funding for a program to increase the training and certification of "burn bosses" to lead application of prescribed fire.
- Establishment of CAL FIRE dedicated fuels treatment teams.
- Establishment of MOU between CAL FIRE, industrial timber, nongovernmental organizations, and US Forest Service to spatially track management treatments to improve coordination and assess progress towards wildfire mitigation and forest health goals.

Department of Fish and Wildlife (CDFW)

- Established a forest health and fire resiliency point of contact in each CDFW region to increase coordination with CAL FIRE and other State, federal and local partners in the planning and implementation of fuel reduction and CalVTP projects.
- Working with the U.S. Fish and Wildlife Service and CAL FIRE in the development of a northern spotted owl federal Safe Harbor Agreement (SHA)[1] to facilitate land management and fuel reduction activities for nonindustrial landowners.

Department of Conservation's California Geological Survey (DOC/CGS)

- Directed existing staff in each CAL FIRE region to increase coordination with, and support to, CAL FIRE and other State, federal and local partners in the planning and implementation of fuel reduction and CalVTP projects.

State Water Resources Control Board (Water Boards)

- Developed a streamlined permit for discharges of waste to waters of the state from activities that conform with the CalVTP EIR.
- Worked with the utility industry to develop a streamlined permit that utility companies can use to implement wildfire mitigation plans, including vegetation management plans along utility corridors.

[1] Catastrophic wildfires are one of the primary threats to the northern spotted owl. A federal SHA is a voluntary agreement involving private or other non-federal property owners whose actions contribute to the recovery of species listed as endangered or threatened under the Endangered Species Act. California Safe Harbor Agreements are analogous to the federal SHA program, and CDFW has the authority to issue a consistency determination based on a federal SHA.

2. TIMBER FUND OVERVIEW

Implementation of the Timber Regulation and Forest Restoration Program, a component of Assembly Bill 1492 (AB 1492)(Committee on Budget, Chapter 289, Statutes of 2012), began in January 2013, bringing various State natural resource management agency staff together under the Timber Fund to regulate and permit timber harvest, and protect and manage forest resources (departments under California Natural Resources Agency [CNRA] and the California Environmental Protection Agency [CalEPA]). A map of productive timberland and other forest lands covered by the Timber Fund is presented in Figure 1.

With a **one percent assessment on lumber and engineered wood products sold at the retail level**, AB 1492 established the Timber Fund to protect forest resources and enable sustainable timber harvest; restore the state's forested lands, including fisheries, wildlife habitat, and water quality; and support core staff work on subjects such as permitting efficiencies, ecological oversight and monitoring, and forest ecosystem restoration.

Core Program Agencies

CA Environmental Protection Agency

- State Water Resources Control Board ("Water Boards")
  - North Coast Regional Water Quality Control Board (R1)
  - San Francisco Regional Water Quality Control Board (R2)
  - Central Coast Regional Water Quality Control Board (R3)
  - Central Valley Regional Water Quality Control Board (R5)
  - Lahontan Regional Water Quality Control Board (R6)

CA Natural Resources Agency

- CAL FIRE (lead review team agency)
- Board of Forestry (BOF)
- Department of Fish and Wildlife (CDFW)
- Department of Conservation

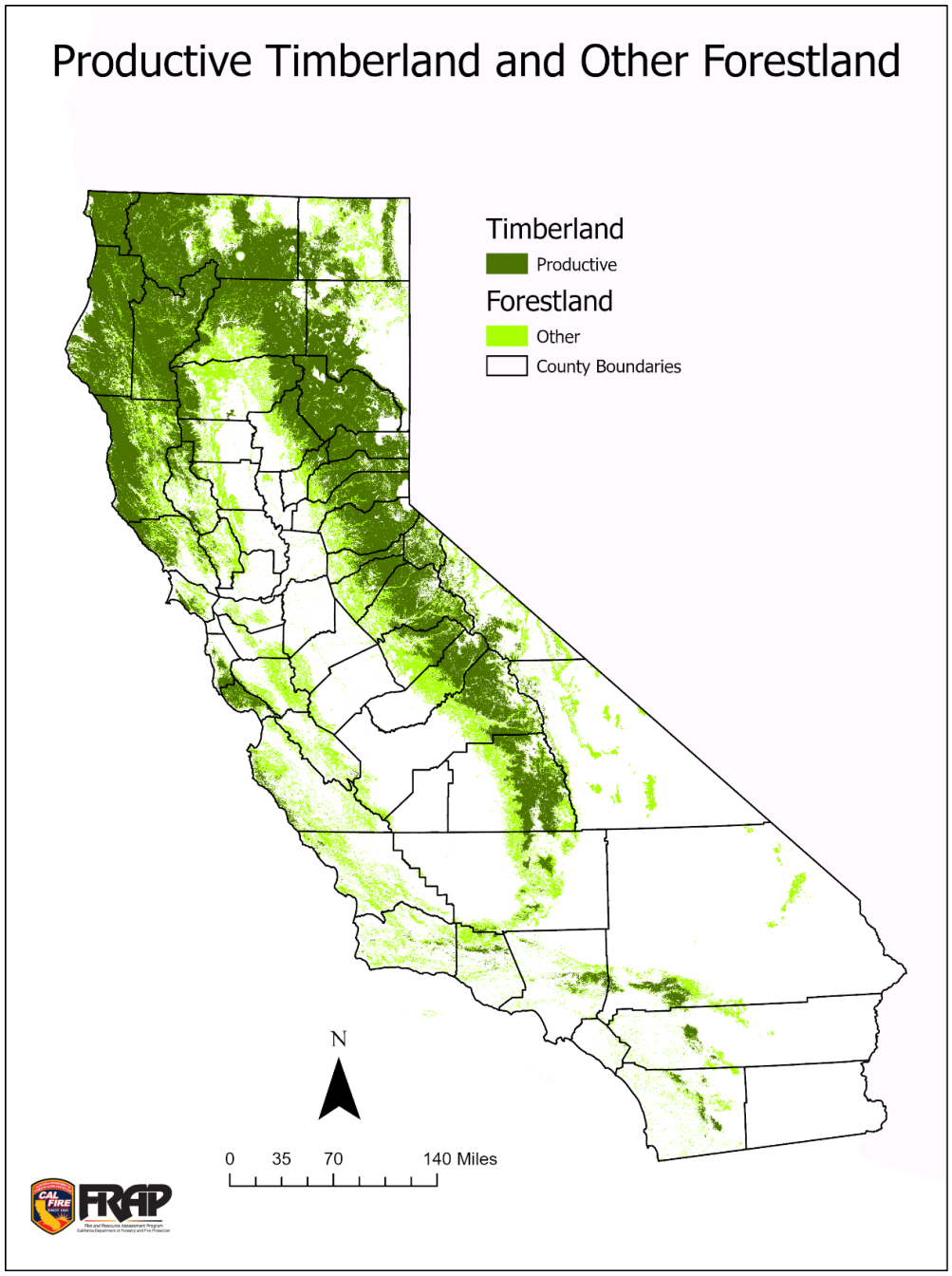


Figure 1. California forest and timberland as defined by CAL FIRE FRAP represents 32 million acres of forest land across all ownerships with16.4 million acres are classified as timberland and 4.2 million acres of productive forest land in reserves. The federal government manages 57% of California's forest lands, with the remaining areas under state and local government (3%) or private management (40%).

AB 1492 requires that moneys deposited into The Timber Fund be expended for purposes relating to:

1) the regulatory activities of responsible state and local agencies involved in the management of forest lands;
2) the costs of managing forest resource programs in the state;
3) certain grants for fire protection and suppression; and
4) grants to fund restoration on timberland.

2.1 Timber Harvest Review

A major component of the Timber Fund is to provide consistent interagency oversight for commercial timber harvest on California's non-federal timberland. Commercial timber operations on non-federal forestlands in California are regulated under the Z'berg-Nejedly Forest Practice Act and implemented under the California Forest Practice Rules, including the goal of ensuring a thriving and sustainable timber industry that supports California's ecological objectives, protection of soils, water quality, and conservation of wildlife habitat.

The Forest Practice Rules provide explicit instructions for permissible and prohibited actions that govern the conduct of timber operations in the field. The rules cover major categories including silvicultural systems and regeneration methods; harvesting practices and erosion control; site preparation; watercourse protection; sensitive watershed designation; functional wildlife habitat and late successional forest protection; fire protection, hazard reduction, etc. The Forest Practice Rules define the contents of permits, such as Timber Harvest Plans, which is the formal environmental review document that must be prepared by a Registered Professional Forester. The California Board of Forestry and Fire Protection is the rule-making authority and the California Department of Forestry and Fire Protection is the lead agency for approving timber plans and enforcement of the Forest Practice Rules. The Forest Practice Act and Rules and the cross-agency process used to review and approve timber harvesting activities under them constitute a Certified Regulatory Program under the California Environmental Quality Act (CEQA).
The multi-agency review team is defined in the Forest Practice Rules and includes CAL FIRE (lead agency), the Water Boards, Department of Fish and

Wildlife, and Geological Survey. The review team maintains oversight of timber harvesting projects including Timber Harvesting Plans (THPs), Nonindustrial Timber Management Plans (NTMPs), Sustained Yield Plans (SYPs), Program Timberland Environmental Impact Reports (PTEIRs), Working Forest Management Plans (WFMPs), and Emergency and Exemption Notices.

Several important state and federal laws come into play in the review and implementation of timber harvesting permits, in addition to the Forest Practice Act and Rules. These include the California Environmental Quality Act, Timberland Productivity Act, Porter-Cologne Water Quality Control Act, California Endangered Species Act, Lake or Streambed Alteration Agreements, Federal Endangered Species Act, and Federal Clean Water Act[2]. In addition to the State responsibilities under the review team process, the Water Boards have independent permitting authority for federal forest activities, such as those on public lands managed by the USDA Forest Service and the Bureau of Land Management.

Integral to timber harvest review, Timber Fund staff in 2020 established the California Timber Regulation and Environmental Evaluation System (CalTREES) which is an online system that streamlines the submission and review processes for timber harvesting documents. CAL FIRE staff and review team agencies use the system to process and review timber harvesting documents. Timber industry professionals and landowners can submit, track and update harvesting documents online. CalTREES increases transparency by allowing the public to search timber harvesting documents, receive updates on harvest activities in an area of interest, and submit public comments online.

The Timber Fund has enabled a transition towards more transparent, coordinated review and permitting related to timber harvest activities. With a foundation of collaboration, the cross-agency review team provides early and consistent oversight to efficiently process timberland harvest proposals, with no permitting fees. Further, The Timber Fund has expanded measures to deliver program accountability and enhance stakeholder oversight.

2.2 Forest Management and Restoration Engagement

Beyond green timber harvest plan review, review team staff engage in broader forest health and timber harvest initiatives integral to the Timber Fund's scope

[2] PRC § 21000 et seq.; Government Code 51100 et seq.; Water Code § 13000 et seq.; Fish and Game Code § 2050 et seq.; Fish and Game Code § 1600 et seq.; 16 U.S.C. § 1531 et seq.; 33 U.S.C. Sec. 1251 et seq., respectively.

and operations. These initiatives include permit efficiencies, wildfire mitigation, public safety, and science and innovation.
Review team staff collaborate with partner agencies to ensure complementary and consistent work. Partner agencies include California Office of Emergency Services, CalRecycle, Public Utilities Commission, Caltrans, Coastal Commission, Office of Planning and Research, Air Resources Board, US Forest Service, and Bureau of Land Management.

Collaboration between review team staff and partner agencies is exemplified by the Governor's Forest Management Task Force, initiated in 2018. Review team staff interface with other agencies to problem-solve issues related to forest health and management, tree mortality, vulnerable communities, and wildfire.. Some of the work resulting from Timber Fund staff engagement on this Task Force and in other venues is described below.

3. INTRODUCTION

3.1 Unprecedented Natural Disasters in California

Fiscal Year 2019-2020 and the months immediately following, saw some of the most significant and consequential natural disasters in California's history, marked by the emergence of a global pandemic and unprecedented megafires. This has resulted in significant social, political, economic, and environmental impacts for the State. Despite this, the Timber Fund continues its work to support sustainable timber harvest, enact fuel reduction projects, protect vital ecosystem services and public safety, and ensure regulatory and policy support towards more resilient and productive California forests.

3.1.1 Emergence of Pandemic

The Covid-19 pandemic, first detected by public health officials within California approximately 7 months into the fiscal year, quickly led to the closure of State offices to protect lives. This required the majority of the State's workforce to convert to telework at once, leading to extensive and rapid changes to operations and logistics across State departments, and to major revisions to the Governor's budget including salary and program cuts. Emergency telework was further complicated by major closures of public facilities including schools, requiring working families to balance family care and work obligations. In exchange for ten percent salary cuts across the state workforce, most state staff were given two furlough days per month which impacted scheduling and logistics, particularly in the early days of the pandemic. Furthermore, review team staff had to navigate newer pandemic safety standards, as a part of

Forest Ecosystem Impacts
A Closer Look

According to the US Forest Service (USFS), the proportion of acres burned that was forest in California's 2020 fire season was about 68%, of which 53% was timberland acreage. Correspondingly, CAL FIRE (FRAP) estimates that approximately 1.7 million acres of timberlands experienced wildfire in 2020. Recent preliminary analysis* by the USFS suggests the wildfires in California may have burned or damaged roughly 14.9 billion board feet of timber statewide, a volume equivalent to approximately 10.5 years of California's reported annual harvest. The portion of the estimated board feet that may be impacted, above, which has also suffered mortality is pending further analysis, and will take several years to fully determine because fire-caused mortality can lag up to three years.

Although it is likely that only a portion of the timberlands potentially impacted during this past wildfire season are both accessible and available for harvest, it is clear that California's active commercial timberlands experienced an unprecedented fire year and that potential harvest in some areas has been negatively impacted. Restoration needs, particularly in areas that burned more severely, will need to be assessed by Program staff and partners, to help limit the potential for extensive type-conversion (forest to shrubland conversion).

*** Gray, A. 2020. West Coast Wildfire Damage in 2020: Preliminary Assessment. Report on file with USDA Forest Service, Pacific Northwest Research Station, Corvallis Forestry Sciences Lab.**

routine field inspections carried out with interagency colleagues, to ensure timely and safe inspections.

While it is clear that Timber Fund staff are capable of operating remotely given our collective technological capabilities, the disruption, uncertainty and adjustments required a concerted effort by Timber Fund staff across agencies to work closely together to continue to deliver consistency, transparency, and reliable operations.

3.1.2 Historic Growth of Wildfire Across State

The 2020 fire season continued the trend of most destructive wildfires in California's recorded history, with fifteen of the twenty most destructive fires occurring since 2015[3]. The 2019 fire season was relatively mild with approximately 260,000 acres burned across the State. However, 2019 was sandwiched between two of the biggest wildfire seasons in California's history, 2018 and 2020. The 2020 fire season stands unparalleled, with the most acres burned, at over 4.2 million acres, more than doubling the State's previous records in 2017 and 2018 of nearly 1.5 million and 2 million acres burned, respectively (Figure 2).

[3] CAL FIRE Media report, November 2020.

In particular, the 2020 fire season was one of extreme fire weather conditions conducive to destructive megafires, with extremely dry, drought-stressed vegetation, historic heat, wind, and lightning events rarely seen in the State[4]. Following the lightning activity of August 16, 2020, firefighting resources across the State were overwhelmed, and then additionally strained as other wildfires emerged in neighboring Western states. Coupled with Covid-19 public health concerns and logistics for emergency services, including organizing firefighters and evacuation shelters, became especially challenged during the active wildfire events.

Taken together, wildfire activity during the 2017- 2020 period resulted in nearly 181 known deaths directly attributed to the fires, and 45,726 structures destroyed. Additionally, in January 2018 post-wildfire debris-flows killed 23 people, destroyed 130 homes, damaged more than 300 homes, and shut down Highway 101 for nearly 2 weeks.

The combined effects of the pandemic and unprecedented wildfire activity in the state coalesced and led to major closures of state and federal public lands throughout 2020, to ensure social distancing and reduce potential fire starts that would further strain emergency response capacity. The impacts associated with these recent emergency events do not begin to account for the extent of damage to natural resources, infrastructure, industry, property, lives, and livelihood, which are still being quantified and evaluated. Refer to above sidebar, *Forest Ecosystem Impacts*, for preliminary analysis of timberland impacts associated with the 2020 fire season.

[4] By early September 2020, nearly 14,000 lightning strikes had ignited 900 fires in California (NASA Earth Observatory)

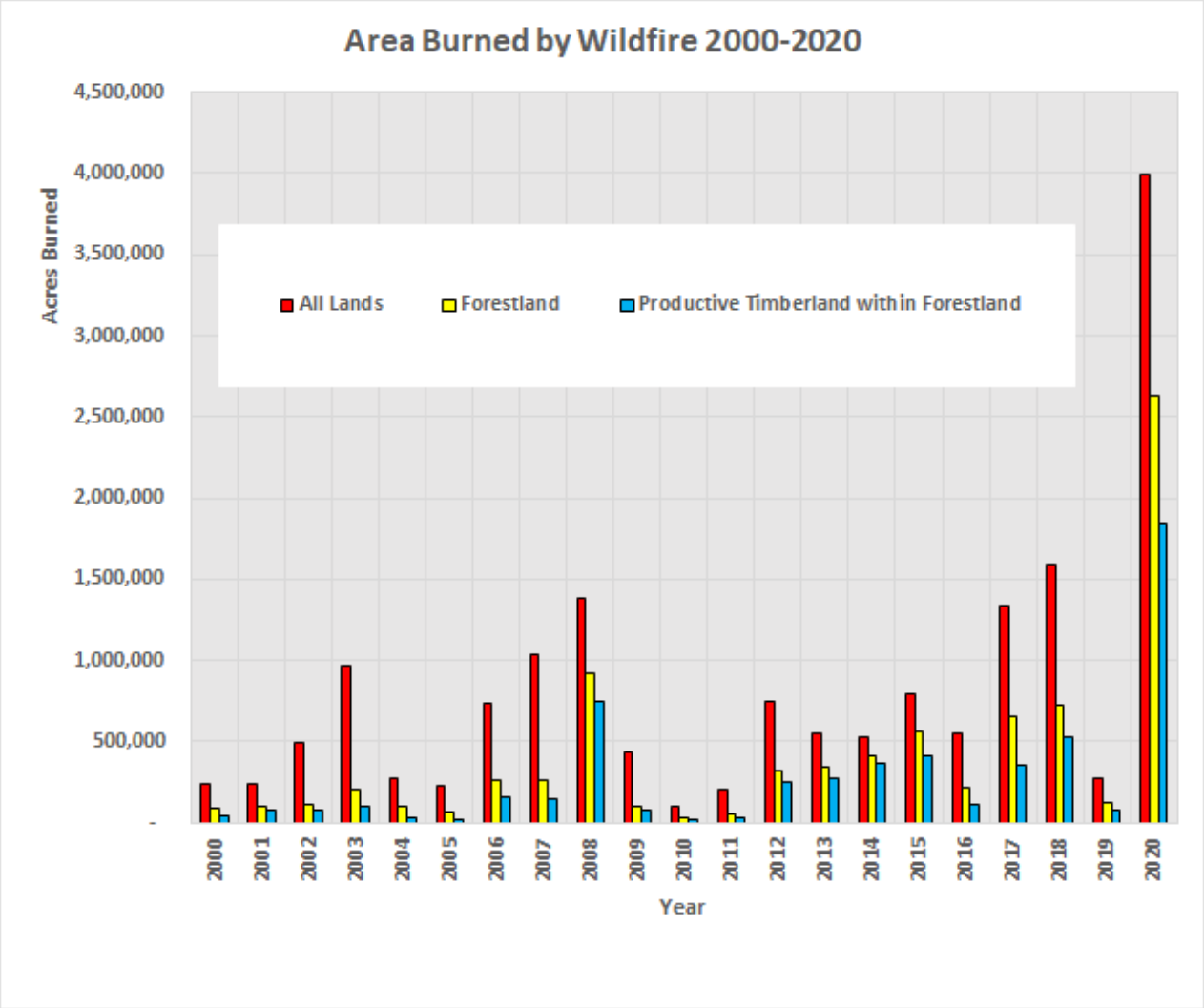


Figure 2: Wildfire acres burned statewide: all-lands (red); the portion of wildfire that occurred in forestland (yellow); the portion of wildfire that occurred in timberlands (blue), annualized 2000-2020. *Note that acres burned does not indicate level of fire severity.

3.1.2.1 Complex Interactions Driving Forest Health and Fire Conditions

Though wildfires are a natural part of California's landscape, California and much of the western USA are experiencing the apparent acceleration of human-induced climate change, marked by megadrought and record temperatures.[5] Higher fuel loads caused by historic fire suppression and land use decisions have combined with these emerging climate conditions to contribute

[5] Williams, P., E. Cook, J. Smerdon, B. Cook, J. Abatzoglou, K. Bolles, S. Baek, A. Badger, B. Livneh. 2020. Large contribution from anthropogenic warming to an emerging North American megadrought. Science. V 368, pp 314-318.

to more intense and destructive wildfire[6] spread in California and throughout the West. Land planning and forest management practices that may have avoided large-scale destruction in the past may no longer be sufficient with a changing climate.

Climate Change Underway

With typical fire seasons in California and across the West starting earlier and ending later each year, warmer spring and summer temperatures, reduced snowpack, and earlier spring snowmelt, the State is experiencing longer and more intense dry seasons that increase moisture stress on vegetation and make forests more susceptible to drought, disease, pest infestation, invasive species and severe wildfire[7]. So far, the length of fire season is estimated to have increased by 75 days across the Sierra Nevada[8] and seems to correspond with an increase in the extent of forest fires across the state. Human-induced climate change is considered a key driver of this trend, and growing evidence suggests that climate-driven wildfire is increasing throughout the Western USA, and in fact, globally across diverse forest types.

The Fire Deficit

The accumulation of fuels on the landscape, coupled with increasing temperatures and drought severity have resulted in a fire deficit[9] in California's forests, where more disturbance, including fire, is now inevitable especially as forested ecosystems respond to emerging climatic conditions. The unintended consequences of California's long-standing fire suppression policy, made worse by climate change, include altered forest structure in some areas of the state, and overly dense forest stands now vulnerable to drought, infestation, and wildfire, with communities and infrastructure now located in high fire hazard zones of the state.

With climate change accelerating at its current pace including extreme weather events, it remains unclear the extent to which forest management and fuels reduction efforts alone can neutralize destructive wildfire in California. Nevertheless, sustainable timber harvest, a key focus of the Timber Fund, along

[6] Destructive wildfire defined here as incidents of wildfire that result in significant loss of human lives and property https://www.fire.ca.gov/media/11417/top20_destruction.pdf.
[7] Statewide Summary Report, California 4th Climate Assessment, 2018.
[8] Westerling ALR. 2016. Increasing western US forest wildfire activity: sensitivity to changes in the timing of spring. Phil. Trans. R. Soc. B 371: 20150178.
[9] Marlon, J., P. Bartlein, D. Gavin, C. Long, R.S. Anderson, C. Briles, K. Brown, D. Colombaroli, D. Hallett, M. Power, E. Scharf, M. Walsh. 2012. Long-term perspective on wildfires in the western USA. PNAS. Vol. 109, #9, pp E535–E543.

with other management practices, play an active role in the State's strategy to sustain California's forested ecosystems and rural economies, into the future. To address the fire deficit and enable more managed control of fire, land managers remove fuels in one of three ways: (1) fuels reduction projects such as thinning, prescribed fire or cultural burning; (2) other forest management such as commercial harvest; or (3) wildfire.

3.2 Building Greater Resilience in Forested Ecosystems and Communities

Towards building more climate and fire resilient forested ecosystems and communities in California, simultaneous action is needed on three fronts:

Community: Hardening homes and communities to withstand wildfire;

Wildland Urban Interface (WUI): Building strategic fuel breaks where firefighters can take a stand, and create safe evacuation routes during a fire;

Landscape: Restoring California's forests and wildlands towards resilience to climate change and wildfire.

Figure 3: Home surrounded by wildland that survived a fire due to good defensible space.

4. TIMBER FUND REPORTING FISCAL YEAR 2019-2020

4.1 Fund Financial Status Summary: Wood Products Assessment, Revenues and Expenditures

In fiscal year 2019-2020, The Timber Fund had $69.6 million in available resources, of which $46 million came from annual forest product sales tax revenues. Of the $69.6 million, $54 million was expended to all Timber Fund operations statewide, about a 1 percent decrease from FY 2018-19. Expenditures included supporting nearly 247 staff largely in technical and administrative capacities responsible for: 1) conducting timber harvest review; 2) fulfilling policy and oversight functions including regulation development, and enforcement; 3) ensuring transparency and efficiencies through monitoring and online permit innovations; and 4) supporting forest and watercourse restoration. By the end of Fiscal Year 2019-2020, The Timber Fund had a balance of $15.6 million (Figure 3).

Grant allocations scale up or down to enable The Timber Fund to remain balanced as revenue from lumber and engineered wood product sales fluctuates year to year. While in FY 2018-2019 revenues were sufficient to enable ample grant funding, grant funds were halved in FY 2019-2020 from the prior fiscal year to $2.3 million across restoration programs and effectiveness monitoring.

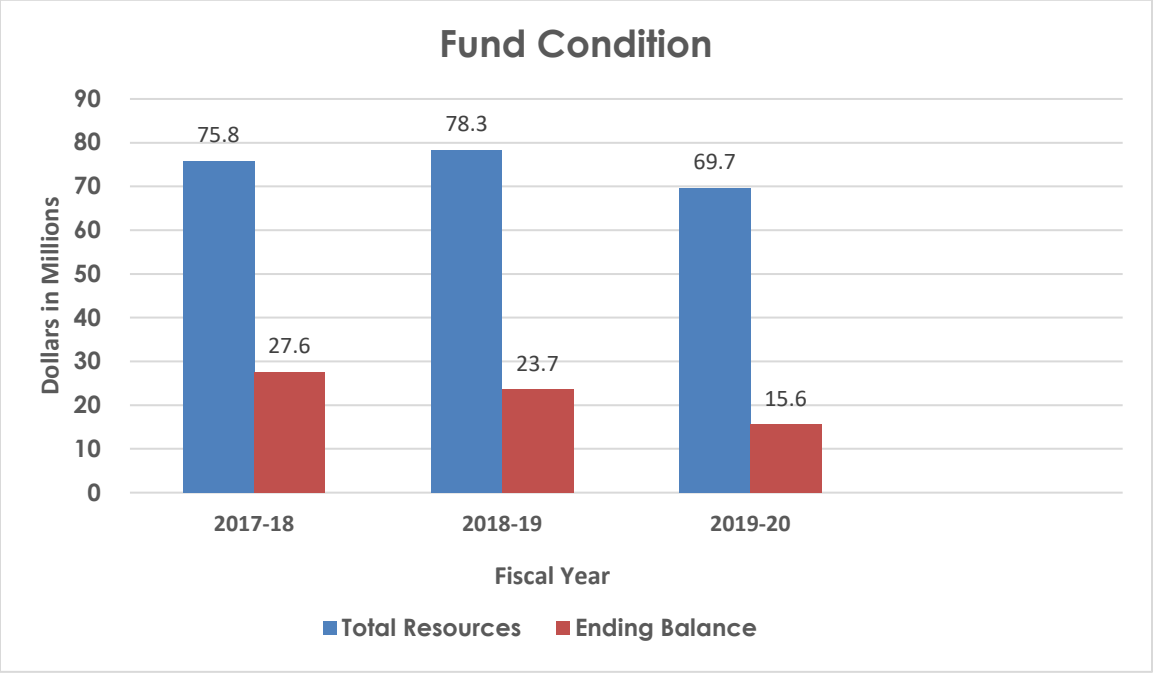


Figure 3. Three-year trends in Fund condition. Total resources represent the prior year fund balance carry-over plus forest product sales tax revenue collected for a given Fiscal Year. Ending balance for a fiscal year is the total amount of available resources remaining at the end of Fiscal Year. The difference between the Total Resources and Ending Balance represents the total spending in the given Fiscal Year. The difference between a given year's total resources and the prior year's ending balance is the given Fiscal Year's lumber and forest product sales tax revenue.

4.1.1 Anticipated Shifts in The Timber Fund

In the Spring of 2020, timber sales in California experienced a precipitous drop of 25 percent. Given the global shutdown and the drop on the global economy, the timber fund activities were stalled to ensure adequate reserve balances to support regulatory staff.

During financially lean years, Timber Fund activities focus on core functions as directed by legislation, including maintaining staff for oversight, enforcement, and environmental protection and focusing on the efficiency of timber harvest permits. Given potential downturns in the wood products market, The Timber Fund scaled back grant funding to ensure reserves did not drop below sustainable levels and to ensure long-term Fund stability in uncertain times.

4.2 Staffing Levels

One of the main objectives of the Timber Fund is to provide consistent staff to deliver quality environmental oversight for timber harvest in California. Prior to the Timber Fund, staffing levels fluctuated year to year. Beginning in FY 2013-14 the fund has provided a consistent base of staff to allow interagency review teams to effectively review timber harvest activities across the state. Staff provide their expertise for pre-consultation, plan review, preharvest inspection, preparation of various Timber Harvesting Plan-related permits, and inspections during harvests and upon completion.

The fund provided 222 staff in FY 2017-18 and 224 staff in FY 2018-19. The majority of these positions cover oversight and review of timber harvest activities both in Sacramento and regional offices, with 27 administrative support positions. Staffing levels increased from roughly 190 positions in FY 2015 to 220 positions in FY 2016 to support monitoring, planning watershed health pilot projects, and support new forest restoration grant programs. In FY 2017-18, CAL FIRE positions were added to respond to the new legislative mandate for the monitoring of exemption and emergency notices and provide staffing to support on-line permitting implementation on an on-going basis.

The Timber Fund enables review team agencies to engage in the full range of timber harvest review functions and related forest health objectives. Further, Timber Fund staff and partners (including collaboration with federal agencies) carry out enforcement duties, development of and revisions to regulations and best management practices, updates and improvements to project-level and statewide monitoring and provide scientific expertise for restoration and forest health planning and implementation across the State's forested landscapes.

On an ongoing basis, review team agencies evaluate the adequacy of staffing levels to ensure timely plan review and permitting, responsiveness to new legislative mandates, and to meet broader Timber Fund requirements, like monitoring, oversight, and restoration. Given the scope and scale of forest and timberland management needs across the state including response to emerging climate change impacts and increasing wildfire risk, new positions have been incrementally added since Timber Fund inception (Table 1).

Table 1. Interagency staff numbers as measured by PY (person years) between FY 2013-14 and 2019-2020.

Department	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
CAL FIRE	101	104	114	114	123	123	123
CDFW	41	39	41	40	41	34.5	47.2
Water Boards	31.3	30.9	34.9	34.9	35.2	35.2	53.2
DOC	15	15	19	19	19	19	19
CNRA	2	2	2	2	3	3	3
BOF	0	0	1	1	2	4	4
Total	**190.3**	**190.9**	**210.9**	**210.9**	**222.2**	**224.2**	**246.9**

Nearly 247 staff positions (PY: person years) were authorized under the Timber Fund in FY 2019-20. There has been no increase in CNRA, DOC and CAL FIRE staffing under the Timber Fund since FY 2017-18. To allow for expanded Timber Fund activities and responsibilities, particularly due to SB 901, CDFW and Water Board positions increased by 12.7 PY and 18 PY, respectively, from the previous fiscal year. The increased review team staffing better enable the review team agencies to engage in the harvest permit review and inspection processes, non-commercial forest management and fuel reduction oversight, monitoring, and scientific engagement resulting in a higher level of assurance that forest resource conditions will be maintained or improved.

4.2.1 Increased Staff Time: Emergent and Growing Needs Under Timber Fund

During the normal course of their duties, Timber Fund staff engage in various interagency stakeholder meetings and support activities to further Timber Fund objectives and ensure efficiencies and collaboration across State programs including policy and regulatory development (as described in Section 3.2). However, in recent years, emergent or increased activities under the purview of the Timber Fund, cumulatively, are drawing down available Timber Fund staff time, as detailed below:

- Post-Fire Emergency Response: Watershed Emergency Response Team (WERT) assignments and where applicable Cal OES mission tasks related to post-fire hazards such as debris flows, landslides, flooding, and hazard trees (primarily CGS; CAL FIRE);
- Cannabis Issues in Forests: Consultation with other agencies regarding slope stability and erosion issues and remediation with regard to both legal and illegal marijuana grows in forest and timberlands (primarily CGS and CDFW);

- Emergency and Exemption Monitoring: Timber Fund staff time devoted to development of monitoring protocols and field surveys has become much more extensive than when originally scoped in AB 1492 (all Timber Fund departments);
- Vegetation Management and Fire Resiliency Efforts:
- SB 901 Response: Consultation and assistance with other agencies related to vegetation management/timber harvesting issues (all Timber Fund departments);
- CalVTP: Review team agencies have a consultative role to play in the completion of the Project Specific Analyses under the CalVTP to ensure vegetation treatment activities are conducted with the least possible environmental impacts (all review team departments);
- Barred Owl and Spotted Owl Management: Work among interagency staff and the public occupies significant time for several staff members, with multiple working groups and public meetings to organize and host (primarily CDFW staff);

Watershed Emergency Response
A Closer Look

California Watershed Emergency Response Teams (WERTs), led by the California Department of Forestry and Fire Protection (CAL FIRE) and California Geological Survey (CGS), are state teams deployed to better coordinate local assistance to ensure a rapid response in identification of post-fire life-safety, property, and infrastructure threats resulting from wildfires. The main objective is to conduct rapid identification of exigent hazards to life-safety and property from post-fire flooding, debris flows, and rockfall affiliated with the burned areas. A fundamental step in the WERT process is the identification and characterization of Values-at-Risk (VARs) using a combination of modeling and best professional judgement, and assignment of emergency protection measures.

A total of 11 WERT deployments took place in 2020 through the end of November. After a relatively mild fire season for the first half of 2020, the second half was the worst in California's recorded history. The disastrous August 15-17, 2020 Lightning Siege burned more than 3,000,000 acres and required numerous WERT deployments. A new screening process was utilized and WERTs were assigned all over California. Small state teams were assembled due to the COVID-19 pandemic. In total, there were 632 life-safety, property, and infrastructure VARs inventoried, with 85 assigned as a high risk to life-safety. The greatest number of high life-safety risks were associated with the Apple and El Dorado fires, where past debris flows have been common.

- Data and Accessibility Compliance: Administrative functions such as attaining Americans with Disabilities Act compliance, Public Records Act requests, and transitioning to electronic document storage have increased Timber Fund staff time with no additional support (all Timber Fund departments).

A long-term framework to account for these increased activities that includes effective staffing, outreach, and funding to cover increasing Timber Fund workload may be needed in forthcoming years.

4.3 Dynamics of Timber Harvest and Forest Management in California

Commercial timber harvest on non-federal lands is the central focus of the Timber Fund and is carefully overseen by staff. The dynamics of forest management in California are complex. Management involves a plethora of activities including commercial timber harvest, restoration, reforestation, afforestation, conservation, conversion, and other activities. Interfacing with this management are events such as drought, wildfire, tree mortality and various other disturbances that influence and change forested systems to varying degrees and magnitudes.

In the past decade, tree mortality and extensive wildfire damage have led to a drastic uptick in salvage logging and related tree removals, shifting away from submission of THPs and operations on "green sales" to Emergency and Exemption Notice filings. This is exacerbated by the unprecedented acreage of timberland burned in the 2020 wildfire season. Complicating salvage logging is the limited capacity of sawmills to receive and process this salvaged wood. Harvest of damaged timber will likely continue to be limited in the coming years. With excess amounts of damaged and dead trees remaining in the forest, fuel hazards mount and intersect with wildfire.

While Timber Harvesting Plans and similar permit types are generally accurately georeferenced and traceable, Exemption and Emergency Notices generally do not include exact locations of work, as they often present property-wide or regional ownership filings. In addition, few of Emergency and Exemption Notices require detailed, geospatially referenced information on completed management. This poses a challenge in Timber Fund reporting to provide insight into exactly when, where, what, and how much management may have occurred in a given Fiscal Year. Further, Notices may be filed atop one another providing a level of confusion as to what management has occurred in each location. With the above referenced shift of permitting to Exemption and Emergency Notices in recent years, reporting of harvest numbers below does

not account for the number of acres and management treatment types for the reporting Fiscal Year, rather only approved, active permit types.

4.3.1 Timber Harvest by the Numbers

4.3.1.1 Timber Harvesting Plans

California currently approves roughly 100,000-150,000 acres/year of Timber Harvesting Plans (THPs). These plans are valid for 5-7 years, meaning that between 600,000 and 700,000 acres of timberlands have an active permit where a harvest could take place in any given fiscal year. Given the time and resources that go into developing a Timber Harvest Plan, timber operators complete their THPs, so newly filed THPs provide a consistent indicator of the scale of commercial green timber harvest in California.

Nonindustrial Timber Management Plans (NTMPs) represent far less acreage than THPs, accounting for approximately 4,000 acres approved in FY 2019-2020. However, NTMPs do not expire like a THP; therefore, active harvesting under an approved NTMP can be conducted in any fiscal year under a Notice of Timber Operations (NTO). Statewide, in any given year, there averages be between 10,000 and 45,000 acres of harvesting occurring under NTOs.

The majority of California silviculture is uneven aged management, commonly called selective logging. Several generally large operators employ clear-cut silviculture amounting to approximately 22% of all active harvest in the reporting year.

Timber operations have started to shift from THPs to Exemptions, given the significant acres and volumes of timber experiencing mortality due to drought, insects, and fire.

Despite increased complexity involved in THP review and the increased load for Exemption permits, the median time for a THP has decreased steadily. Accounting for agency review time and time for project proponent response to questions, over half of all Timber Harvesting Plans are approved in less than three months. While there are individual outliers that distort the average, overall, there is a continued trend toward more efficiency with review and approval of THPs.

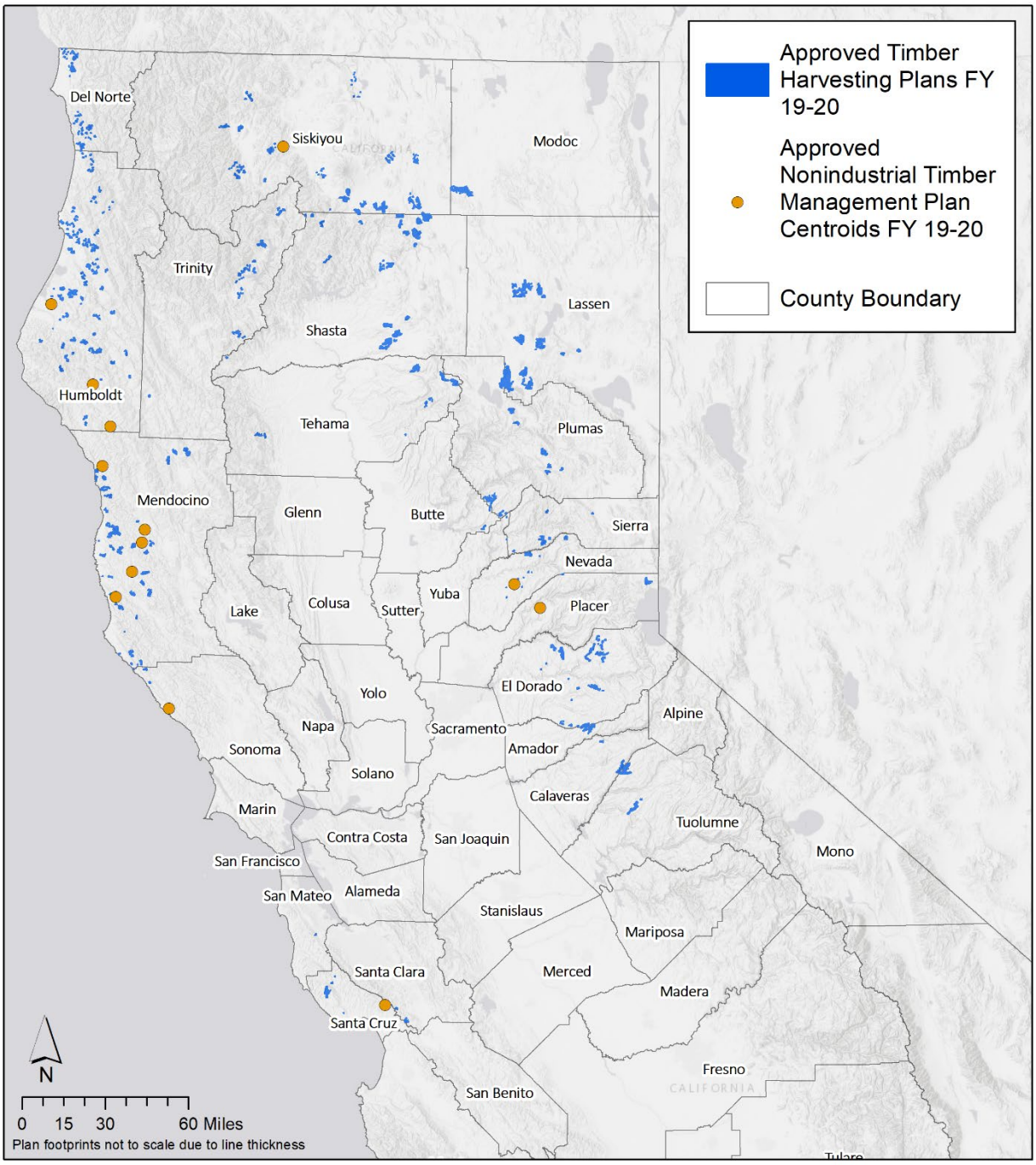


Figure 4: Timber Harvesting Plans and Nonindustrial Timber Management Plans Approved During the 2019-2020 Fiscal Year. Points are centroids of individual approved NTMPs, which vary in size and were too small to visualize as polygons at the map scale. No plans were approved south of Santa Cruz County in the fiscal year. Data sources: THPs & NTMPs (CAL FIRE Forest Practice GIS).

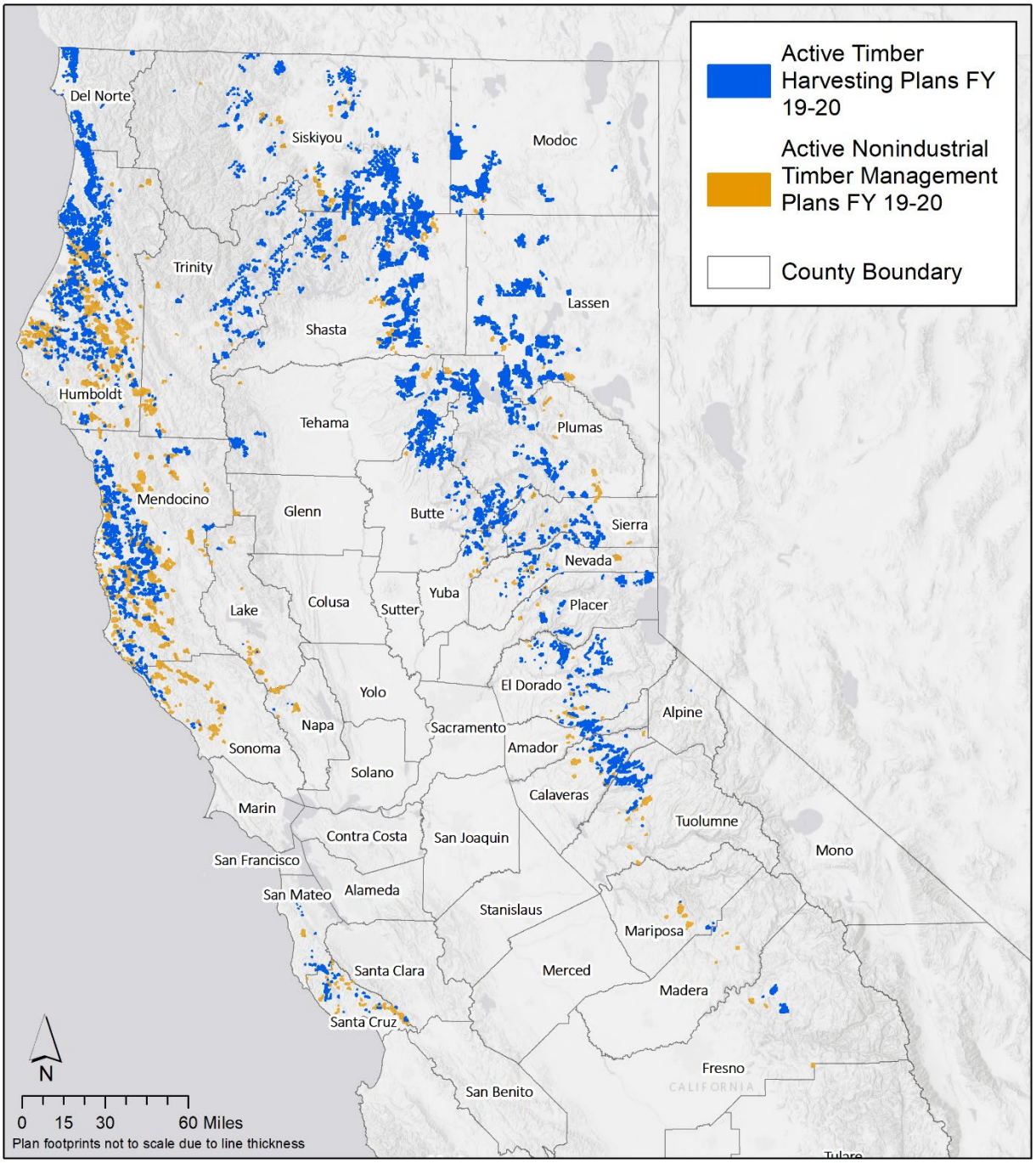


Figure 5: Active Timber Harvesting Plans and Nonindustrial Timber Management Plans During the 2019-2020 Fiscal Year. Data sources: THPs & NTMPs (CAL FIRE Forest Practice GIS) and active status information (CalTREES).

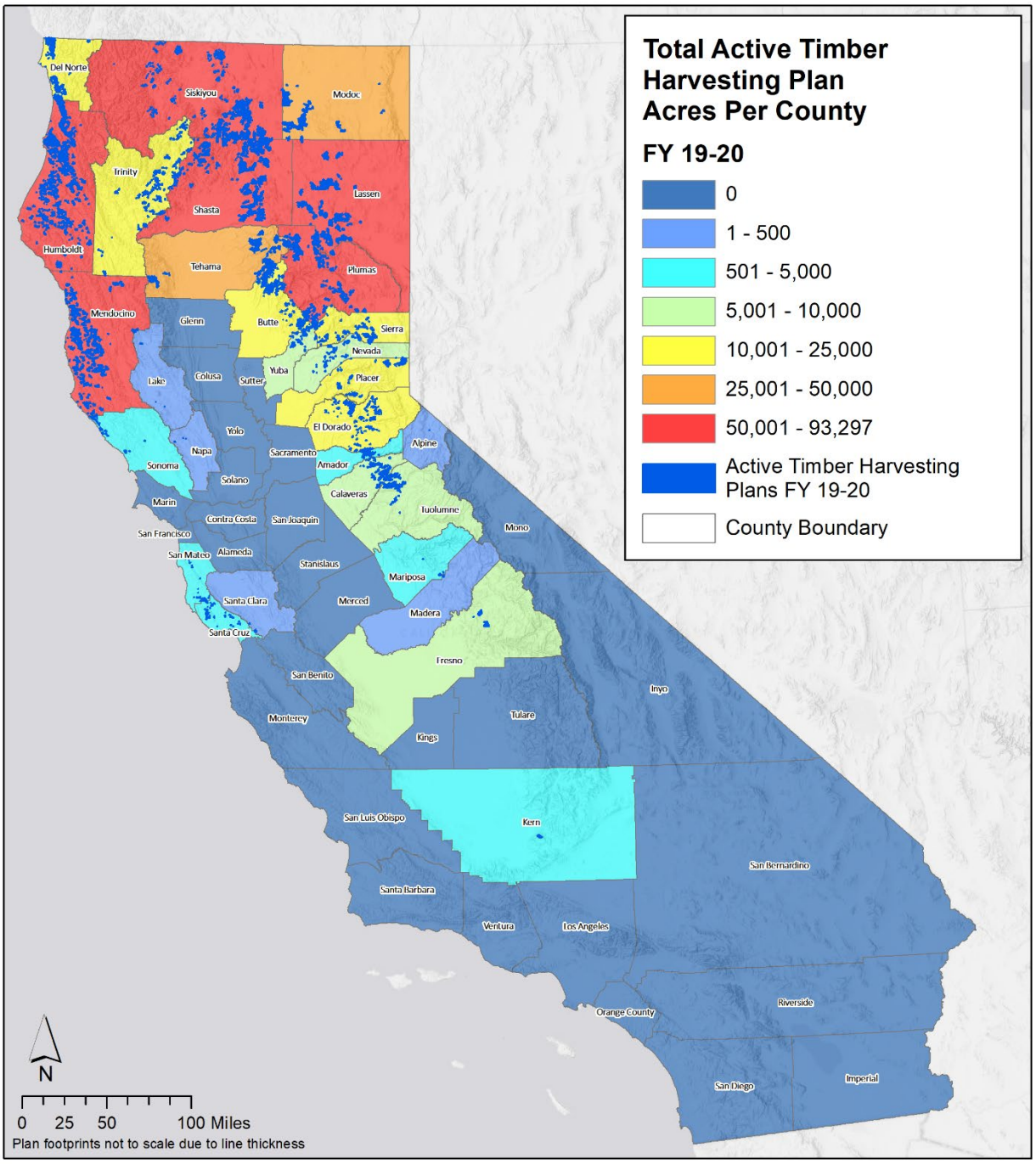


Figure 6: Acreage of Approved Timber Harvesting Plans by County. Humboldt, Mendocino, and Shasta Counties consistently contain the highest acreage of approved timber harvesting plans. Data Source: THPs (CAL FIRE Forest Practice GIS).

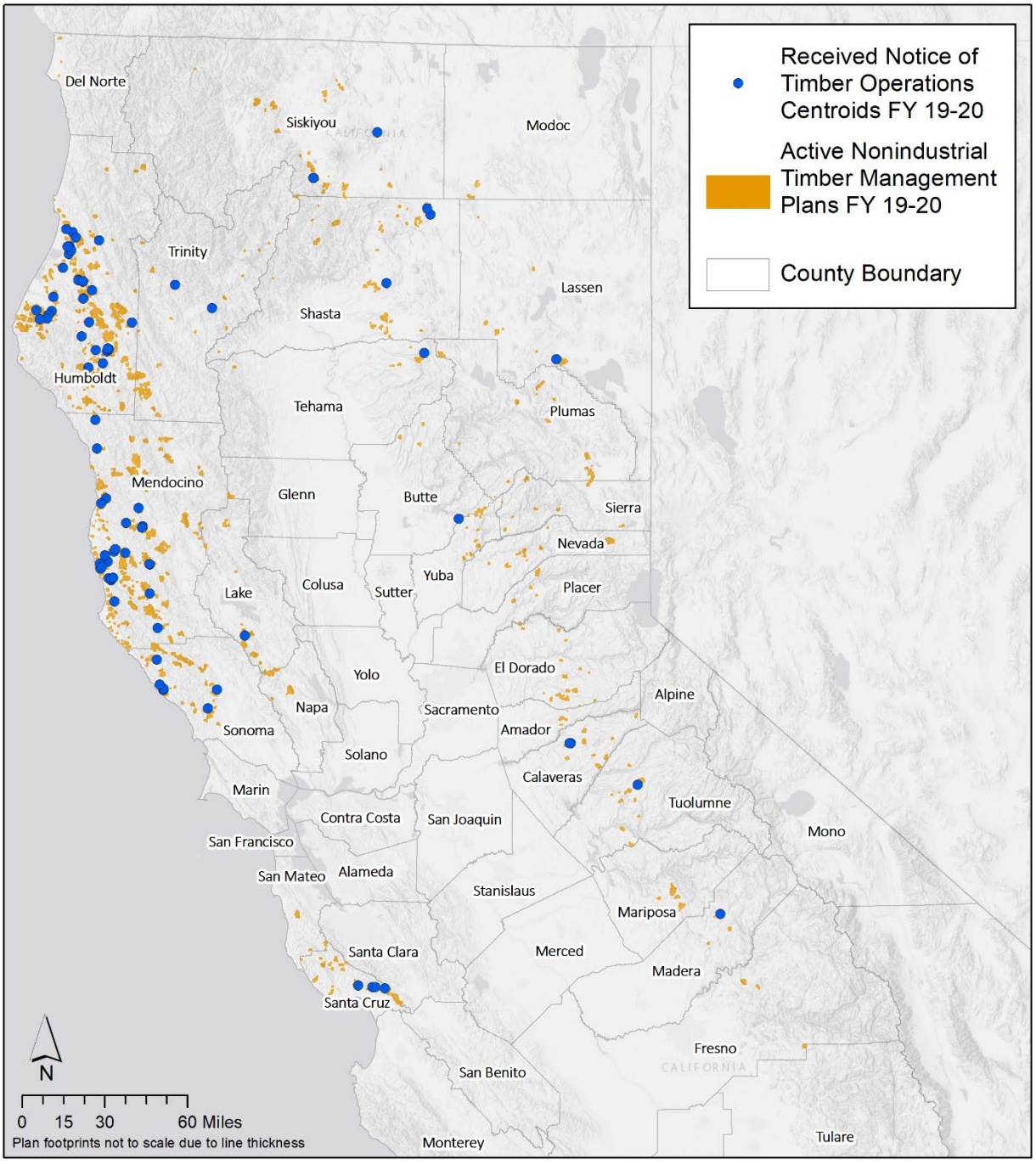


Figure 7: Notice of Timber Operations (NTOs) Received During the 2019-2020 Fiscal Year Within Active Nonindustrial Timber Management Plans (NTMPs). Points are centroids of individual NTOs, which vary in size and were too small to visualize as polygons at the map scale. Data source: NTOs and NTMPs (CAL FIRE Forest Practice GIS)

There has been a total of 859 NTMPs approved for harvest under a Notice of Timber Operations (NTO) since these permits became available. In the 2019-2020 fiscal year, 84 NTOs were received, comprising a total of 7,318 acres. Among all NTOs captured in GIS, which go back as far as 1991, there has been 327,868 acres marked as complete and 36,311 or about 11% of the completed acreage marked as unlogged (Figure 7).

4.3.1.2 Review Times

As a CEQA equivalent document, a Timber Harvesting Plan is a complex process with multiple review steps. A major goal of The Timber Fund has been to simplify the Timber Harvest Permitting process by improving efficiencies for permittees and review team agencies. Over the years, both CEQA and the legal requirements of Timber Harvesting Plans have become significantly more complex. New species have been listed and more advanced environmental protections have been put in place. Despite the increased complexity, the median time for a THP has decreased steadily. While there are individual outliers that distort the average, overall, there is a trend toward more efficiency with THPs.

Table 2 and Figure 8 below provide comparative statistics for the number and associated acreage of Timber Harvesting Plans (THPs) and Nonindustrial Timber Management Plans (NTMPs) filed as well as length of the review periods (from submission to approval). Statistical outliers were removed to reflect more accurately actual review times. Spanning fiscal years 2011-12 through 2019-20, average review times appear variable over the period for both THPs and NTMPs, spanning from an average low of 107 days to an average high of 140 days. When statistical outliers are removed, there is a general steady downward trend for Timber Harvest Review times over this period. In 2019-2020, the average review time for THPs was 103 days, or just over three months, slightly longer than the prior Fiscal Year review time, whereas NTMPs were approved slightly faster than the prior Fiscal Year, at 127 days.

Because of the relatively small number of NTMPs reviewed each year, the average review times tend to be more variable than for THPs. An example of an outlier is an NTMP in 2013 that was in review for over 2,000 days because the plan submitter failed to respond. This outlier caused a sharp increase in the average review time for NTMPs in FY 2012-13.

It is important to note that there are many determinants of review times. CAL FIRE indicates that the reasons for this latest increase include:

- Time needed for CAL FIRE to respond to large amounts of comments due to increases in public involvement, which must be addressed in the Official Response.
- Controversial forest conversion THPs that require Environmental Impact Reports approved by local government.
- Lack of timely response to Review Team questions by project proponents.
- THPs that were filed then delayed by the submitter while they conducted operations on Drought Mortality Exemptions on the plan areas, leading to significant plan revisions.
- Fall-submitted plans that could not be accessed for preharvest inspections until the following spring due to significant snow cover.
- A significant increase in the number of acres proposed for harvest under a single THP (i.e., ≈24%) compared to the average for the last 5 years.
- Commitment of staff to emergency assignments resulting from the significant increase in wildfire activity.

Table 2. Approved Plan Review Time Statistics, Fiscal Years 2011-12 to 2019-20.

Fiscal Year	Harvest Document Type	Count	Acres	Minimum Days in Review	Maximum Days in Review	Average Days in Review
2011-12	THP	270	139,553	26	1,632	151
2012-13	THP	243	107,051	36	1,547	159
2013-14	THP	278	146,384	40	927	124
2014-15	THP	260	128,644	33	1,025	107
2015-16	THP	254	94,650	26	1,281	127
2016-17	THP	220	91,179	37	178	86
2017-18	THP	267	105,523	43	196	92
2018-19	THP	244	100,888	43	211	92
2019-20	THP	234	122,586	40	298	103
2011-12	NTMP	14	10,932	62	389	167

Table 2. Approved Plan Review Time Statistics, Fiscal Years 2011-12 to 2019-20.

Fiscal Year	Harvest Document Type	Count	Acres	Minimum Days in Review	Maximum Days in Review	Average Days in Review
2012-13	NTMP	12	7,365	81	2,688	493
2013-14	NTMP	10	4,126	85	436	189
2014-15	NTMP	12	3,367	69	546	139
2015-16	NTMP	11	5,572	72	291	135
2016-17	NTMP	14	6,500	73	251	148
2017-18	NTMP	14	4,448	77	193	112
2018-19	NTMP	14	2,410	82	268	135
2019-20	NTMP	13	4,215	67	189	127

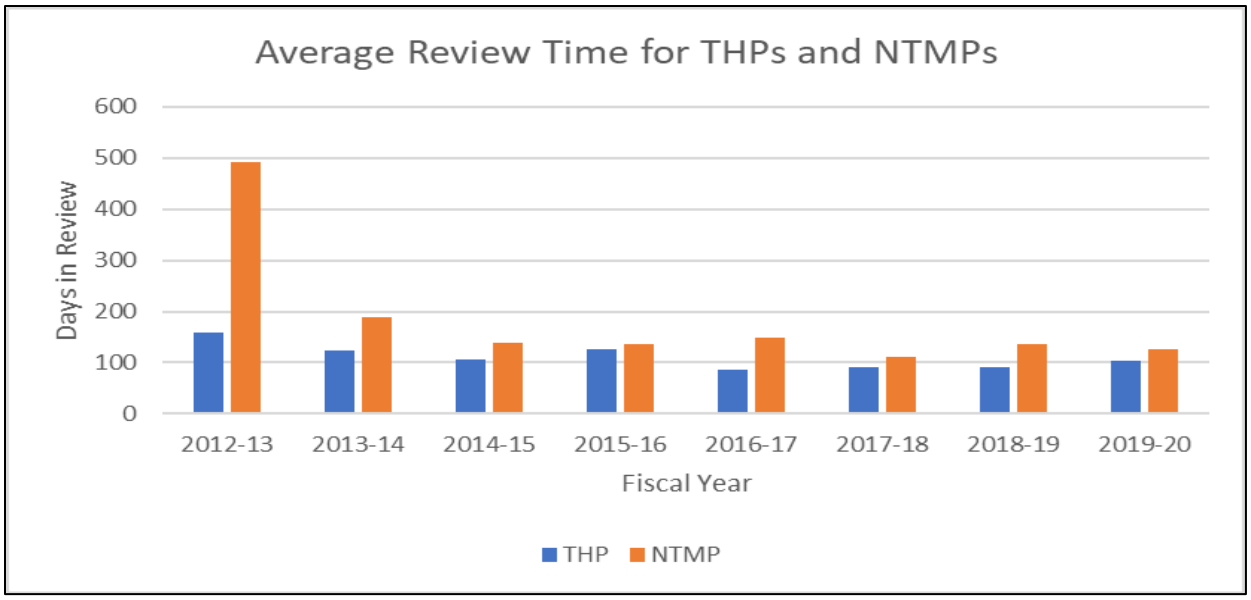


Figure 8: Overview of average review time for THPs and NTPMs spanning FYs 2012-13 through 2019-20.

Several factors have contributed to the variability in the number of THPs and THP acreage seen in recent years. In FY 2015-16, some landowners shifted from a focus on "green tree" harvesting under THPs to treating areas impacted by fires and/or tree mortality under Exemptions and Emergencies. Large landowners invested in developing long-term planning documents such as Habitat Conservation Plans and Sustained Yield Plans. In FY 2017-18, there was a shift back to a greater number of THPs (a 21.4% increase from the previous year) and area treated under THPs (a 15.7% increase from the previous year). While the number of acres approved for harvest each fiscal year has been below average since FY 2015-16, there has been a return to above average acres in this reporting period. While the number of THPs submitted in FY 2019-20 only reached about 83% of the 13-year average, the acreage covered under each THP increased by nearly 24% of the average over the last 5 years. This may reflect less harvesting activity under Exemption and Emergency notifications as the tree mortality wave and the area of commercial forestland burned decreased; however, it is anticipated that there will be a significant increase in the number of acres covered under fire emergency notices, post-fire recovery exemptions and right-of-way exemptions in FY 2020-21due to substantial increases in the number of acres of timberland burned during this last fire season (see Figure 2). This is likely to shift the number of acres harvested under THPs and exemptions to emergency notices in the next reporting period.

4.3.1.3 Emergencies and Exemptions

In certain specified situations, Exemption and Emergency Notices and conversion exemptions allow landowners to harvest timber without preparing a THP. However, all Emergency and Exemption Notices require compliance with the Forest Practice rules and regulations governing timber harvest, road construction, reforestation, watercourse protection, environmental protection, and so forth.

The number of acres harvested under an expanding range of ministerial exemption notices under the Forest Practice Act and Forest Practice Rules has been below average over the last two fiscal years and was lower this fiscal year than any other year since FY 2012/13. Expansion in the types and terms of these permits (e.g., drought mortality, limits on the diameter of trees harvested, meadow restoration), mostly related to fuels reduction and drought mortality, combined with large wildland fires and extensive areas of tree mortality, have resulted in an increase in the numbers of notices filed, reflecting the work on smaller parcels to assist landowners in recovery and the development of resilient forest conditions. This is in part due to important changes to exemption and emergency notices from recent legislation including SB 901.

Exemptions and Emergency notices allow landowners to recover some of their investments in their timber crop following substantial damage from disturbances such as wildfire, insect and disease attacks, and drought mortality. The streamlined review process (5 or 10 days) allows landowners to salvage their dead and damaged trees during the short window of time (4-12 months) before the trees become unmerchantable due to fungal staining and decay. Exemptions also allow landowners to develop more fire resilient forest stands to reduce damage from wildfires and aid in fire suppression.

Variability similar to that seen in the numbers and acres under THPs was also seen to some extent with emergency and exemption notices. There were about 10% fewer emergency notices submitted compared to the average, but approximately 7% more exemption notices filed. This variability can be attributed in part to changes in regulations and fire activity. Recognizing the need to assist landowners in rebuilding following significant fires in and around communities, the Board passed rules allowing harvest in post-fire areas under an exemption; significantly increasing the number of exemptions filed in this fiscal year and shifting the exemption notices from dead, dying and diseased notices to post-fire recovery notices. With the number of professional foresters, operators and processing facilities remaining relatively fixed, this variability is not unexpected and will likely continue shifting from THPs to notices and varying amongst notice

types. As the number of operations and forest area under Exemptions and Emergency Notices has increased, the focus on compliance inspections and enforcement actions on these operations, as well as separate permitting that might be needed under Department of Fish and Wildlife or Water Boards authorities, also increased across the review team agencies.

Given the expedited permit process, The Timber Fund supports an extensive review and inspection of harvests under emergency and exemption notices to better understand if there was environmental damage from the expedited process. The review found more violations especially around water and soil stability issues than under traditional timber harvest permits. This could be due to the damaged nature of soil on post-fire areas. The monitoring also indicated that many small nonindustrial landowners were not fully aware of the legal obligations associated with submitting a Notice of Emergency Timber Operations and did not always have clear expectations on the outcomes of post-fire salvage operations on their timberland. This helped review team agencies re-prioritize field staff to fully enforce rules and support landowner education to prevent environmental damage following a wildfire.

Emergencies

Increases and decreases in the number of emergency notices submitted and those acres treated in any given fiscal year is directly correlated to the number of acres of timberland impacted by wildfire. In the recent fiscal year, 2019-2020, the number of emergency notices submitted varied considerably, with highs of nearly 300 and a low of 83. This variability is primarily due to fires and tree mortality due to drought conditions that ravaged the State. In fiscal year 2019-2020, Emergency Notices decreased to below average numbers (Figure 10). More than 90% of the 2019-2020 emergency notices were fire-related, and fire related Emergency Notices are anticipated to increase significantly due to the decimation of timberlands by an extraordinarily catastrophic wildfire season in 2020 (Figure 2). Emergency notice locations can be viewed in context with industrial timberland owners with large holdings (5,000 acres or more) along with catastrophic wildfires (3,000 acres or more; Figure 9).

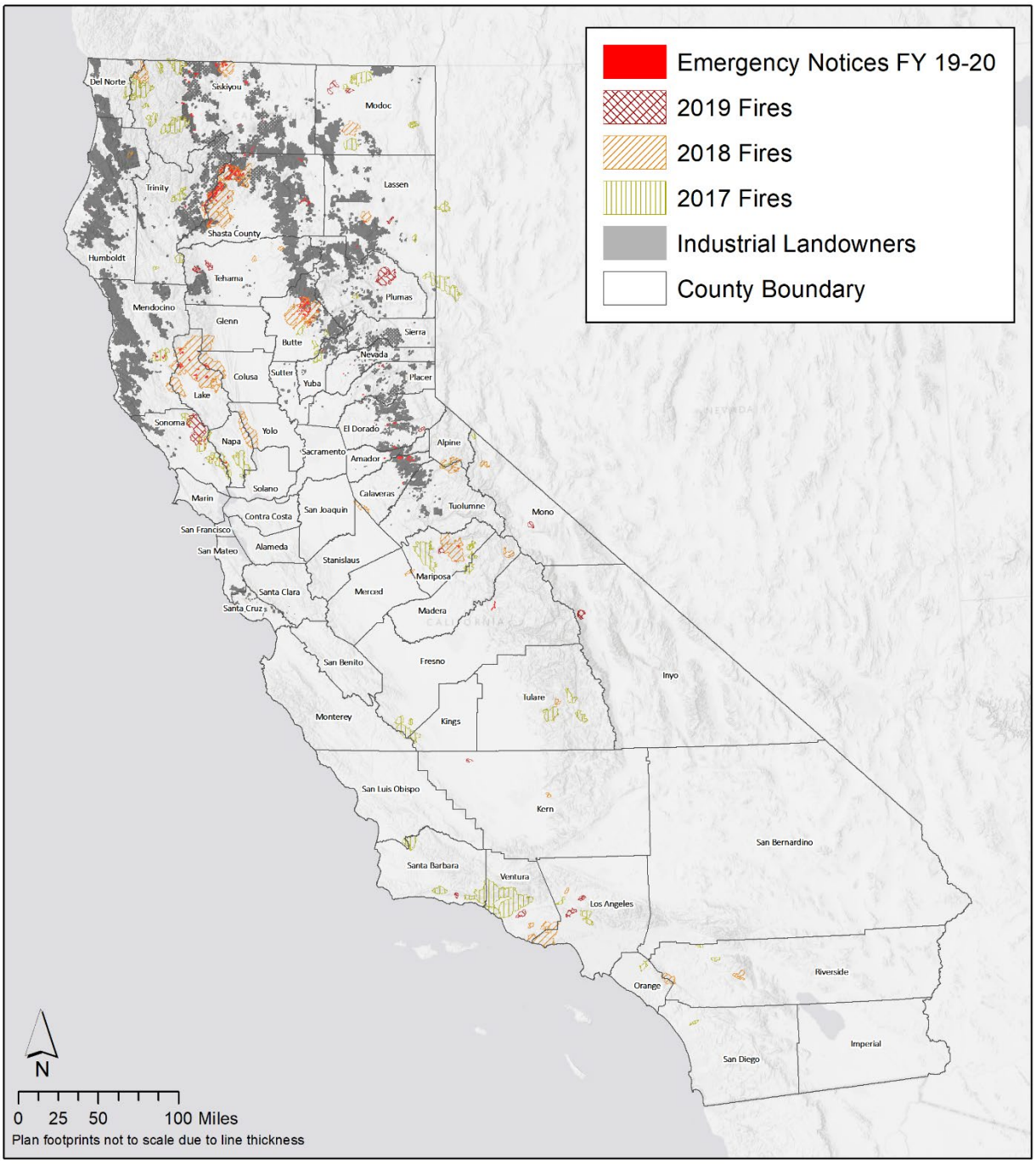


Figure 9: Emergency Notices Approved During the 2019-2020 Fiscal Year, Timber Industry Landowners, and Recent Catastrophic Fires. Emergency notices approved during the 2019-2020 fiscal year, timber industry landowners, and recent catastrophic fires. Catastrophic defined here as fires greater than 3,000 acres. Data sources: Emergency Notices & Forest Industry Owners (CAL FIRE Forest Practice GIS), and fire perimeters (CAL FIRE's Fire and Resource Assessment Timber Fund).

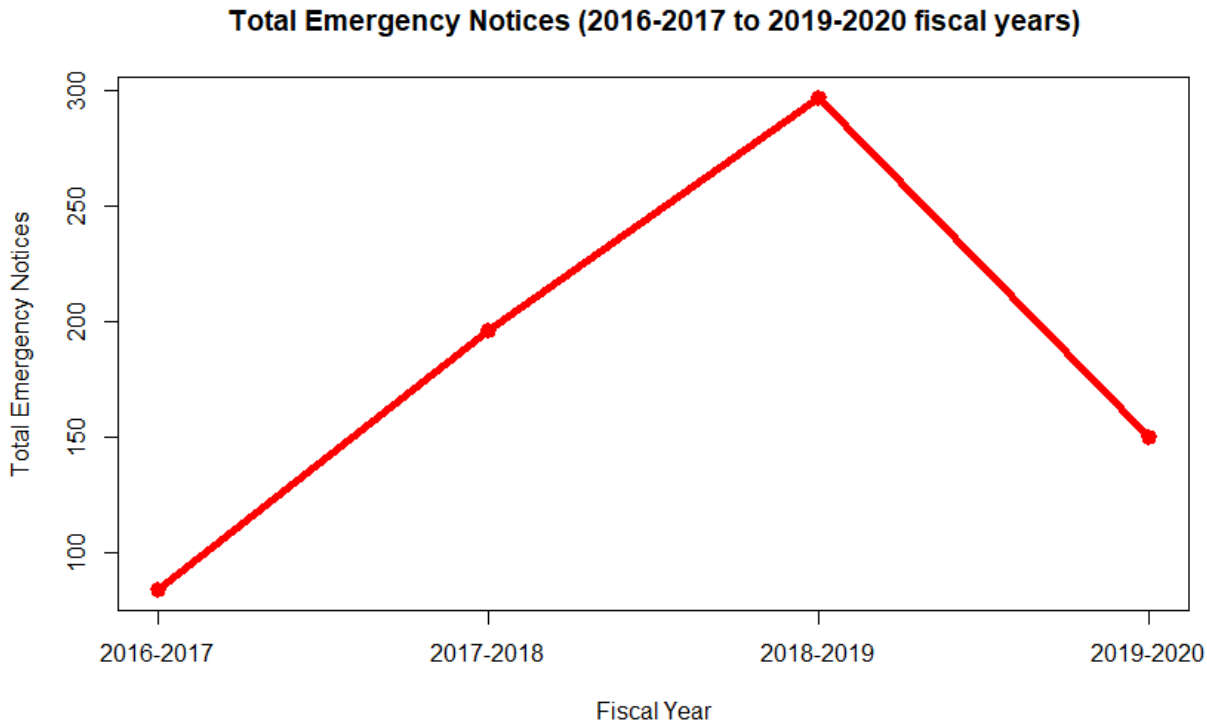


Figure 10: Total Emergency Notices from Fiscal Years 2016-2017 to 2019-2020. Data source is Forest Practice GIS.

Exemptions

The general pattern of Exemption Notices is similar from year to year, however conditions in the landscape over the past several years have affected the type and volume of Exemption Notices, covering about 6.4% of the state in the 19-20 fiscal year (Figure 11). In the 2019 - 2020 fiscal year, dead dying and diseased trees, and utility right-of ways made up the bulk of acreage under Exemption Notices, at 50.9% and 20.9% of all acreage for accepted exemptions, respectively. A significant number of Exemption Notices are held by small landowners performing fuel reduction and fire protection on their properties. During the 2019 - 2020 fiscal year, 88% of all Exemption Notices covered 1000 acres or less, 69.9% covered 10 acres or less, and 29.3% of Exemption Notices were for fire hazard reduction within 150 to 300 feet of a home or structure.

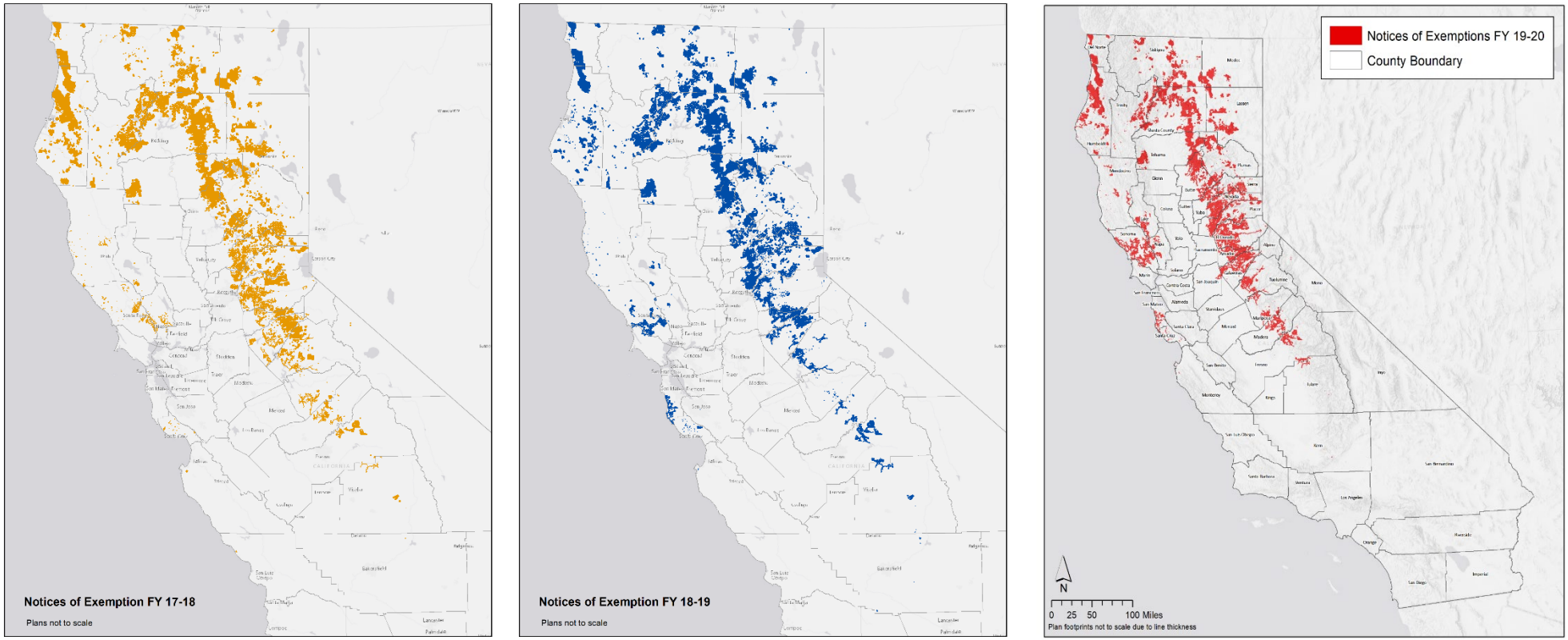


Figure 11. Approved Exemption Notices During the 2017-2018 to 2019-2020 Fiscal Years. Data source: CAL FIRE Forest Practice GIS. The general pattern of Exemptions remains the same from year to year, however conditions in the landscape over the past several years have affected the type and volume of Exemptions. Dead Dying and Diseased Exemptions (1038(b)), combined Christmas Tree (1039(a)) and Fuelwood, Split Products (1038(b)), and Utility Right-of Ways (1038.2) cover the bulk of acreage under Exemptions, approximately 98% of total acreage at 54.3%, 23.3% and 19.9% of all acreage for accepted exemptions, respectively (refer to report appendices). A significant amount of Exemptions are held by small landowners performing fuel reduction and fire protection on their properties, very often under 10 acres.

4.3.2 Enforcement

Review team agencies routinely collaborate and address permit violations and unpermitted activities affecting timberland ecosystems. Typical violations involve unlawful discharge of sediment or contaminants impacting water quality and fisheries, or similar impacts associated with unpermitted water diversions, illegal timber conversions, and impacts to wildlife associated with activities above. Close coordination among the review team agencies helps to ensure environmental standards are met and restoration of damages occurs in a timely manner.

Figure 13: (Left) In-stream violation involving tree removal and earthwork. (Above) Illegal conversion on timberlands involving tree removal and earthwork.

4.3.2.1 Number of Forest Practice Violations

Issuing Notices of Violation of the Forest Practice Act or Rules is an important part of CAL FIRE's enforcement role for timber operations and for addressing unpermitted conversion of timberland. Table 3 presents the number of violations of the Forest Practice Act or Rules issued by CAL FIRE. A violation may lead to on-the-ground repairs and/or issuance of a criminal citation (misdemeanor) and fine, issuance of an administrative civil penalty, or licensing action (denial, revocation, or suspension) against the responsible Registered Professional Forester or Licensed Timber Operator.

The Department of Fish and Wildlife and the Water Boards also pursue enforcement actions against landowners, Registered Professional Foresters, or Licensed Timber Operators. These enforcement actions are based on laws that these agencies enforce, such as the Fish and Game Code or the Porter-Cologne Water Quality Control Act, or permitting conditions. The enforcement action tracking systems that the Department of Fish and Wildlife and the Water Boards currently have in place do not readily allow for the identification of enforcement actions taken exclusively on forestlands. Agency leadership will examine ways to modify the enforcement tracking systems at the Department of Fish and Wildlife and the Water Boards to allow the quantification of their enforcement actions taken on forestlands, particularly as related to timber harvesting activities.

Table 3. Number of Violations Issued by CAL FIRE, FY 2011-12 to 2019-20.[1]									
	Number of Violations								
Harvest Document Type	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Timber Harvesting Plans	127	72	46	45	24	64	73	42	38
Nonindustrial Timber Management Plans	19	16	15	11	21	28	6	30	16
Emergency Notices	3	13	6	7	27	23	3	5	17
Exemption Notices	84	72	61	40	109	98	109	116	84
Violations Not Tied to a Harvest Document	141	141	158	98	180	259	254	96	154
Totals	**374**	**314**	**286**	**201**	**361**	**472**	**445**	**289**	**309**

[1]A single plan may have multiple violations associated with it.

4.4 Efficiencies in Permitting and Environmental Review

The Timber Fund continuously endeavors to improve processes, including efficiencies in permitting and environmental review. This includes a two-fold goal of: 1) assisting the public in achieving their management objectives in forested landscapes of the State; while 2) ensuring environmental protection and public safety, with sufficient time for all critical Timber Fund functions. Below are examples of current activities under the Timber Fund to tighten operations and improve efficiencies.

4.4.1 California Timber Regulation and Environmental Evaluation System

A significant effort funded by the Timber Fund over the past several years has been to develop a single online application to enable more efficient permit submission, review, and transparency associated with the environmental review and multiple State permits that may be required for timber harvesting (THPs, exemptions, emergencies, etc.). In FY 2015-16, the Natural Resources Agency began developing this system using the Accela permitting software platform.

The new online timber harvest permitting system called the California Timber Regulation and Environmental Evaluation System (CalTREES) is one of the few online application systems that enables a complete CEQA equivalent environmental review process. Once fully implemented, CalTREES will improve efficiencies for the submission, review, and administration of timber harvesting permit applications. It also will enhance public access to harvesting permit information and support analysis by automating the collection of program performance information, such as time to complete reviews of THPs and NTMPs.

Phase 1 of CalTREES was finalized in FY 2019-20, which includes online timber harvest permit submission and review, and online data collection. The review team agencies began using CalTREES internally in October 2018, which has helped keep review teams coordinated. Exemption and emergency notices became available for online submission in the Fall of 2019. Timber harvest data is online within the CalTREES, making it easier to analyze timber harvest results.

- Timber Fund staff continue to work in conjunction with technical staff to improve CalTREES functionality to ensure ease of use.

Phase 2 began in late 2020 and includes linking geospatial data to the platform, updating the user interface to be more intuitive, and integrating additional timber related permits into a single application

Summary of functionality, includes:

- The ability to validate data upon submission, thus helping submitters to immediately identify errors in their documents and correct them more quickly;
- The ability to capture and track submission-specific information;
- An improved public comment process, accessibility, and transparency;
- Improved public access to documents;
- Reminders to registered professional foresters, licensed timber operators, and landowners of regulatory requirements prior to submission;
- A streamlining of the current collaborative process for reviewing timber harvesting documents;
- Automated notification of review deadlines to reviewing agencies, departments, and personnel;
- Electronic notification and document distribution to submitters, landowners, timberland owners, and interested members of the public;
- Electronic archiving of permit related information such as THPs, public comments, agency inspections, etc.
- Accountability of agency and submitter responsibilities, including process timelines, throughout the review process;
- More efficient tracking of review processes for reporting to the Legislature and control agencies.

The CalTREES team has worked to educate internal and external stakeholders and help them understand the system and its benefits. Staff and the public have access to the CalTREES help desk to support transitioning to the new system and to answer questions. Outreach and training efforts for external stakeholders have included: public workshops, group training sessions, live system demonstrations, and presentations at forest industry conferences.

The CalTREES Timber Harvest Training and Resources website is designed to be a one-stop shop for accessing documents, agency links, and past/current training events related to timber harvesting activities. The website contains a document library, PowerPoint presentations, videos, and related material from a broad range of review team agency resources. When training events/workshops are available, the website is used to enroll for the event. This public website is intended to be an easily accessible portal to the wealth of information and guidance relevant to timber regulation.

The launch of CalTREES has proven timely and now essential during the COVID-19 pandemic, where paperless submissions and remote access to resources are more important to the public and Timber Fund staff than ever before. It is expected that this transition to online submissions will gain a stronger following by stakeholders who are now more dependent on remote access.

4.4.2 Permit Synchronization

Timber Fund staff continue to work to develop tools to better synchronize the review and approval of the multiple State permits that may be required for timber harvesting which follow timber harvest authorizations. Review team departments have developed a concept for improved integration and synchronization of the issuance of Lake or Streambed Alteration Agreements (LSAAs) and Waste Discharge Requirements (WDRs) within the THP (or equivalent) review process, as applicable. This effort aims to facilitate the current permitting with the goal for issuing Department and Fish and Wildlife and Regional Water Board permit approvals within five working days of CAL FIRE's approval of the THP.

Under the synchronicity concept, a THP submitter has the option to include all information needed for the review and issuance of a Lake and Streambed Alteration Agreement and/or WDR, up front, with their THP submission. If all the necessary information has been submitted, the Department of Fish and Wildlife and Water Board can improve the efficiency of review of their respective permits at the same time they review the timber harvesting document. This can reduce unnecessary delays resulting from requesting additional information to evaluate projects pursuant to agencies statutory authorities. New draft CalTREES-consistent forms to collect the permittees' information in support of synchronized review have been developed. Once these are available, RPFs and landowners can begin to use them. As a next step, these information elements will need to be programmed into the online CalTREES system, which will require additional system-building contracting by CAL FIRE.

4.4.3 California Vegetation Treatment Program

In FY 19/20, the State Board of Forestry and Fire Protection certified a new statewide fuel and vegetation management program referred to as the California Vegetation Treatment Program (CalVTP) to help CAL FIRE and other public agencies expedite the CEQA process for fuel reduction from years to mere months. This is a critical tool to build wildfire resilience and improve long-term forest management in the face of climate change. The program includes rigorous requirements for environmental oversight, while creating efficiencies within the regulatory process to scale up fuel treatment and forest restoration

projects toward meeting the state's goal of treating 500,000 acres of non-federal lands annually.

Projects that will benefit from the CalVTP include:

- Wildland-Urban Interface fuel reduction, including removal of vegetation to prevent or slow the spread of fires between wildlands and buildings.
- Fuel breaks that support fire suppression activities by providing emergency responders with strategic staging areas and access to otherwise remote landscapes for fire control.
- Restoration in ecosystems where natural fire regimes have been altered due to fire exclusion, including restoring ecological processes, conditions, and resiliency to more closely reflect historic vegetative composition, structure, and habitat values.

Timber Fund staff have now pivoted from development of the CalVTP to becoming more active in review and support of projects submitted under the new CalVTP.

4.5 Forest Ecosystem Monitoring and Management Planning

Interagency staff are working to expand the Timber Fund's capabilities in spatial analysis for advancing environmental monitoring and natural resources management. With ever-increasing pressure and stress on the State's forested ecosystems, including wildfire, climate change, and a growing human population, monitoring is necessary to detect trends, understand, and respond to ensure sustainable water quality and supply, forest resources, biodiversity, carbon, and other vital State resources.

Assembly Bill 1492 directs the Timber Regulation and Forest Restoration Program to develop an ecological performance measures approach as an accountability measure for the multiple State programs that regulate forest and timberland ecosystems. Results of monitoring can be used to inform decision makers in their work to adaptively manage forests and timberlands and to track efficacy of State-led forest management regulations, policies, and programs. This includes the evaluation of State and Federal programs to invest in forest health and resilience such as fuel reduction activities.

Timber Fund staff actively lead various levels of monitoring associated with management such as timber harvest and fuel reduction projects, including:

- the establishment of a new monitoring effort to evaluate forested watershed conditions statewide; and ongoing work to track regulatory effectiveness of forest management projects on-the-ground.

4.5.1 Statewide Forest Ecosystem Monitoring and Prioritization Planning

Managing California's extensive forests and timberlands requires an enduring monitoring effort to enable the State to adaptively manage and effectively respond to unprecedented climate pressure and change. This is particularly important given the significant investment State and Federal partners are directing to forest restoration and fuel reduction projects, in addition to ongoing commercial timber harvest. Statewide monitoring will enable comparable assessment, and more targeted, coordinated, and sustainable management through time. Monitoring forest resource conditions across California's forested ecoregions can help link the outcomes of on-the-ground projects to the efficacy of state funded programs, including those for restoration and regulatory compliance (Figure 14).

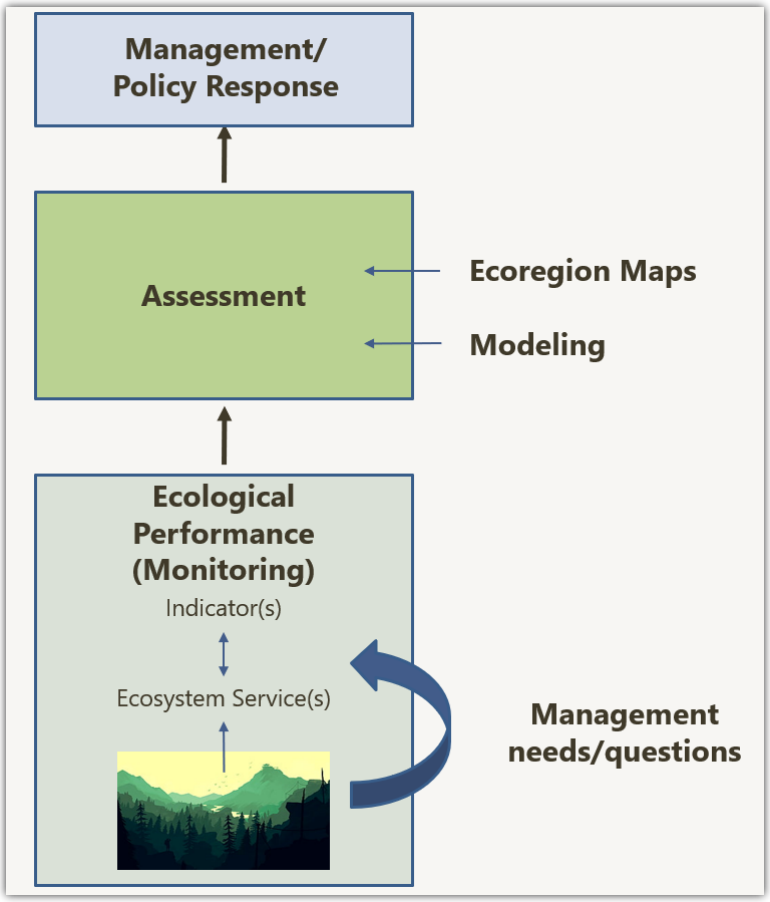


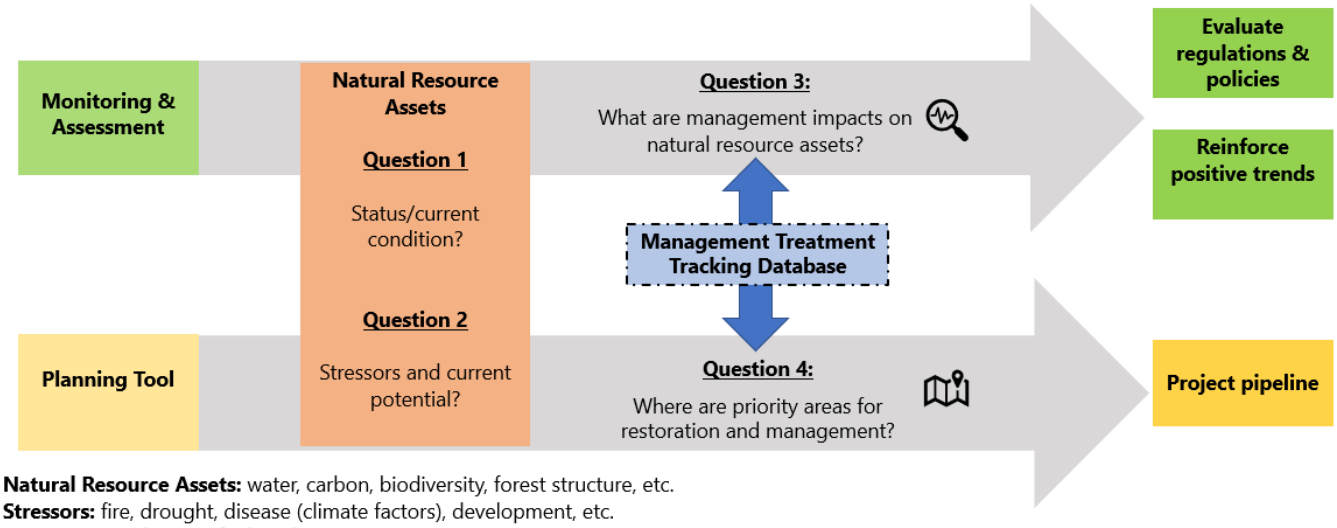
Figure 14: Representation of forest ecosystem monitoring and assessment effort. A key initial step in this effort is to establish management questions that can link forest ecosystem condition (e.g., water quality, forest structure, biodiversity, carbon, etc.) to management practices, disentangling management's influence on forest ecosystems.

In mid-2018 CNRA hired a Senior Environmental Scientist, and the Timber Fund was able to begin, in earnest, to design an interagency framework for the establishment of statewide forest ecosystem monitoring responsive to the Timber Fund's legislative mandate. In April 2019, in close collaboration with Timber Fund partners and interested stakeholders, CNRA released a white paper describing key considerations and methods towards developing the monitoring initiative. This is best described as a statewide, spatially-explicit, integrated approach to data assembly and analysis for California forests, bringing together existing interagency datasets and remote sensing from state and federal resource programs, to consistently track forest ecosystem condition over time at a watershed resolution. Two public workshops were held throughout 2019 to obtain stakeholder input including the initial identification of management questions to guide monitoring development. Then in January 2020, with the assignment of AB 2551 (Statute of 2018; *4.7 Forest and Watershed Restoration*) to

CNRA, a unique opportunity emerged to advance the AB 1492 monitoring initiative in conjunction with AB 2551.

With funding from the Regional Forest and Fire Capacity Program (California Climate Investment funds), the CNRA-led monitoring effort under the Timber Fund has become directly linked to AB 2551, also referred to as to the Headwaters Revitalization Initiative. This Initiative involves development of a spatially explicit natural resource assessment and prioritization plan for forested watershed management and restoration investments in the major watersheds that supply the Oroville, Shasta, and Trinity Reservoirs (totaling nearly 7 million acres: the Feather, Pit, McCloud, Upper Sacramento, and Trinity watersheds). This work will help resource managers plan long-term forest management actions for critical source watersheds of the state. By quantifying forest structure, water supply, carbon, biodiversity, forest hydrology, and various other vital services, and evaluating risk (e.g. wildfire and climate variables), this spatially explicit analysis is intended to significantly improve the availability of data and integrated analysis for use by local, tribal, state and federal partners to determine natural resource conditions, risk, and priority locations across large landscapes to inform management and investment planning. A priority planning tool will also be developed to allow the state, federal partners, and Tribes to define unique forest management priorities, and help identify locations with greater need for management, particularly considering multiple co-benefits.

The unification of the two efforts, particularly by tying the spatial assessments together and intentionally building the assessment to be updatable and scalable to statewide application, will: 1) support project planning for forest management and restoration needs; and 2) simultaneously serve as the foundation of long-term monitoring needed to transparently evaluate forest and watershed health (Figure 15). A critical premise of this effort is to bring together the extensive existing science-based efforts available, build on partner efforts, and limit redundancy.



Natural Resource Assets: water, carbon, biodiversity, forest structure, etc.
Stressors: fire, drought, disease (climate factors), development, etc.
Management: harvest/fuels reduction, conversion, restoration, conservation, etc.

Figure 15: Conceptual diagram displaying the linkage between monitoring under AB 1492 (green box, top left) and prioritization planning (yellow box, bottom left). The peach-colored vertical box entitled "Natural Resource Assets" is the spatial quantification assessment that will unite the two legislative efforts. The various questions posed in the diagram indicate high-level questions to be answered by the analyses.

To provide technical support the effort described above, CNRA released a Request for Proposal in July 2020 describing the planned initiative and scientific scope in detail (refer to Section V, Scope of Work, in Request for Proposal), working in consultation with interagency partners including the Bureau of Land Management, National Park Service, and US Forest Service.

While in the early stages of implementation and outreach for these efforts, CNRA and partners have an aggressive plan to implement this work in the coming two years. The State is prioritizing that the assessment balance the latest watershed science with robust input and partnership of Tribes, Federal agencies, industry, communities, and watershed practitioners. To support participation and partnership, the State has set aside funding (via Regional Forest and Fire Capacity Program) to support costs of Tribes' internal deliberation, priority identification, as well as participation.

The governance structure for this project is as follows:

- An Interagency Steering Committee representing leadership from state departments, boards, and commissions under both CNRA and CalEPA, and federal agencies, will guide major policy decisions and direct program implementation by the Principle Investigator (P.I) and their team so that it aligns with priorities of the Secretaries. Tribal governments may be considered to participate in this group.

- A Technical Advisory Committee will be made up of staff from state and federal agencies and Tribal members with technical expertise to support the P.I. and to ensure that methodologies, practices, and final assessment tools are defensible, represent best available technologies, and are widely usable.
- The CNRA Senior Environmental Scientist will oversee stakeholder outreach as well as scientific development to ensure on-schedule delivery of AB 1492 and AB 2551 products.

4.5.2 Monitoring Emergency and Exemption Ministerial Permits: Timber Harvest

Distinct from statewide and watershed level monitoring, there are efforts to monitor on-the-ground effectiveness of the Forest Practice Act and Rules and other natural resource protection codes and regulations for timber harvesting projects. CAL FIRE's Watershed Protection Program, in conjunction with the other review team agencies, actively evaluates outcomes of harvesting operations conducted under approved timber harvesting plans (i.e., THPs, NTMPs, etc.) as well as those activities that fall under Emergency and Exemption ministerial harvesting permits. Regular compliance inspections are undertaken by CAL FIRE foresters, occasionally with participation of other agency staff. Forestry staff hired specifically to undertake effectiveness monitoring of activities regulated under the Forest Practice Rules are in the field and protocols for field data collection are being refined as a regular monitoring program is established.

Image 1: Review team inspecting drainage and erosions issues proximate to harvest site.

Exemption and Emergency (EX-EM) Notice monitoring became an important task for the review team agencies beginning in 2018. Considerable information on compliance with the Forest Practice Rules and effectiveness of their implementation has been collected on conventional Timber Harvesting Plans. Assembly Bills 1958 and 2029 in 2016, Senate Bill 92 in 2017, and Senate Bill 901 in 2018, CAL FIRE, in cooperation with the State Board of Forestry and Fire Protection and the other review team agencies initiated a long-term monitoring program for Exemption and Emergency Notices.

The initial reports prepared by CAL FIRE and the Board, with participation from the Department of Fish and Wildlife (CDFW), Regional Water Quality Control Boards (RWQCBs), the California Geological Survey (CGS), focus on trends in the use of Exemptions and Emergency Notices and the effectiveness of these ministerial permitting options to protect forest health.

In 2019, CAL FIRE, along with the other review team agencies, monitored Emergency Notices following the extensive wildfires in 2017 and 2018 in California. Fifty-four (54) Emergencies were randomly selected from 272 Emergencies accepted in 2018 for tree damage and mortality due to wildfire, insects, or drought. Forty-nine (49) Emergencies were related to wildfires, and five (5) were related to insect or drought damage. Of these 54 Notices, 13% had no activity under the submitted Emergency (e.g., no work started). Considering the 49 enacted Emergency Notices, the majority involved ground based tractor yarding or a combination of tractor yarding and cable yarding. Harvest intensity on Notices generally followed tree damage and mortality patterns and ranged from low impact to extensive clear-cut equivalent timber harvests. Rare, Threatened, or Endangered species had not been reported within many of the Notice boundaries, CNDDB queries but Notices were filed within areas of suitable habitat for these species.

Sixty-two percent (62%) of the sampled Emergencies had "Acceptable" composite performance outcomes related to water quality, while 32% of Emergencies had "Acceptable to Unacceptable" mixed performance outcomes, and 6% had entirely "Unacceptable" outcomes. Twenty-six (26%) of Emergencies had an "Unacceptable" outcome relative to either watercourse crossings, road hydrologic disconnection, or watercourse protection. Water quality issues were related to watercourse crossings that were not adequately designed or maintained, ground based tractor yarding, and road drainage onto fire-impacted bare hillslopes in close proximity to watercourses.

These findings were presented to the public at a December 2019 Board of Forestry meeting and the draft report released. As a result of this monitoring study, the BOF and CAL FIRE, in close collaboration with CDFW and Water Boards, issue guidance and outreach materials directly to Registered Professional Foresters, Licensed Timber Operators, as well as landowners, to help them understand the additional sensitivities in post-fire landscapes and reinforce the critical need to comply with Forest Practice Rules, particularly related to water quality.

4.5.3 Effectiveness Monitoring Committee

The Board of Forestry and Fire Protection's Effectiveness Monitoring Committee (EMC) was formed in 2014 to develop and implement a project-level monitoring program to address both watershed and wildlife concerns and to provide a better active feedback loop to policymakers, managers, agencies, and the public. Effectiveness monitoring is necessary for assessing whether management practices are achieving the various resource goals and objectives set forth in the California Forest Practice Act and Rules and other natural resource protection codes and regulations.

The EMC began public meetings in October 2014. The EMC completed a Strategic Plan to develop a framework for the critical effectiveness evaluation of the California Forest Practice Rules by soliciting, ranking, and funding competitive research proposals. The EMC updates their Strategic Plan every three years with the most recent version produced in 2018 and produces an Annual Report and Work Plan in the interim.

The Board of Forestry and Fire Protection hired a Forester to help support the work of the EMC in the FY 2015-16 budget process. As part of the FY 2016-17 budget process, the Board was authorized contract funding for two years to support research projects that evaluate the effectiveness of the Forest Practice Rules. As a part of the FY 2018-19 budget process, the EMC was granted ongoing funding of $425,000/year to support effectiveness monitoring research projects.

In FY 2019-20, the EMC has supported three new effectiveness monitoring research projects totaling $281,000. These projects are summarized in Table 4, below. The projects range from analyzing fuel treatment life cycle and longevity, monitoring of riparian conditions, to assessment stream flow resulting from repeat forest health treatments.

Table 4. Summary of Effectiveness Monitoring Projects Funded by EMC, FYs 2019-20.

Project Number and Title	Summary	EMC Funding	Study Collaborators
FY 2019-20			
EMC-2019-002: Fuel Treatment Longevity and Maintenance Needs for Fuel Reduction	Assess the current maintenance needs for all projects implemented, funded, or otherwise supported by the Plumas Fire Safe Council. Helping to inform the Plumas FSC on its treatment life cycle, to better plan for and fund future treatment maintenance and substantiate that the FSC has and continues to utilize "best available science" in their treatment design and long-term maintenance. The treatments implemented were designed to reduce immediate fire risk to structures, reduce fire severity, and over time, improve overall community fire resilience.	$68,167	Jason Moghaddas, Spatial Informatics Group
EMC-2019-003: Fuel Treatment Effects on Water Yield	To monitor, analyze, and develop statistical and physically-based models to quantify the response of streamflow to cumulative forest treatments in Sierra Nevada watersheds. Results will significantly advance and transform our understanding of the impacts of fuel treatments on short- and long-term water yield in sub-alpine mountain systems and provide critical information for regional forest and water resource managers and planners.	$156,665	Dr. Terri Hogue and Dr. Alicia Kinoshita

Table 4. Summary of Effectiveness Monitoring Projects Funded by EMC, FYs 2019-20.

Project Number and Title	Summary	EMC Funding	Study Collaborators
EMC-2019-005: LWD Impacts on Channel Morphology and Salmonid Habitat	Monitoring project with the objective of evaluating the effectiveness of the Forest Practice Rules Section V alternative riparian management practices in enhancing the quality of the beneficial uses of water in a salmonid habitat setting, and to collect hydrogeomorphic data that aids in establishing baseline monitoring data as it relates to fluvial geomorphic effects of AWR projects in a variety of regionally significant coastal geomorphic settings.	$56,200.00	Cheryl Hayhurst, Michael Fuller, Peter Roffers (CGS)

4.6 Grants: Forest Ecosystem Restoration

When Program funding is available for restoration work, funds are appropriated by the State budget process, AB 1492 (as amended) for grants and programs to: promote forest restoration; mitigate past damage from wildland fire and legacy forest management practices; improve Coho habitat and remove fish migration barriers; improve sediment control measures to prevent water quality impairment; and more, described in detail below.

In FY 2019-20, approximately $2 million of Fund appropriations were invested in forest restoration. The forest restoration grant activities under the Timber Fund have continued in FY 2019-20 through grant programs under the Clean Water Act 319 Grant Program at the State Water Resources Control Board ($1 million for local assistance grants), and the Forest Land Anadromous Restoration grant program conducted by the Department of Fish and Wildlife through its Fisheries Restoration Grant Program (approximately $1 million).

4.6.1 Department of Fish and Wildlife

Recognizing the very significant needs for habitat improvement for the state's listed anadromous salmon, the Department of Fish and Wildlife's Fisheries Restoration Grant Program (FRGP) was chosen as the vehicle for initial restoration work. As a part of the May revision to the Governor's FY 2014-15 budget, CDFW received $2 million per year for two years from The Timber Fund to support grants for projects that would improve anadromous salmonid habitat by addressing legacy forest management impacts. The Department of Fish and Wildlife administers the grants as the Forest Land Anadromous Restoration (FLAR) Focus element of FRGP[10].

Image 2: Restoration of salmonid habitat conditions and water quality through large wood augmentation in critical Coho salmon and steelhead streams and rivers (Mendocino Coast Large Wood Augmentation Project Phase 1, Trout Unlimited)

In FY 2019-20 the FLAR Program awarded $999,730 in grant funding (Table 5) to projects principally located in Mendocino County focused on reducing sediment delivery, decommissioning roads proximate to fish-bearing streams, and introducing large woody debris (Image 2), which is important for improving habitat and water quality for salmonids.

[10] Sample restoration project for coho salmon along a tributary to the Scott River using the FLAR funds.

Table 5. Summary of Fund Forest Restoration Grants via the Department of Fish and Wildlife Forest Land Anadromous Restoration (FLAR) Program, FY 2019-20.

Project Type*	Project Title	Applicant	Project Description	County	Year and Fund Funded Amount
HU	Coulborn & Sebbas Cks Sediment Reduction & Salmonid Habitat Enhancement	Mattole Salmon Group	This project will reduce sediment delivery and improve water quality for all life stages of salmonids in Indian Creek by preventing the delivery of approximately 5,129 yd^3 of sediment from road-related sediment delivery features to Coulborn and Sebbas Creeks including, upgrading 17 features on 1.9 miles of road and decommissioning 38 features on 3.5 miles of road (a total of 55 features on 5.4 miles of road).	Mendocino	FY 2019-20 $131,142.72
HI	Anderson Creek Habitat Enhancement for Coho Recovery – Phase IV	Eel River Watershed Improvement Group (ERWIG)	The purpose of this project is to supplement ongoing efforts to provide short- and long-term benefits to salmonids through the placement of large woody debris (LWD). The placed LWD will enhance pools, increase gravel sorting, create cover and provide increased habitat complexity.	Mendocino	FY 2019-20 $81,371.00
HI	Dutch Charlie Creek Instream Coho Habitat Enhancement Project	Trout Unlimited, Inc.	This project will install 203 pieces of large wood at 96 distinct structure sites in 2.0 miles of high-priority Coho recovery habitat in Dutch Charlie Creek. This project will increase stream habitat complexity, pool frequency, pool depth, high flow refugia, and over-summer rearing habitat for Coho Salmon and steelhead trout.	Mendocino	FY 2019-20 $200,934.00

Table 5. Summary of Fund Forest Restoration Grants via the Department of Fish and Wildlife Forest Land Anadromous Restoration (FLAR) Program, FY 2019-20.

Project Type*	Project Title	Applicant	Project Description	County	Year and Fund Funded Amount
FP	Morrison Creek Tributary Barrier Removal	Smith River Alliance	The object of the project is to improve upstream fish passage for adult and juvenile Coho Salmon, and to reduce the potential for culvert failure and resulting in sediment delivery to an unnamed tributary of Morrison Creek. Replacement will allow salmonids unimpeded access to 0.6 miles of good quality rearing habitat.	Del Norte	FY 2019-20 $203,593.00
HI	Butler Creek Habitat Restoration Project	Eel River Watershed Improvement Group (ERWIG)	The objective of this project is to construct 40 LWD features along 1.1 miles of Butler Creek. These features will contain 136 pieces of LWD, 24 of which will be key pieces. The addition of these structures will enhance spawning and rearing habitats for juvenile and adult salmonids.	Mendocino	FY 2019-20 $98,020.00
HU	Julias Creek Sediment Reduction and Salmonid Recovery Project	Trout Unlimited, Inc.	This project will result in the permanent removal of 5.23 miles of streamside riparian road which represents almost 100% of the streamside road under RFFI management along Julias Creek. It will also reduce future anthropogenic sediment impacts from the streamside road system to the watershed by eliminating approximately 14,445 cu. yds. of future potential sediment from the decommissioned road system and normalizing the hillside hydrology.	Mendocino	FY 2019-20 $284,669.00
			Total Grant Amount Funded		**$999,729.72**

*__HI__ = Instream Habitat Restoration; __HB__ = Instream Barrier Modification for Fish Passage; __HR__ = Riparian Restoration; __HU__ = Watershed Restoration–Upslope; __FP__ = Fish Passage.

4.6.2 Water Boards

The Legislature appropriated $1 million to the State Water Board from The Timber Fund in FY 2019-20. The State Water Board administered The Timber Funds through its Section 319(h) Clean Water Grant Program. This grant program implements projects or programs that reduce nonpoint source pollution to waters of the state. In FY 2019-20 the State Water Board selected two projects to fund with the $1 million from The Timber Fund (Table 6).

SWRCB Restoration Success Stories

The SWRCB has funded 18 projects in California's forested lands totaling $9,000,000. Five projects have been completed since 2015, while the remaining Projects are ongoing and scheduled to be completed at various points over the next two years.

Large Wood Augmentation in the North Coast:

Nearly $1 million was awarded to Trout Unlimited to restore habitat complexity in high-priority watersheds critical for the recovery of Coho Salmon and Steelhead Trout. Trout Unlimited treated over 15 miles of streams and river segments with instream large wood in the first project and are treating 10 additional miles of high priority sites in phase II (Ten Mile River, Noyo River, Big River, Albion River, Navarro River, and Garcia River).

- Final reports indicate all expectations for the first project were met or exceeded.
- Monitoring results show an increase in pool depth and frequency which supports vital habitat for many aquatic species, most notably Coho Salmon and Steelhead Trout.

Ponderosa Way Phase I:

In 2015, $300,000 was granted to Tehama County Resource Conservation District (RCD) to develop the Ponderosa Way Road Assessment and Sediment Reduction Plan (Plan). The Plan includes an evaluation of future erosion risk, annual sediment yield from Ponderosa Way into Battle Creek, a road inventory and sediment source assessment of Ponderosa Way, and potential actions for future management of sediment including storm proofing treatments on watercourse crossings and road decommissioning. Also implemented was 4,315 feet of road upgrades of along Ponderosa Way including road drainage treatments to reduce road-related sedimentation, road outsloping and berm removal along 3,000 feet, constructing 17 rolling dips, armoring 5 rolling dips, delivering and rocking road surface, seeding bare soil areas, and adding weed free straw mulch.

- Monitoring indicates that the road work decreased sediment discharge by 250 cubic yards per decade, and 37 tons per year; and
- Of all the sediment discharge sites treated as part of this project, all but one showed sediment reductions that met the goals of the project.

Table 6. Summary of Fund Forest Restoration Grants via the State Water Board FY 2019-20.

Project Title	Applicant	Project Description	County	Funded Amount
King Fire Significant Existing and Potential Erosion Sites	American River Conservancy	The purpose of the project is to fix select priority Significant Existing and Potential Erosion Sites (SEPES) on the Eldorado National Forest (ENF) that were identified on haul routes associated with timber sales implemented under the King Fire Restoration Project (KFRP). Funding will be used to replace multiple large failed and at-risk stream crossing structures with an emphasis on designing crossings to accommodate a 100-year event, plus associated sediment and debris.	El Dorado	$266,366
Upper Bidwell Park Road and Trail Sediment Source	City of Chico	The purpose of this project is to implement forest management practices through identification and reduction of road and trail related erosion and sediment delivery features in Upper Bidwell Park located within the Big Chico Creek Watershed. Although the project area is not in a State Responsibility Area (SRA) it is directly adjacent to an SRA. The identified project area directly poses a threat to SRA lands and SRA lands drain directly into the project area within the Big Chico Creek Watershed.	Butte County	$706,352
			Total Grant Amount Funded 2019-20	**$1,000,000**

4.6.3 CAL FIRE

4.6.3.1 California Forest Improvement Program

CAL FIRE has utilized The Timber Fund to offer extensive forest restoration grants through the California Forest Improvement Program (CFIP), including reforestation of timberland significantly impacted by wildland fires and drought mortality. Private forestland ownerships of 20 acres to 5,000 acres in size are eligible for the Timber Fund for a wide range of project types ranging from reforestation, forest health improvement thinning, site preparation, and release of conifer seedlings. One of the most important steps in the program is the preparation of an ownership-wide forest management plan for the grantee. This plan serves to educate the forestland owner about their options for forest management and develops long term goals which establish a set of

management actions to meet those goals over time. This management plan is then used to guide the forest restoration projects that can be supported with CFIP grants and other similar Federal grant programs such as the NRCS Environmental Quality Incentives Program (EQIP).

CAL FIRE received and allocated a combined total of approximately $10 million from The Timber Fund in support of CFIP grants in FY 2015-16 through FY 2017-18. In Fiscal Year 19-20, the CFIP program continued to expend remaining encumbered funds from prior fiscal years and with California Climate Investment funds from the Greenhouse Gas Reduction Fund and Proposition 68 Forest Health Funding.

Summary of major activities:

- CFIP utilized The Timber Fund as the primary funding source for hiring five (5) CAL FIRE Foresters, also known as Forestry Assistance Specialists, who are located across California's most diverse timberlands. These CAL FIRE Foresters provide valuable technical assistance to private forestland owners and serve as the critical link between landowners and the CFIP program.
- Over the last 5 years of Fund support, the CFIP program has achieved 2,009 acres of reforestation, 3,583 acres of restoration activities, and helped landowners plan-out future actions on 43,304 acres through creation of Management Plans. Additionally, The Timber Fund has been utilized in conjunction with other funding sources such as the High-Speed Rail Authority (HSRA) to reforest 1,180 acres of timberland significantly damaged by wildfires or drought mortality.

Forest Improvement Program
A Closer Look

Rock Haven, Shaver Lake, Fresno County

Rock Haven is a privately owned, 160-acre parcel with 17 individually owned cabins. Through funding provided to CFIP from the Program, the property owners hired a Registered Professional Forester to develop a forest management plan and implement a strategy for improving the resilience of the forestlands they own. The property is in the heart of an area heavily affected by tree mortality. The CFIP project removed dead trees and brush, and small understory trees were thinned. The resulting forest was greatly improved for wildfire resilience. As indicated in the forest management plan, the immediate areas around the cabins were also cleared to achieve 100' of defensible space.

Little did anyone know that the property would soon be heavily impacted and tested by a fast - moving wildfire. As the Creek Fire approached Shaver Lake in Fall 2020, CAL FIRE firefighters knew the Rock Haven property had been treated and therefore used it as a tactical anchor point for fire line construction and back firing operations. An existing fuel break located near the property was used to create a continuous dozer line along the ridge and around the property. Rock Haven became a safe place for fire fighters to stand their ground before the fire reached Shaver Lake. Ember cast did reach the property, starting several spot fires. Because the property had been treated, with ladder fuels and thickets of small trees and brush removed, the large embers did not develop into spot fires of concern. In fact, the embers that did find fuel to burn, developed into low intensity, creeping ground fires, similar in nature to a prescribed burn.

Both fire fighters and the project's forester agree that without the treatments done on the property, Rock Haven and its historic cabins would not have survived the Creek fire.

In Fiscal Year 2019-20 CFIP achieved 310 acres of reforestation, 1,012 acres of restoration activities, and helped landowners plan-out future actions on 6,531 acres of forestland through the creation of Management Plans. As of this report, there are 40 open or active CFIP Grants that utilize the Timber Fund.

In addition to reforestation, CFIP has utilized The Timber Fund for watercourse restoration projects where roads or erosion sites are impacting important fish bearing streams. To date, 50 road sites have been treated by either replacing or repairing crossings as well as hydrologically disconnecting roads from a watercourse.


Site 1- (Before, left): 2017 Redwood Fire post salvage logging prior to CFIP practices. Mendocino County, California. 17/18 CFIP Funded. **Site 1- (After, above):** 2017 Redwood Fire replanted with Douglas fir seedlings. Mendocino County, California. 17/18 CFIP Funded


Site 1 (Before, left): 2017 Redwood Fire post salvage logging prior to CFIP practices. Mendocino County, California. 17/18 CFIP Funded. **Site 2 (After, right):** 2014 Butte Fire CFIP Reforestation Project, completed planting of pine seedlings. Calaveras County California

4.6.3.2 Reforestation Seedling Production

As the result of a FY 2017-18 budget change, CAL FIRE resumed reforestation seedling production at the L.A. Moran Reforestation Center (LAMRC) in Davis, CA, in order to meet reforestation needs of landowners throughout the State. CAL FIRE also maintains and operates the State Seed Bank, which is one of the largest conifer seed banks in California.

This is considered an essential activity to address the dynamic conditions of today's private and public forestlands due to drought, insects and disease, wildland fire, and climate change. Initial funding of $4.8 million in FY 2017-18 and somewhat lesser amounts in subsequent years is supporting upgrades to the facility, new greenhouses, permanent and temporary staff, re-initiation of production of forest and riparian seedling production, and ongoing reforestation research funding.

(Left) CAL FIRE Seed Bank.

(Right) Seedlings for reforestation in new greenhouse.

In late 2017 CAL FIRE began the process of restarting its nursery program. The majority of 2017-18 was spent evaluating the condition of the existing facilities, determining needs, filling vacancies, developing a workflow for sowing, growing and delivering seedlings, and purchasing supplies and equipment. To date, the following has been purchased:

- One 9,200 ft. greenhouse/shade houses equipped with retractable roof and walls and two interior shade curtains.
- Materials necessary to restore two existing greenhouses (i.e. twin wall polycarbonate roof and walls, including venting roof).
- Heating, cooling, irrigation, fertilization, and master control systems for all three greenhouses.
- 40 ft. Conex style refrigeration container.
- Upgrading of seed sowing equipment.
- Packaging and processing equipment.

2018 was the first season of growing seedlings in order to test processes. Seedlings were grown in a facility at UC Davis while greenhouses at LAMRC were being restored.

CAL FIRE completed restoration of the two existing greenhouses in January 2020. With the restoration of these two greenhouses, CAL FIRE sowed, and is in the process of growing, approximately 147,000 seedlings this year, available for planting in early 2021. Clients for these seedlings include American Forests and Whiskeytown National Recreation Area.

The new 9,200 square foot greenhouse is currently undergoing plan and permit review. Once the new greenhouse is completed, the total capacity for growing seedlings will be approximately 475,000.

One of the biggest successes with the reopening of LAMRC is the upgrades associated with the seedbank. CAL FIRE maintains and operates one of the largest seed banks in the State. With over 101 million seedlings, the LAMRC is one of the main suppliers of conifer seed for private landowners in California. Given the extensive tree mortality in the southern and central Sierra as well as large

and damaging wildfires throughout the State, without a robust supply of seeds, there would be a critical shortage of seedlings, and forestland destroyed in wildland fires would convert to brush and shrubs. CAL FIRE surveys, collects, processes and stores conifer and other tree seeds from across all 87 seed zones in the State, with collections separated out at 500-foot elevation bands. LAMRC stores and sells seeds to private landowners for reforestation within the State. The current inventory in the LAMRC seed bank is 20,224.49 pounds of seed. Of this amount, 5,203.80 pounds is considered "declining", i.e. the germination rate for a given species is below acceptable levels for sowing in a production nursery. While focused on rebuilding their nursery facilities, CAL FIRE is also putting focus on the rebuilding of the seed supply to ensure the future availability of a robust stock of seeds.

The additional funding for the reforestation center has allowed CAL FIRE to expand its work with UC Davis and the US Forest Service Pacific Southwest Research Station to study and draft scientifically-based seed transfer guidelines that will set a new standard for how the State addresses climate-related impacts to physiological growing conditions. This will ultimately assist foresters and landowners to match the right seed source with current and future growing conditions based on a changing climate. This climate-based, applied research will help to secure a healthy and resilient forest for California's future. This project will lead to development of a seed lot selection tool that will be available online and incorporate a mix of climate change forecasting so that seed selection is based on climatic estimates, rather than static map-based physiologic growing zones.

4.6.4 Sierra Nevada Conservancy

In FY 2018-19 the Sierra Nevada Conservancy (SNC; a Conservancy under CNRA) was appropriated a one-time amount of $1 million from The Timber Fund as part of the Agency's Forest Carbon Plan implementation package. The Timber Fund resources, with a five-year appropriation, will allow SNC to implement local assistance grants, as recommended by the SB 859 Working Group to support the innovation of wood product manufacturing and increase of rural economic development around wood product manufacturing. The grants provide seed funding for activities such as mill site redevelopment, mass timber manufacturing, workforce development, and other wood product related businesses within the Sierra Nevada region