RCD POST-FIRE PLAYBOOK

CALIFORNIA ASSOCIATION OF
RESOURCE
CONSERVATION DISTRICTS

This is a product of California Association of Resource Conservation Districts. Written, edited and compiled by Sophia Lemmo, Sierra Riker, and Ryan Reger with guest RCD authors throughout the playbook. Thanks to everyone who played a hand in putting this playbook together!

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Common Acronyms Forestry / Fire

Not all these acronyms are referenced throughout the handbook. Rather, this was requested from several RCD staff members to track the various acronyms. Think we are missing some? Let CARCD know!

ACRONYM	FULL NAME
1038	Forest Practice Rules Exemptions
1052	Notice of Emergency Timber Operations
BA	Basal Area
BAER	Burned Area Emergency Response
BF	Board Foot
ISA CA	International Society of Certified Arborist
CAWFRTF	CA Wildfire and Forest Resilience Task Force
CCC	California Conservation Corps
CE	Categorical Exemption
CFIP	California Forest Improvement Program
DBH	Diameter at Breast Height
EFRP	Emergency Forest Restoration Program
EFRT	Emergency Forest Restoration Team
EQIP	Environmental Quality Incentives Program
FA	Financial Assistance
FPR	Forest Practice Rules
FRA	Federal Responsibility Area
FRP	Forest Products Permit
FSA EFRP	Farm Service Agency's Emergency Forest Restoration Program
GNA	Good Neighbor Authority
LRA	Local Responsibility Area
MBF	Thousand Board Feet
NBIP	North Bay Improvement Program
PCA	Pest Control Advisor
PCT	Pre-commercial thin
QAL	Qualified Applicator License
RCPP	Regional Conservation Partnership Program
RPF	Registered Professional Forester
Rx	Prescribed burn- Prescription
SCP	Scientific Collection Permit
SOE	Spotted Owl Expert
SRA	State Responsibility Area
TA	Technical Assistance
THP	Timber harvest plan
TPA	Trees per Acre
UCCE	University of California, Cooperative Extension
USFS	United States Forest Service

Figure 1. Plumas County, CA. Photo credit: Camille Swezy.

Figure 2. Del Norte County, CA. Photo Credit: Sophia Lemmo.

INTRODUCTION

This handbook provides California Resource Conservation Districts (RCDs) information to perform post-wildfire recovery. As we are all aware, wildfires are a natural phenomenon in California. However, decades of fire suppression coupled with an increase in fuels, **climate change effects**, and human development in the wildland-urban interface (WUI) have exacerbated wildfire effects. The size, frequency, and intensity of California wildfires have substantially increased in recent years, contributing to large high intensity burn areas. In 2021, over 2.5 million acres of California burned, destroying over 3,500 structures. This increase in wildfires has cascading social, environmental, and economic costs. As high severity wildfires increase in size, landscapes are at risk of permanent forest loss. The purpose of this handbook is to serve as a guide for RCDs to combat forest and property loss. While the focus is on post-fire action, this handbook recognizes the importance of pre- and during-wildfire actions to effectively accomplish the subsequent post-fire steps. This handbook was created and compiled through a series of Post-Fire Playbook Monthly Forums hosted by CARCD with regular RCD involvement and feedback.

RCDs are deeply rooted in their local communities, serving as hubs for conservation. Just as California counties are environmentally and socially unique, so are the RCDs and the landscapes they work in. For example, the inter-agency dynamics and capacities vary from Humboldt County to San Diego County. Therefore, work associated with wildfires must be community-specific and tailored. The actions listed in this handbook are guidelines and should be adapted as appropriate in each special district.

Unlike other government post-fire recovery entities, RCDs face capacity limitations. RCDs lack sufficient, guaranteed financial investment and yet are often the most nimble and effective entity at providing recovery to private non-industrial forest landowners. Advocating for necessary capacity is a priority of CARCD.

This handbook is intended to be a living document, full of resources, tips, timelines, and guides. Regulatory and physical environments constantly change. If funding permits, this handbook will be updated annually or bi-annually. Due to funding constraints, portions of this handbook are brief, bulleted, or, perhaps even lacking. In some places, this handbook will reference links to other sources to avoid duplication and take advantage of pre-existing resources.

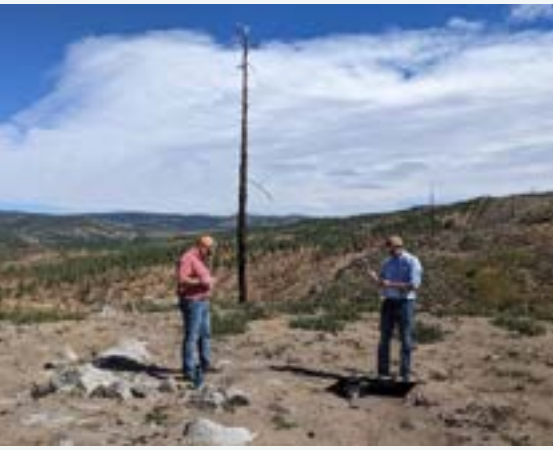


Figure 3. Plumas County, CA. Photo credit: Sophia Lemmo.

PARTNERS

Working with partners throughout the process of preparing, dealing with, and recovering from wildfires enables targeted, leveraged, and coordinated work. To avoid duplicating efforts, it's important to regularly update the following table, tracking the capacity of local entities. Doing so before a wildfire can clarify your RCD's role in post-fire planning, thus streamlining efforts.

Groups / Agencies	Fill-in primary contact(s) information	Collaboration ideas / intentions (e.g., on fuel breaks, sharing resources / maps, etc.)	Strengths of the organization / local capacity
LOCAL GROUPS			
Resource Conservation Districts			
County Contacts			
Tribal Contacts			
Municipality Contacts			
Watershed Group or NGO Contacts			
Local Fire Battalion / Chief			
UC Extension Forest and / or Fire Advisor			
Local Fire Safe Council			
LOCAL EMERGENCY SERVICE			
Local Office of Emergency Services			
INFRASTRUCTURE AGENCIES			
Caltrans contact			
Electric / Utility Contacts			
Public Land Managers / Resources			
NRCS District Conservationist			
NRCS State Forester / Conservationist			
CAL FIRE CFIP Forest Advisor			
Local CAL FIRE Vegetation Management Foresters			
Local USFS contacts (Forest Supervisor, BAER Coordinator)			
BLM Contact			
Local Farm Service Agency Contact			
LOCAL EXPERTS			
(consulting) RPF			
Other?			
OTHER RECOVERY ENTITIES (SAME MAY BE AT TIME OF RECOVERY)			
CA Office of Emergency Services			
Cal Recycle			
USFS – BEAR team			
WERT			

TRIBAL ENGAGEMENT

There are 110 Federally Recognized tribes in California, along with numerous non-federally recognized tribes. Engaging local tribes, especially early in project development is vital. This allows for the incorporation of Traditional Ecological Knowledge in to the landscape and empowers tribes to have more control over their ancestral lands. Several tribal members have recommended establishing lasting relationships, and conducting outreach earlier, rather than engaging superficially or for a single project.

RCD EXAMPLE

❋ The Resource Conservation District of Tehama County ("District") works with local Tribes to seek their expertise and assistance on large landscape projects. Recently, the District is conversations with the Yurok Tribe to implement the removal of large hazardous trees in the community of Mineral. The project is not on tribal land so the District sought legal assistance to better understand contracting with tribal governments and tribally-owned or associated entities off of tribal/reservation lands. This document highlights some lessons learned, and areas of needed clarification.

Many groups and entities respond immediately post-fire. Coordination of the fire suppression repair, emergency stabilization and hazardous materials removal phases is initiated by a variety of federal, state, and local agencies including the Burned Area Emergency Response (BAER) Team, California State Watershed Emergency Response Team (WERT), State Debris Task Force, and County Fire Recovery Teams. Additional emergency actions are also launched to protect public roads, utility lines, and mitigate hazardous materials from burned structures. These actions are implemented by contractors for California Office of Emergency Services, utility companies, CAL FIRE, Cal Recycle, Cal Trans, and USFS. Coordination with these groups can help define the RCD's niche and leverage their existing work.

RCD EXAMPLE

❋ El Dorado RCD was brought into the BAER team under the authority of the team's NRCS Area Engineer, which empowered El Dorado RCD and brought RCD needs into the discussion.

Here are some examples of how to specifically engage with some of the post-fire recovery entities/teams:

1. **CAL OES** often comes in right after fire and works expediently under the Emergency Services Act and Gov code 8571 – to do phase 1 and now, at least in some cases, hazard trees. They get rights of entry through the county and typically have a source for wood. RCDs have had varying levels of success piggyback off their work by using similar contractors and complementary work. El Dorado RCD was able to engage in document sharing with CAL OES, such as receiving their procurement and contract documentation, which helps with language adoptions for code 8571. GIS data may also be available from CAL OES.

2. **BEAR and WERT** teams have info on resources lost, properties affected, burn severity. Sharing resources and tracking where they are working is recommended.

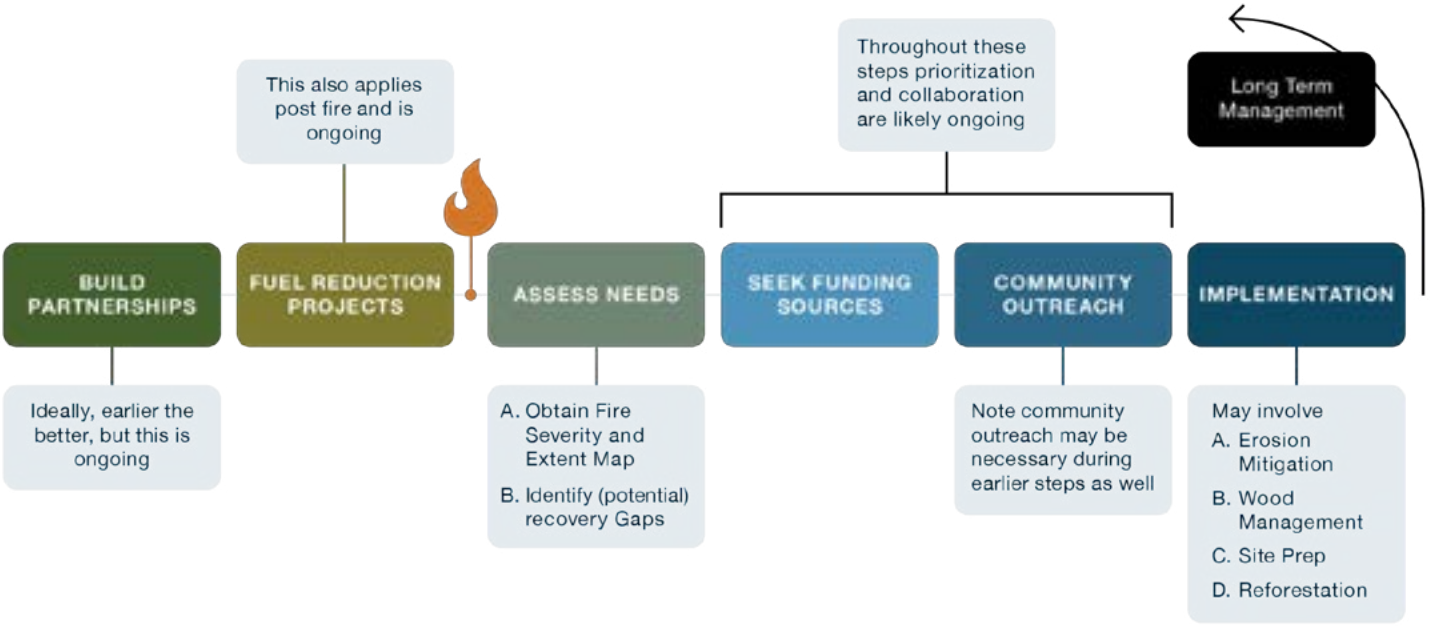
3. Know where **PG&E and Caltrans** efforts are being focused.

4. Some areas have resources such as an **'Ag Pass'** (San Diego County) or a **Disaster Animal Relocation Team (DART)**. It is important to know what kinds of resources are available in your area and to reach out for collaboration.

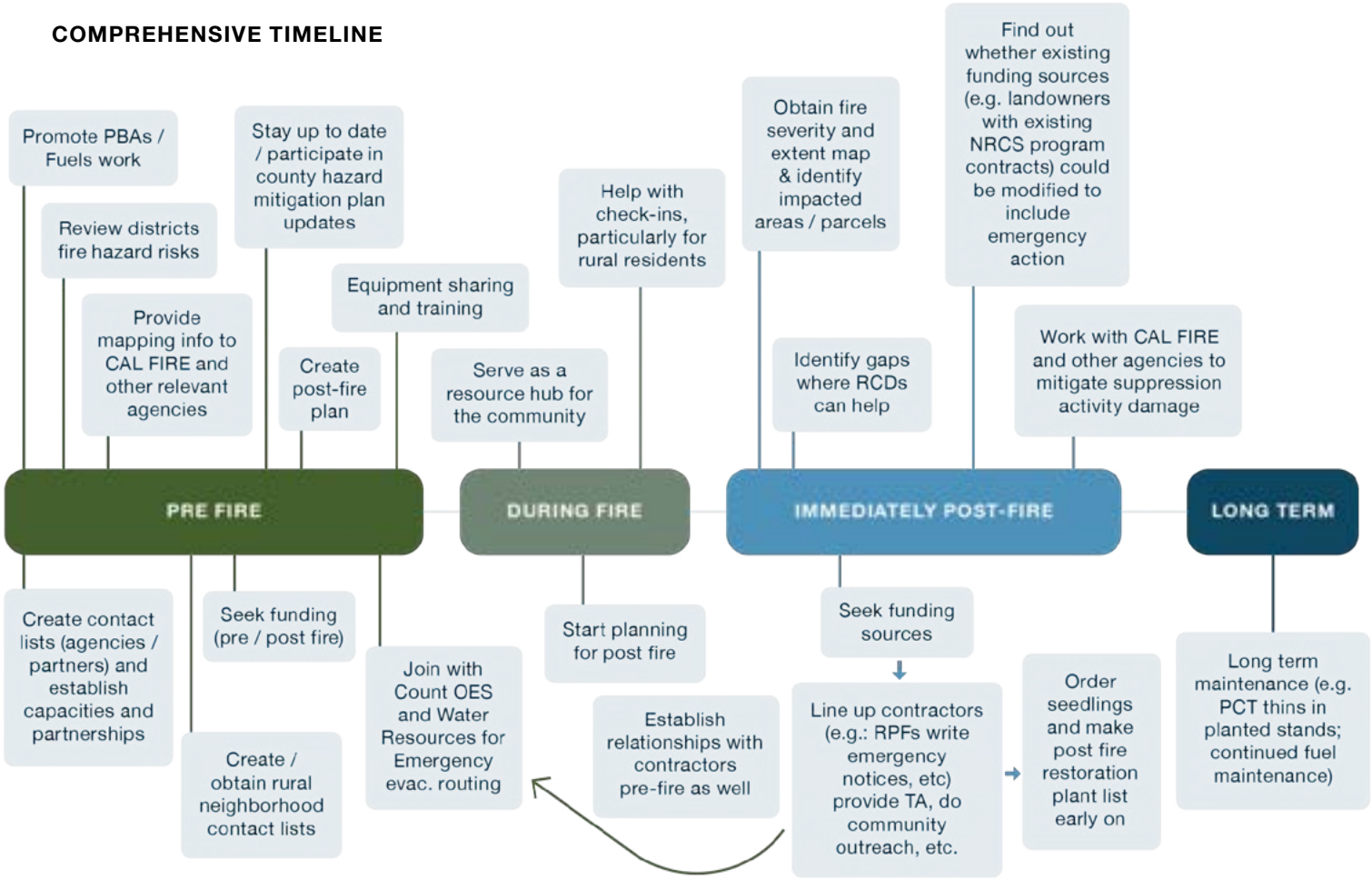
The most important thing is staying informed about what different agencies and organizations are doing. Forming **Emergency Forest Restoration Teams (EFRTs)** may be a viable way to make sure everyone is in the loop on each other's work.

TIMELINES

VERY SIMPLIFIED OVERVIEW

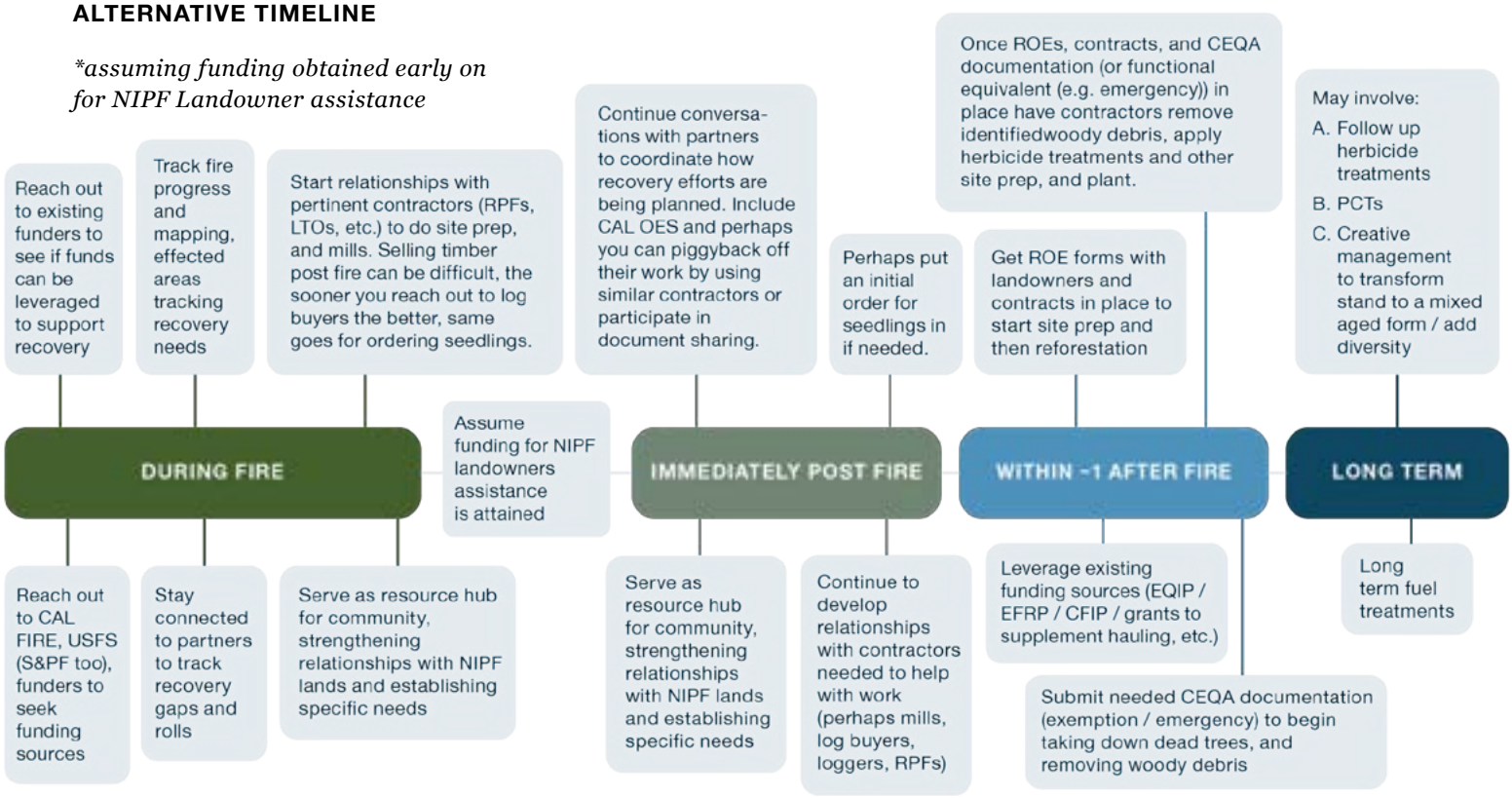


COMPREHENSIVE TIMELINE



ALTERNATIVE TIMELINE

**assuming funding obtained early on for NIPF Landowner assistance*



PRE-FIRE CONSIDERATIONS

This playbook focuses on post-fire actions and thus lacks a detailed pre-fire section. However, being aware of local community dynamics, culture, fire hazard severity rating, responsibility areas, weather alerts and spreading this awareness within your district is key. The following is a list of just some of the MANY pre-fire considerations. More thoughts applicable to pre-fire steps are contained in the timelines above and in the **Fuel Management** section.

HAZARD SEVERITY RATINGS

Find your **fire hazard severity rating here**. Note that the fire hazard severity ratings can change. There is a **slider on the Fire Marshall** website where you can compare the old and new maps.

RESPONSIBILITY AREAS

Knowing which responsibility areas (e.g., Federal, State, or Local) exist in your district clarifies regulations and dynamics. Keep in mind that tensions can arise between Local Responsibility Areas (LRAs) and state regulations. However, it's important to note that LRAs in high or very high severity zones still need to comply with certain state regulations.

During the fire there are some options for private timberlands in FRA to advocate for "SRA like-treatment" through getting in the fold of daily briefings and planning. California Forestry Association is working on improved communication and planning in this area. Some regions are deploying PODs (or Potential Operational Delineations, see as an example: ***https://www.fs.usda.gov/research/rmrs/projects/pods****) to help in pre-fire planning.*

HOME HARDENING & DEFENSIBLE SPACE

Often the most combustible fuel in the landscapes are houses. The most important time to incorporate these concepts is in the construction phase and in choosing building locations/materials, etc. Mariposa County RCD has an array of their **Home Hardening Materials** available, including **flyers**, **sample assessments**, **permission slips**, and more.

- AB 3074 was signed in 2020 and is starting to be rolled out. Part of this includes a 5' foot zone. Helping with the awareness of the importance of hard homes can help prepare folks for the future.
    - As of 5/23: Some LRA cities have already started to incorporate the Zone and some County Safety Elements are being written in anticipation of the Zone. It will include a two-phase rollout with new construction coming first and then a year later it will apply to existing construction in SRA. The state Office of the Fire Marshall will have to adopt it for it to apply to VHRHZ LRA. The Insurance Commissioners Safer from Wildfire program already incorporates the Zone as well.

COMMUNITY PREPAREDNESS

Helping community members enroll in weather alerts and understand when the conditions are extremely prone to wildfire enhances preparedness.

OTHER LOCAL PLANS

Be involved in the county's local hazard mitigation plan (FEMA) so you have jurisdiction to act in an emergency.

Figure 4. Calaveras County, CA. Photo credit: Gordon Long.

IMMEDIATELY POST-FIRE

Fire Damage Assessment

FIRE EXTENT, SEVERITY, AND PARCEL MAPS

Obtaining a fire extent and severity map is a strategic first post-fire step. Overlaying this map on a parcel boundary layer illustrates how different landowners in your district were affected. Referencing debris flow hazard maps created by entities including USFS, CAL FIRE, County, U.S. Geologic Survey further aids treatment **Prioritization**. Along with guiding management **Prioritization**, this knowledge is helpful for accessing funds and evaluating prescriptions. For example, in high-severity areas near important waterways (such as a Class I fish bearing stream), erosion control may be a priority, while in areas of low-severity burns near the WUI, removal of any hazardous trees and brush may be the best management. In other words, getting a lay of the land can help orient next steps.

RCD EXAMPLES

❋ Sierra RCD worked with Fresno County and the Assessor's office to secure a database of all the parcels in their district. Having that database in advance of the 2020 Creek Fire made post-fire outreach easier and faster.

- El Dorado RCD also obtained parcel information from the Assessor's office and found it to be out of date. Many landowners were also displaced and located at a different address than the assessor's parcel database. This complicated landowner outreach.

Parcel maps containing landowner information can be difficult to obtain. While Sierra RCD and El Dorado RCD were able to work with their counties, other RCDs have been unable to do so. Many private companies use a database called **parcelquest** while some RCDs use **Land Glide**; CARCD is currently looking into making parcel info available to RCDs. Additionally, agency and government contacts can be helpful in obtaining parcel information.

Here are some sources of fire boundary and severity map layers:

1. **https://data-nifc.opendata.arcgis.com/**
2. **mtbs.gov**, **MTBS | Burn Severity Portal**
3. **BAER** (BAER and WERT reports contain burn severity, tree mortality, and other relevant information)
4. **RAVG**

CARCD currently, and potentially in the future, has funding to make maps for RCDs. Need a fire severity map overlaid on parcels in your district? Reach out! CARCD is also exploring funding to support enhanced parcel database access and more map making support.

WILDFIRE SEVERITIES

Wildfires typically result in a mosaic of severity. Often, after a mixed severity burn, particularly in low to medium severity burn footprints, the forest will look healthy and natural recovery is likely. These low or moderate severity fires offer ecosystem benefits including fuels reduction, key nutrient cycling, and improved forest health. Landowners may be turned off by some brown needles or very mild mortality, but natural regeneration is likely to occur. Even with patches of high-severity burns, this can still be representative of historical "balanced" fire regimes.

Figure 5. 2021 Dixie Fire that reburned areas previously burned. Photo Credit: Ryan Tompkins, UCCE.

However, **vast high severity footprints are at risk of permanent forest loss**. Although wildfire is a "natural" and cultural process in California, fire suppression, mismanagement, and climate change have led to increased high-severity footprints. While burns in landscapes that are still "in-balance" are an important mechanism for sustaining a healthy ecosystem, some portions of California are at risk of ecological hysteresis. A recent study published by Steel et al. found that 30% of conifer forest extent was lost between 2011-2020 in the southern Sierra Nevada. We want to avoid generalizations, but this playbook's main purpose is addressing these expensive high-severity areas which are typically the most in need of recovery. This playbook is limited to forested ecosystems, and it is currently more focused on coniferous forests, however, we are actively working to balance it with other forested ecosystems.

Wildfire Burn Severity Classification [PDF]

To address these different severities, we created a generalized decision tree for post-fire recovery. While this tree can be used to guide approaches, management decisions should be dependent on habitat and objectives. Typically, a mix of treatments and decisions will be the best approach. This decision tree was primarily based on a mixed conifer ecosystem. Other resources include CNPS's decision trees. CNPS's decision tree is less focused on heavily forested areas, where leaving an abundance of standing dead trees can ultimately contribute to reburn. However, the CNPS tree can be an excellent resource in other environments.

DECISION TREE RESOURCES

CNPS's decision tree

Tree Mortality Assessment Resource

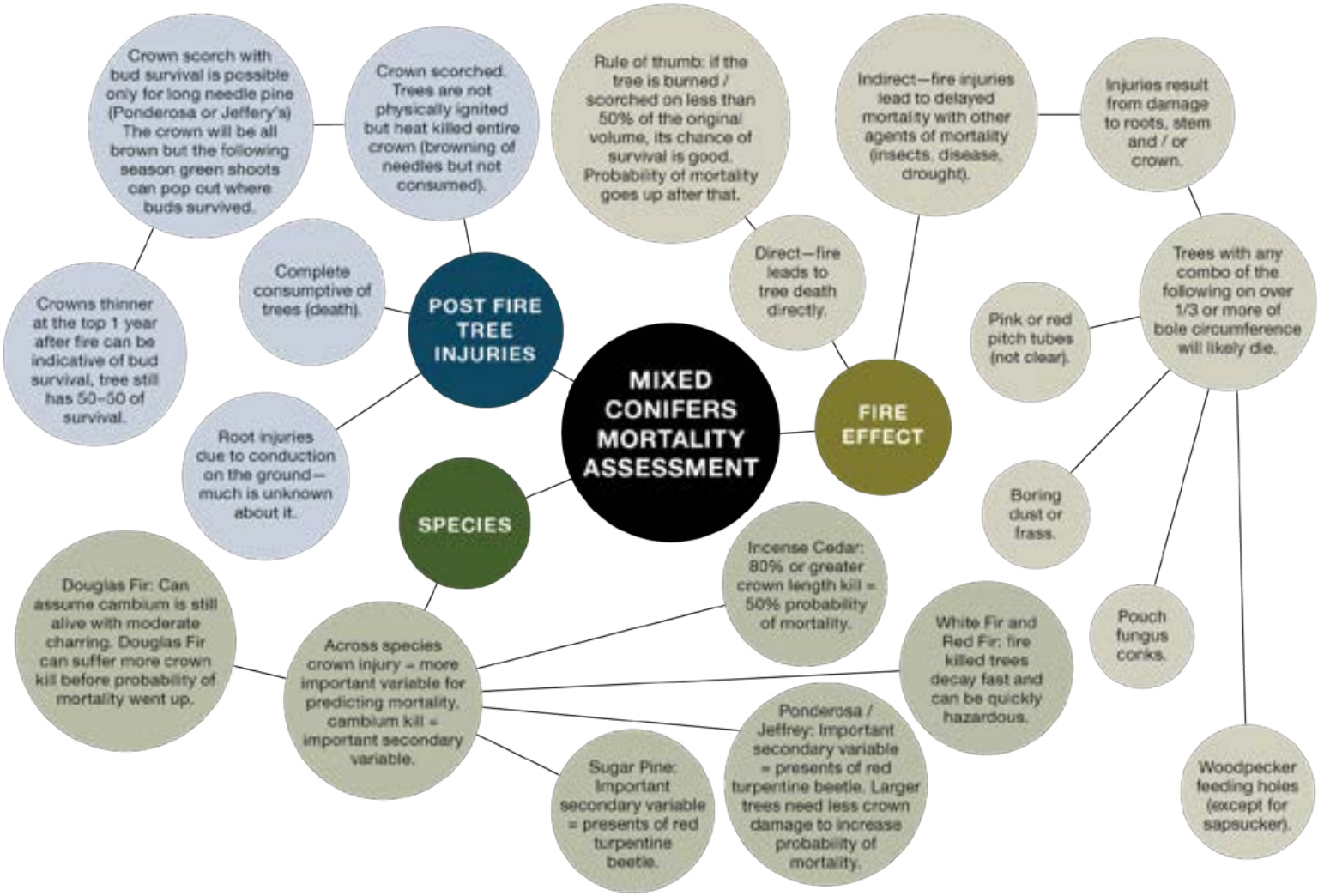
Understanding Wildfire impacts Resource

Figure 6. Fresno County, CA. Photo credit: Sierra Riker.

*Keep in mind wildfire severity is always patchy and likely a mixture of these decisions is necessary. *Note that habitat (e.g. mixed conifer vs. oak woodland) and specific characteristics can always alter decision tree, For example, hazard trees near populated areas should always be removed, as well as landowner objectives alter decisions.*

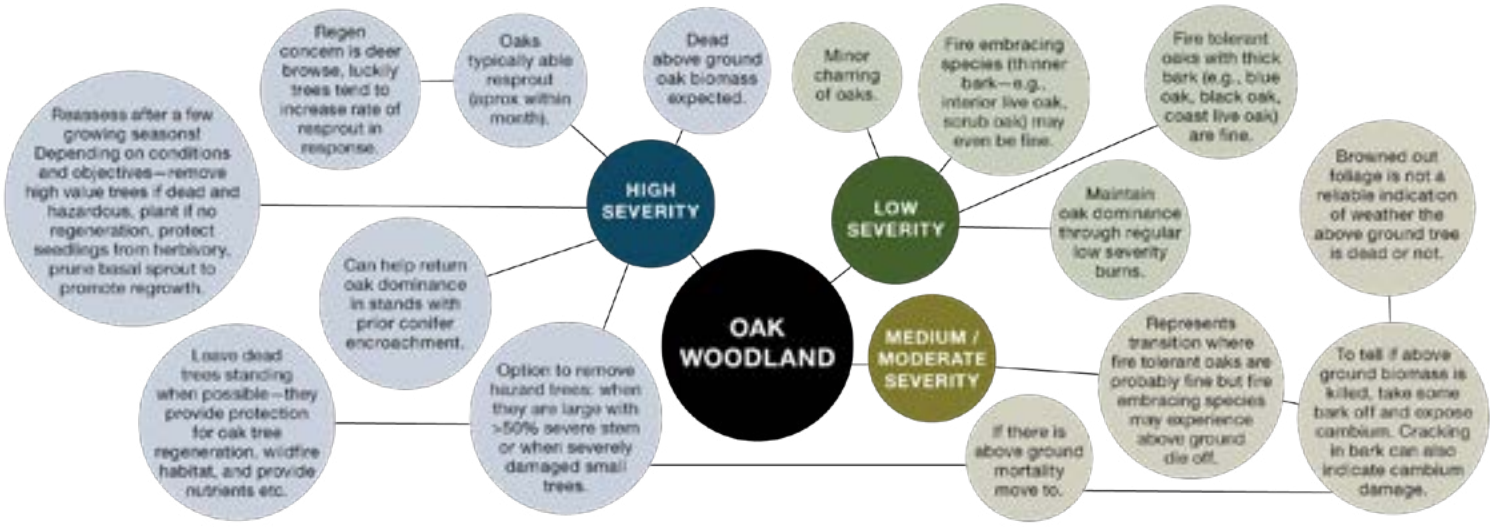
SELECT HABITAT TYPES

Wildfire severities have diverse implications across habitat types. Below is some information by habitat type to provide context before delving into management decisions.



Species based off Hoot et al., 2010. For more information refer to that paper and* ***www.youtube.com/watch?v=9zt2FuohDlc*

Tree Note - Survival of Fire Injured Conifers in California



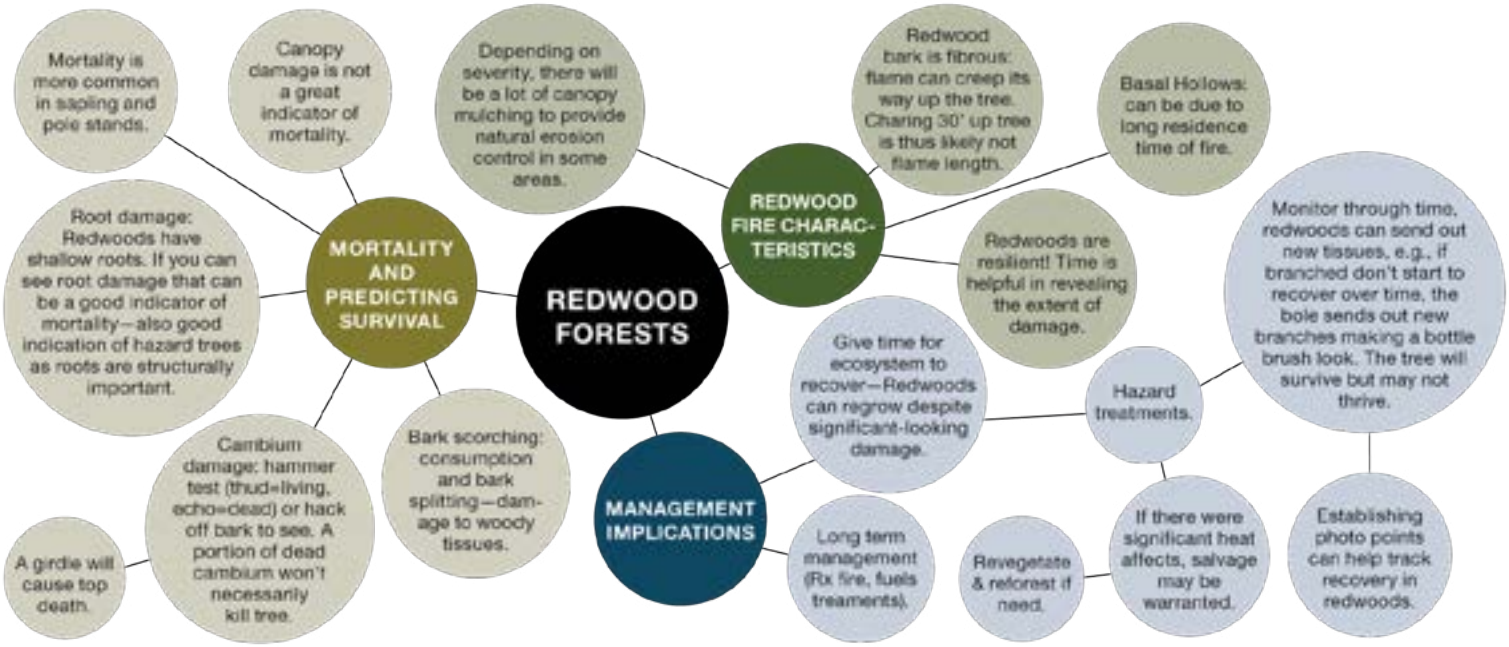
MANAGEMENT CONSIDERATIONS: *Depends on goals and objectives. Often the answer is to do nothing. These are highly fire adapted ecosystems. Keep in mind wildfire severity is typically patchy and likely a mixture of these decisions is necessary.*

How to Grow California Oaks

Burned Oaks: which ones will survive?

Oak survival and regeneration

Note that all oak species re-sprout—so fire may kill above ground mass but may not kill below ground biomass. Information pulled from* ***oaks.cnr.berkeley.edu/oak-woodland-fires/* *and* ***www.youtube.com/watch?v=UE5g3-EkGNU***



Damage and Mortality Assessment of Redwood and Mixed Conifer Forest Types in Santa Cruz County Following Wildfire

Lessons learned from post-fire redwood survival and regeneration

Understanding frequency of fires in redwoods tricky due to there less reliable rings—somewhere between 12–26 year fire return interval. More historically frequent than we think! There can be a lot of total fuels in redwood environment. For more information: ***www.youtube.com/watch?v=roSDppaPqZU***

Forest Type	Observed (O) and projected (P) impacts of climate change	Factors affecting vulnerability
mixed conifer	O: increase in evergreen oaks and shade-tolerant species O and P: increase in risk of fire and pests due to increase in temperatures and decrease in snowpack	historical management practices, including firesuppression, have led to dense, homogeneous stands, which increases vulnerability
Douglas-fir	O: inconclusive P: species range shift difficult to predict	populations are adapted to local conditions, which may increase resilience
oak woodland	O: increase in oaks in montane woodlands P: decrease in total area with suitable growing conditions	mature oaks appear to be fairly resilient; growth and survival of new seedlings is more likely to be impacted by climate change; sensitive to groundwater depletion, grazing stresses, and competition from invasive species
riparian woodland	O: increase in oaks in montane woodlands P: decrease in total area with suitable growing	reliant on streamflow, which is likely to change, but exact patterns are still uncertain
red fir	O: inconclusive P: may be threatened by reduced snowpack; need for deep soil may reduce ability to migrate	depend heavily on snowpack and deep soil
redwood	O: decrease in fog frequency; possible increase in sudden oak death (SOD) in tanoak P: future fog frequency is uncertain; SOD could be exacerbated by warm, wet conditions	long-lived; can regenerate through sprouting; heavily dependent on fog
subapline conifer	O: tree growth increased by warming; increase in density of small trees P: highly uncertain; refugia could help resilience, but increased density could lead to increased fire frequency	high elevation sites may be especially vulnerable; new habitat is limited if old habitat becomes unsuitable
montane chaparral	O: shifted upward in elevation in one southern California study P: vegetation likely to increase, but uncertain	drought resistant; adapted to fire
pinyon-juniper	O: longer, more extreme fire seasons; large areas of pinyon die-off in the southwestern United States P: drought and bark beetle infestations could lead to further die-off	stands have increased density and have expanded in some places and had significant die-off in others; mechanisms for change are location-dependent but may include fire exclusion, recovery from past disturbance, livestock grazing, and climatic variability
aspen	O: inconclusive P: sudden aspen decline (SAD), as well as the insects and pathogens associated with it, may be exacerbated by climate change; temperature and moisture stress are threats, but fire could reduce conifer encroachment	conifer encroachment due to fire suppression has suppressed aspen; increased fire may favor aspen vigor; ability to reproduce by both seed and sprouting could provide adaptive capacity

Table 1. © 2017 Regents of the University of California. Used by Permission.

Identify Recovery Gaps

Identifying **Partners** capacities and roles in pre-fire planning minimizes recovery gaps. However, finite capacities and wildfire unpredictability lead to inherent recovery gaps. Identifying the places where RCDs are the most beneficial is key.

NRCS EXAMPLE

- **NRCS's Post-Wildfire Restoration and Response: A Resource Guide for NRCS California District Conservationists** specifically outlines their post-fire role. The Resource Guide lists the variety of post-fire recovery efforts that exist including Burn Area Emergency Response (BAER) team, Federal Emergency Management Agency (FEMA), USDA Rural Development (RD), and their respective roles. This can be helpful in identifying potential gaps.

If possible, communicating or participating with your Local Assistance Center (LAC) can help identify the RCDs role and place among partners. Typically, LACs are set up by Cal OES following state and federally declared Natural Disasters and are a convening location for local, State and Federal agencies. In some cases, RCDs work with NRCS to staff a LAC.

RCDs provide expertise and environmental services in a variety of areas that differ between districts. Here are some key RCD niches:

NON-INDUSTRIAL PRIVATE FOREST LANDOWNER RECOVERY

- Facilitate salvage logging, fuel removal, site prep, reforestation, and long-term maintenance. In low to moderate severity burns, or in **Select Habitat Types**, actions can also include natural regeneration monitoring, education about fire benefits, and invasive plant management.
  - Private landowners often face knowledge, financial, and regulatory barriers when it comes to restoring their land after wildfire. RCDs counteract these barriers by serving as effective hubs for landowners and offering a range of resources. Often RCDs collaborate with or have RPFs on staff to help facilitate and provide expertise.
  - RCDs can take these steps to further enhance post-fire recovery efforts:
    1. Facilitate connections among neighboring landowners to promote landscape-level restoration rather than isolated efforts.
    2. Assist in connecting neighbors to cost-share resources or other financial assistance programs.
    3. Conduct targeted outreach to landowners, establishing personal contacts and fostering direct communications to tailor support.
- Long-term Management
  - Unlike agencies and groups that focus on immediate post-fire recovery and gradually disengage over time, RCDs are community embedded and remain dedicated for the long term. RCDs can continually look for grants and funds to maintain recovered areas, such as planted areas that need pre-commercial thins (PCTs). If RCDs' capacities are properly supported, this ongoing commitment ensures that progress achieved in post-fire recovery is maintained. See **Long Term Funding Sources/Options**.

Figure 7. Trinity County, CA. Photo credit: Sophia Lemmo.

Figure 8. San Mateo, CA.
Photo Credit: Sophia Lemmo.

AGREEMENTS WITH USFS, OR OTHER GOVERNMENT LANDOWNERS

- Establishing agreements with an RCD enables the USFS and government entities to be nimble and efficient in getting recovery work done. The collaborative approach not only streamlines operations, but also can open doors to additional funding and further cross boundary cooperation.

RCD Post-Fire Webpage

Immediately launching a webpage is an important and effective way of engaging with the community. This webpage can contain a collection of resources on post-fire preparedness, recovery resources, community support, and news and updates. The website will also establish your RCD's authority and demonstrate commitment to the community.

Funding Source Assessment

Funding is the largest limitation on RCD post-fire recovery work. Unlike many RCD counterparts, RCDs lack the necessary baseline funding. As CARCD and RCDs continue to demonstrate the need for dedicated capacity, other funding sources need to be established. Exploring if existing funding can be adapted or leveraged to fund post-fire recovery can be a quick method to obtain funds. For instance, perhaps landowners already enrolled in NRCS programs and can modify their program to include emergency actions. Reaching out directly to funders or CARCD for assistance in securing funding can be an effective strategy. CARCD is actively looking into ways to accumulate a larger general post wildfire recovery pot accessible to RCDs.

Check for Disaster Declaration

CAL OES FUNDING (DISASTER DECLARED)

https://wildfirerecovery.caloes.ca.gov/current-incidents/

FEMA

Post-Fire Funding in the Hazard Mitigation Grant Program:

Recipients will be eligible for up to 10 percent of the award amount for management costs. Subrecipients will be eligible for up to 5 percent of the award amount for management costs. FEMA will provide one estimate of the management costs available under each HMGP Post-Fire award, which will be included in the formal funding notification. The estimate will be subsequently increased as appropriate for each FMAG event that is aggregated.

CAL FIRE

Wildfire Resilience - CAL FIRE (*wasn't offered in 2023)

Other CAL FIRE grants (including Forest Health)

Suppression recovery funds from CAL FIRE may be available to help restore areas where suppression efforts were destructive, like cut line.

COST-SHARE PROGRAMS: EQIP, CFIP, FSA's EFRP

These cost share programs have pathways for catastrophic wildfires and are among the few funding vehicles explicitly for non-industrial private forest landowners. While valuable, these programs have inherent drawbacks. Funding may be less than anticipated or have burdensome upfront costs coupled with lengthy reimbursement waits. Relying on these programs while maintaining public trust requires transparency with landowners about past challenges and learning from experienced RCDs. Building pre-fire connections with the pertaining local agencies fosters communication for smoother plan approval. CARCD will continue to work on a state level to carve out new pathways and support existing ones. If you want help thinking through any of these options, please do not hesitate to reach out to CARCD.

Regional Cost Share Programs

Some localized areas have specific cost-share programs for their region. Most of these are lead and planned by RCDs. Examples include the **North Bay Forest Improvement Program** and Butte County's Small Forest Landowner Assistance Program (SFLAP). There is also a **Sierra Nevada Crisis to Opportunity RCPP** which expires in 2023 but has been renewed through 2027.

Emergency Forest Restoration Program (EFRP)

The EFRP is a federal program administered by the Farm Services Agency (FSA). After a natural disaster that impacts forest health, the county FSA office can initiate the EFRP. The program has two forms of assistance for non-industrial private forest landowners:

- **Financial Assistance** in the form of incentive payments for forest restoration activities. This assistance is administered by the county FSA office.
- **Technical Assistance** in the form of site visits, expert advice, and the writing of plans. At the federal level, FSA has an MOU with the US Forest Service to provide grants to the states for TA for the EFRP program. In California, the US Forest Service has a contract with CARCD to provide technical assistance through sub-contracts to RCDs or by putting a project out to bid directly to RPFs.

EFRP is a relatively new program to California. That paired with FSA's limited background in forestry has provided for a challenging roll out of the program here. The scenario differs from EQIP, offering better payments with 75% of costs paid of what the government determines is rebate for those practices on a per acre basis. However, it is confusing for landowners and can take a long time to get plans through. RCDs have put in many hours before having a contract in place to bill to. CARCD will continue to work with USFS and FSA to advocate for a better EFRP program.

For more background information on the EFRP program, see the **Emergency Forest Restoration Program (EFRP)** fact sheet.

ADDITIONAL REGIONAL COST SHARE PROGRAM RESOURCES:

- **After the Fire: NRCS Emergency Assistance of Private Lands _ 2020**
- **fy20 Catastrophic Fire Recovery EQIP Ranking Pool**

Figure 9. El Dorado County, CA. Photo credit: Sophia Lemmo

FIRST STEPS TO EFRP: FROM USDA-FSA EFRP Implementation Process

Natural Disaster Occurs

1. FSA County Office assesses the natural disaster, with support from the local State Forestry Agency staff. The Assessment includes:
    a. Location, timing/dates, extent, and type of the natural disaster;
    b. Identifies practices needed, number of farms/landowners affected and estimates funds.
2. FSA County Committee (COC) determines if an EFRP signup is needed to provide federal assistance for restoration measures.
3. If EFRP is needed, FSA COC will submit a request to implement EFRP to the FSA State Office.

Request for EFRP Implementation

4. FSA State Office reviews the request from the COC and submits the EFRP assessment and request for implementation to the FSA National Office for approval.
5. FSA National Office reviews assessment and request. If approved, they will:
    a. Assign Disaster ID;
    b. Records data in CSS;
    c. Verify FEMA designation
    d. Respond and notify the requesting FSA State Office
    e. FSA State Office notifies the requesting FSA County Office(s) of the EFRP implementation approval.

For the remainder of steps see **USDA-FSA EFRP Implementation Process**.

INVOICING FOR THE PROGRAM ONCE CONTRACTS ARE IN PLACE

RCD -> CARCD -> USFS -> EFRP TA Funds

Visit this PDF for more information on the **FSA Disaster Assistance Programs at a Glance 2017**.

For more information about engaging with EFRP you can reach out to **Napa RCD'S forestry team** and CARCD.

Figure 10. Pleasant Valley, CA. Photo credit: Sierra Riker.

EMERGENCY FOREST RESTORATION TEAMS (EFRTS)

Per **the Private Landowner Assistance Work Group's Implementation Strategy**, EFRTs provide rapid technical and financial assistance to restore private forest lands and help prevent further damage to life, property, and natural resources. One goal of the work group is to facilitate the creation of EFRTs throughout the state. As of May 2023, there are officially three pilot EFRTs (Dixie Fire EFRT with lead partner Feather River RCD, the Caldor EFRT with lead partner El Dorado RCD, and the Tamarack EFRT with lead partner Alpine County). Additionally, there are **8 other RCDS funded through USFS CARCD pass through grant** to complete forest

post-fire recovery work within the footprints of 2019–2021 wildfires. These RCDs function in a similar capacity to or in the same capacity as EFRTs. Additionally, considering the 2022 Mosquito Fire, Placer RCD is preparing to function as an EFRT. These EFRTs are supported primarily with direct funding through CAL FIRE and USFS.

The **CA Wildfire and Forest Resilience Task Force, Private Landowner Assistance Work Group** is exploring pathways to creating permanent or semi-permanent funding available for EFRTs. The goal is to fund entities, including RCDs, prior to a wildfire such that partnerships can be strengthened and organized for rapid post-fire treatment. Stay tuned for funding pathways for establishing and maintaining EFRTs.

For more information and an RCD example, Feather River RCD compiled a **EFRT Handbook**.

NRCS TA AGREEMENTS

NRCS-CA has extended and added funding to its existing forestry technical assistance agreement with CARCD. The agreement passes funding to local RCDs to provide forestry technical assistance services to NRCS-CA Field Offices.

Another way to become more involved with NRCS is to become a Technical Service Provider, or TSP. To learn more about how to visit the link below:

Technical Service Providers | Natural Resources Conservation Service (usda.gov)

If you are providing TA on behalf of NRCS programs it is highly recommended to review their **Post-Wildfire Restoration and Response: A Resource Guide for NRCS California District Conservationists.** The guide includes an array of post-fire recommendations such as: "Make every effort to expedite the preparation of the FMP for clients that only want immediate/near term recovery actions. Consider using the FMP Disaster Assessment Form, Tree Mortality FMP, or the 100-Foot Around the Home FMP for means of expediting completion of FMPs. Communicate and work with CAL FIRE's California Forestry Improvement Program (CFIP) or Farm Services Agency's Emergency Forest Restoration Program (EFRP) to share post-wildfire FMPs and avoid duplicate preparation".

CALIFORNIA WATER BOARDS

The California Water Boards have funding originating from the EPA 319h grant for their Nonpoint Source Pollution program. This funding can be used for restoration projects. Projects that are post-fire (declared emergency zones) also have some carve outs from normal requirements.

https://www.waterboards.ca.gov/water_issues/programs/nps/319grants.html

Nonpoint Source Program | California Water Boards

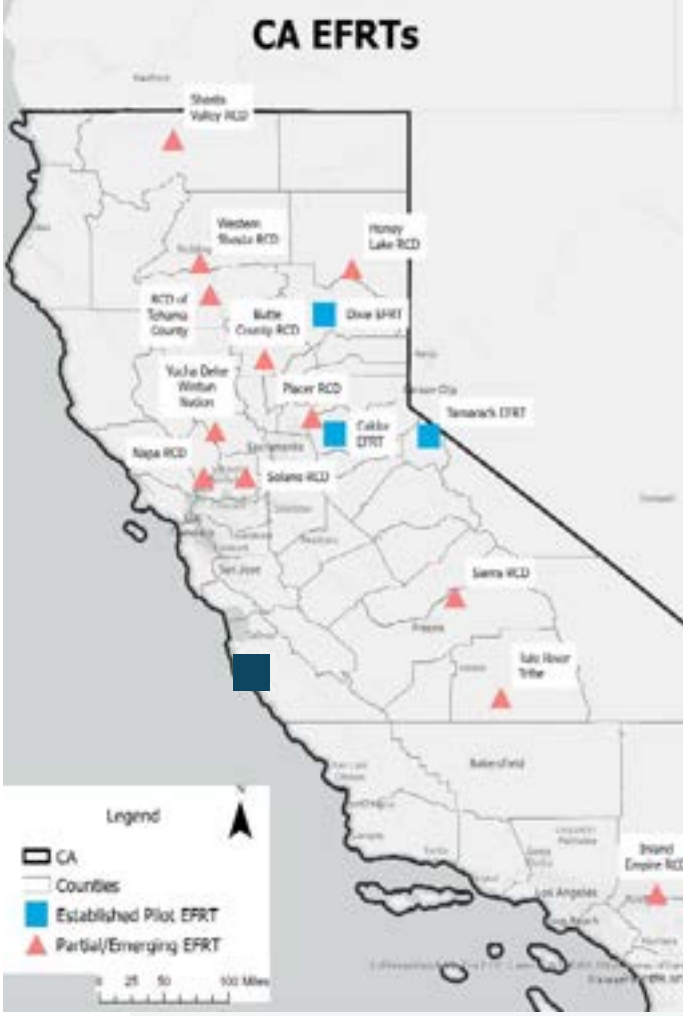


Figure 9. Map of EFRTs in California. Mapped by Sophia Lemmo.

RECOVERY PLANNING & ORGANIZATION

To avoid redundancies, refer to the Partners section throughout these phases of work.

Education

If necessary, review pertinent training and education information available to RCDs. Becoming an expert or someone who can provide reliable guidance to your community is important.

Reach out to other RCDs, particularly those on the RCD Post-Fire "Team" (Informal), or CARCD for support.

Figure 11. Fresno County, CA. Photo credit: Sierra Riker.

Community Outreach

Community outreach strategies, including timing, methods, and prioritization, will be place specific. In some circumstances, (e.g., RCDs that are inundated with existing clients), waiting a few months to a year before beginning outreach to private landowners is logical. Some RCDs may choose to begin outreach immediately after a fire, but this will likely be limited to those with existing applicable funding. Remain sensitive to the fact that some landowners are dealing with other priorities and are not ready to think about reducing fuel loads, prepping, and getting trees in the ground immediately after experiencing loss.

RCDs have multiple options to conduct outreach to landowners, including:

- Ads in publications, and at local hubs (Safeway Grocery Stores, gyms, etc.)
- Tabling at local events
- Attending Fire Safe Council Meetings
- Partnering with County OES to advertise RCD programs. County OES fields a lot of calls after a fire and can be helpful in funneling folks to RCDs.
- Local newspapers can be a good resource for reaching community members who are less active on social media.
- Radio ads.
- Going door-to-door. There is a precedent of doing some for some Rx burns.
- Nextdoor (a hyperlocal social networking service for neighborhoods) is currently offering free accounts to special districts. It can be a method for reaching neighborhoods/watersheds and folks hard to reach by other methods. You can apply **here**.
- Facebook or other social media outlets.
- Consider local languages (i.e., is Spanish a common language in your community)
- Snail mail, email list-serves

RCD EXAMPLE

✱ After the 2020 CZU Lightening Complex, San Mateo RCD conducted outreach for a range of services. These included Spanish translation, locating temporary lodging for animals and displaced community members, and providing technical guidance on post-fire recovery. To engage the community promptly, the RCD quickly disseminated a list of their services through newsletters (see examples below), inviting community members to seek assistance. San Mateo RCD led community coordination and asset mapping, and compiled information on post-fire conditions of existing rural roads to prioritize erosion work. Additionally, since the RCD previously provided technical assistance to the rural roads program and worked on irrigation efficiency, they were able to use that data to have state contractors pay for some of the damages created during cleanup efforts.

When the fire occurred, San Mateo RCD sprang into action prior to securing funds. They were able to do so through having confidence in the community, cultivating a non-overly risk-adverse board, and fostering strong partnerships. The RCD's swift action built stronger community ties and influenced the county to change how they respond to natural disasters. The RCD also received more donation funding immediately after the fire due to their vast and quick response.

To effectively aid the community after a disaster, San Mateo RCD recommends:

1. Maintaining a board that is not risk averse
2. Acting proactively to help the community however possible
3. Understanding and leveraging the core values of the RCD to benefit the community
4. Reaching out to all available contacts as soon as possible
5. Participating in the county's local hazard mitigation plan (FEMA) to have jurisdiction in emergencies, and
6. Establishing a fire recovery webpage promptly, even if basic or unrefined.

The Private Landowner Assistance Work Group of the California Wildfire and Forest Resilience Task Force is working to develop a comprehensive landowner database to better target outreach to California family forest landowners. **Stay tuned on that development and more.**

Workshops are an effective method to educate groups of landowners. Field tours of property walk-throughs showcasing actions taken by other landowners have proven successful. Coordination with UCCE is recommended as they do workshop series like their **Post-fire Forest Resilience Workshops**.

RESOURCES FOR RCD EXAMPLE

San Mateo RCD's Example Fire Recovery Customer Spreadsheet

San Mateo RCD's Example Newsletter 1

San Mateo RCD's Example Newsletter 2

San Mateo RCD's Fire Recovery Webpage

Sonoma RCD's Fire Recovery Webpage

Figure 12. Plumas County, CA. Photo credit: Sophia Lemmo

Organization

LANDOWNERS

Staying organized throughout the landowner onboarding and tracking processes can be challenging. Having a streamlined and efficient method for fielding requests is key. Consider the following strategies:

1. Utilize Free Online Survey Software: Incorporate free online survey software, such as Google Forms, into your website. Create a survey that includes enrollment options, contact information, APNs (Assessor's Parcel Numbers), acre size, requested services, and the option to schedule a site assessment. This allows landowners to provide essential information in a convenient and standardized manner.
2. Explore Survey123 through ArcGIS Online: While not free, Survey123 through ArcGIS Online provides another option for managing requests and data collection. Placer RCD successfully utilized this method by sending letters to all private landowners within fire footprints. The letters included a QR code that directly linked to Survey123. Alternatively, landowners who are not comfortable with online surveys can be offered the option to respond through traditional mail.
3. Accommodate Different Communication Preferences: Recognize that some rural landowners may prefer snail mail or phone communication. To accommodate their preferences, offer the option of mailing back a paper response or communicating via phone. However, collecting information by phone may require a significant time commitment.

By implementing these strategies, RCDs can efficiently gather and manage information from landowners seeking assistance, ensuring timely and organized onboarding processes.

STAFF

Along with keeping landowner information organized, maintaining clarity in staff roles and responsibilities is essential. RCDs have found a few strategies to help maintain staff organization:

1. Delegate communication channels, including assigning responsibilities for checking phones, and monitoring website messages.
2. Leverage ArcGIS Online to keep track of work locations, timelines, and prioritize landowners geospatially. This helps visualize, prioritize, and manage the progress of post-fire activities.
3. Early on, identify non-profit organizations and agencies that can collaborate with you. Determine which roles each entity will undertake in the post-fire process.

Prioritization

Deciding which properties will receive assistance in an equitable way, while prioritizing landscape effectiveness and conveying information to the public, is daunting work. Some metrics to help weigh treatment prioritization include:

- Is it in the WUI?
- Are there public safety concerns?
- Is it close to water supply or important infrastructure?
- Does it leverage other work?

Treatment should be prioritized by landscape, infrastructure, and feasibility attributes. It is recommended to use tools like Planscape (free) to better target treatment locations. Considering attributes like population proximity, topography, ingress/egress routes, are important, along with individual landowner attributes. Landowner attributes include their financial ability to conduct implementation, their priorities and objectives, and land management beliefs.

RCD EXAMPLE

❋ One way Honey Lake RCD uses landowner attributes to prioritize effective treatments is that they only reforest for landowners who allow **Herbicide** treatments.

Coordinating with partners to learn about pre-existing fuel breaks and recovery efforts can help better target and leverage restoration. This collaborative approach enhances connectivity and improves the ability to influence future fire behavior. A handful of counties, including Nevada and Placer counties, have teams that track projects throughout their boundaries. Some partners to reach out to include:

- CalTrans for road-related fuel breaks and treatments
- NRCS for information on their internal maps of where projects are.
- Local non-profits involved in fuels management (e.g., American Forests with My Sierra Woods, local PBAs/Fire Safe Councils)
- USFS/BLM
- Industrial landowners: SPI, Collins Pine, Humboldt, and Mendocino Redwood Company, etc.
- Local consulting RPFs who may have knowledge of where commercial fuel reduction and recovery projects are.

There are efforts underway by the **California Wildfire & Forest Resilience – Task Force** to create public mapping and tracking systems to show all work being done, which can allow for more coordinated efforts.

RCD EXAMPLES

❋ Butte County RCD's Small Forest Landowner Application Program (SFLAP) uses a ranking criterion that they developed and works best within their local area. They determine rank by:

1. If the landowner lives on site or has returned after the fire
2. Proximity to other neighbors in the program (banding together)
3. If the landowner has a maintenance plan
4. Income

Figure 13. El Dorado County, CA. Photo credit: Sierra Riker.

Figure 14. Fresno County, CA. Photo credit: Sierra Riker.

❋ Additionally, the North Bay Forest Improvement Program (NBFIP), led by Sonoma County RCD, Mendocino County RCD, and Napa County RCD, accepts applications that are under 5,000 acres but more than 5 acres. They rank their applications by:

1. The amount of treatable acreage
2. If the landowner has a management plan
3. If the landowner is in a disadvantaged community

As referenced in the ranking criterion of SFLAP, prioritizing treatments in areas where multiple landowners can be banded together to create a larger project footprint is an effective strategy and an especially great niche for RCDs. While coordinating between multiple landowners can be challenging, requiring extensive communication and transparency, the benefits are high. Costs can be distributed, and effectiveness amplified. Economies of scale are another criterion some RCDs use, but don't advertise. For example, offering assistance to one ten-acre parcel in the middle of the woods will be more costly and take longer than 20 parcels in the town or close to a mill. In some cases, prioritization may be determined by CAL OES and FEMA. This can be a collaborative process, or a district can let them make the decisions and follow behind.

RCD EXAMPLE

❋ Sonoma RCD finds collaborating across multiple private ownerships post-fire to be highly advantageous. Due to the scarcity of large private landowners in Sonoma County, the RCD focuses connecting multiple 20–100 acre ownerships. By initiating work on a larger landowner, the RCD establishes a solid project that already justifies high equipment mobilization costs. Subsequently, smaller, neighboring ownerships can be added as the project develops, enabling funding for properties too small to normally qualify for or afford post-fire restoration programs. NRCS also tries to group neighborhood level landowners together in single EQIP agreements post-fire to streamline administrative processing. Developing MOUs between the lead EQIP holder and subordinate landowners is recommended.

Sonoma RCD often prioritizes treatments near structures and egress routes. Funding for defensible space is generally limited, and in CAL FIRES's response area (State Responsibility Area, SRA) landowners are legally required to comply with 100-foot defensible space work under Public Resources Code 4291. The RCD also focuses on areas where heavy equipment can be used (e.g., slopes <35–40%), thus allowing for more efficient and economical work. For example, ridgelines, which can be important for suppression efforts, are generally flat, allowing for easier equipment use.

There is an art to prioritizing treatments within a property. The goal is to maximize the "bang per buck", while meeting the landowner objectives. For example, if funding is only secured for the next three years, planting at a lower density may maximize "bang per buck" and reduce the need for a PCT. UCCE developed a self-assessment tool for landowners to prioritize treatments on their property. The tool, while basic, is below:

Climate Impact	Questions for self-assessment	If yes, management options to consider and applicable "Forest Stewardship Series" (FSS) publications to consult	Vulnerability	Importance	Cost to address	Time frame	Investigate further?
			High, medium, or low			Short, ongoing, or long	Yes or no
fire risk	Are your home, other structures, and the spaces around them built and maintained to be defensible in case of a fire?	Update and maintain. See *Homeowner's Wildfire Mitigation Guide* and *Home Survival in Wildfire Prone Areas: Building Materials and Design Considerations*					
	Are there significant surface or ladder fuels in your forest?	Consider fuel management strategies. See FSS 15.					
	How long has it been since your forest last burned?	Thinning; fuels management; prescribed fire. See FSS 15.					
moisture stress	Is your forest in a moisture-limited area?	Manage for appropriate stand density to reduce moisture competition. See FSS 5.					
	Is your forest at risk for indirect impacts of climate change (fire risk, pests, etc.) that may be exacerbated by moisture stress?	Manage for appropriate stand density to reduce competition for water; consider management options for indirect impacts. See FSS 5.					
native pests	Do you have conifer forest that may be susceptible to bark beetle infestation?	Manage for diversity and reduced competition for water resources. See FSS 16.					
	Are there other native pests in your forest or region that may be more successful in warm temperatures?	Seek further resources; management options vary significantly depending on species of concern.					
invasive pests and plants	Do you have oaks or sudden oak death in your region?	Avoid spreading SOD. Be vigilant in warm/wet conditions.					
	Are there invasive plants (e.g., broom species) on or near your property that may survive well in warmer temperatures?	Monitor property; identify and remove invasives before they become established. See FSS 14.					
changing stream-flow	Is there riparian vegetaion along you stream?	Plant or maintain riparian vegetation to create shade over the stream and control water temperatures. See FSS 10.					
	Are there aquatic species of interest that may be sensitive to warming water temperatures?	Plant or maintain riparian vegetation to create shade over the stream and control water temperatures. See FSS 10.					
	Is your property susceptible to increased flooding?	Maintain culverts, stormproof roads. Assess structures in floodplain. See FSS 17.					
changing wildlife habitat	Are there endangered species on or near your property that may be stressed by climate change?	Maintain habitat (specific actions are species-dependent). See FSS 8.					
	Does your property have refugia that may be useful for sensitive wildlife? "Refugia" are areas that may remain cool or moist as conditions warm and dry; they may be found in wet areas, valleys, or northern aspects.	Protect refugia from development or impact; account for refugia in planning.					
changing species suitability	Are the tree species on your property likely to be stressed by warmer or drier conditions? This may be the case if you are at the warmer edge of a species' range.	Favor diverse species or those that may be resilient to warmer temperatures in management activities. See FSS 3.					

Table 2. © 2017 Regents of the University of California. Used by Permission.

Figure 15. Lassen County, CA. Photo Credit Honey Lake RCD.

Right of Entry Agreement Process

Post-fire evacuations and displacements can make tracking down landowners to acquire a Right of Entry (ROE) Agreement challenging. For example, 80% of the Grizzly Flat Residents were displaced in the 2021 Caldor Fire. Leveraging partnerships, such as with CAL OES and the county, can help alleviate this challenge by building on existing ROE processes and gaining access to the land. In the case of Grizzly Flats, the partnership between CAL OES and El Dorado County yielded a 90% landowner response rate for the removal of hazardous waste and biomass.

RCD EXAMPLES

- RCD of Santa Cruz County (RCDSCC) was able to forgo the ROE process due to extenuating circumnutates. The governor declared a county emergency, which allowed the county to pass a resolution of health emergency determining the water quality will be polluted if no action is taken. The RCD then wrote a proposal through the county to have CCC crews come address post-fire concerns, without ROEs in place. However, RCDSCC did send out a mass email to property owners informing them of upcoming work, and excluded those who were uncomfortable with the access.

- Feather River RCD encountered challenges with the ROE process due to differing landowner preferences. Some landowners were hesitant to sign a contract without knowing the exact details of the work down to the removal of individual trees. On the other hand, some landowners wanted to sign contracts immediately to secure their participation in the program. This presented a dilemma, as entering into a legal agreement without a defined scope of work or RPF was difficult.

To navigate these situations, the RCD developed a non-binding **contract** that allowed flexibility. The contract becomes binding once a work plan is created and an emergency notice is approved by CAL FIRE. The **work plans/scope of work** are relatively simple and include any special circumstances (e.g., logs left on site for firewood). This approach strikes a balance between the need for an agreement and the requirement for specific project details. Feather River RCD has the following on their website regarding the application:

The Feather River Resource Conservation District (RCD) has created a fire prevention and recovery program that will provide technical assistance to private landowners who seek to protect and repair their land.

The RCD is a non-regulatory agency and your information will be kept confidential. Please complete this questionnaire concerning your property, which will help us determine the best way to help you.

Submitting this application does not constitute any sort of obligation for participation. Submitting the form acknowledges that representatives from the RCD, including foresters, archaeologists, and RCD employees may access the property to develop a scope of work.

This blurb and questionnaire give the RCD enough leeway to do a site visit with an RPF. Feather River RCD recognizes that one of the major

challenges lies in the varying perspectives of landowners regarding forestry work. To address this, Feather River RCD gauged landowners' attitudes to better identify those more prone to filing lawsuits. Recognizing the importance of this issue, Feather River RCD is actively collaborating with lawyers to enhance the contract development process. As progress is made, the playbook will be updated accordingly to incorporate these legal considerations.

FUEL MANAGEMENT

This may appear obvious, but when heading out to the field post-fire, inherent field hazards are elevated. Safety gear including hard hats, sturdy boots, safety glasses, and possibly N95s are important. Sharing these safety concerns with landowners is recommended.

The removal of fuels after a wildfire reduces hazards and mitigates the threat of reburns, as untreated post-fire environments foster high shrub amounts and large loads of dead wood. While the process of salvage logging and post-fire management can be controversial, it should be done thoughtfully while considering the site and its objectives. Typically, human intervention, such as fire suppression and forest mismanagement, have already created a situation prone to catastrophic wildfires. Thus, opting out of any recovery efforts can be irresponsible, especially as the site was already significantly impacted by human activity. Removing dead and dying standing trees can help mitigate the following risks: (1) increased dead/downed fuel loading, (2) The choking out of wildlife habitat (e.g., foraging grounds), and (3) Increased risk of future catastrophic wildfires. However, retaining wildfire snags and downed logs for habitat can and should be a part of salvage operations.

Removing fuels sooner rather than later is important for a variety of reasons. 1) It increases the chances that landowners can recover merchantable salvage logs. 2) Removing fuels should be done prior to reforestation to ensure that the investment of planting is worthwhile. Falling snags, debris and wood fuel increase the risk of a high severity reburn. The cost of site prep increases with time.

Fuel management is both a pre-and post-fire activity. Thus, fuel reduction treatment does not belong in just a single point on the wildfire timeline and is rather a recurring and continuous activity. Fuel treatments need to be maintained, expanded, and connected to augment their effectiveness. RCDs are unique in their ability to support and participate in fuels management on all lands, from federal to private.

Permitting

One recent resource for post-fire permitting is: **Planning and Permitting Forest Fuel-Reduction Projects on Private Lands in California**—a publication by University of California, Agriculture and Natural Resources with authors: Yana Valachovic, Jared Gerstein, and Brita Goldstein.

Figure 16. Plumas County, CA. Photo credit: Camille Swezy.

PERMIT & RPF REQUIREMENTS

WHEN IS A PERMIT NEEDED?

A permit is needed when a project creates a significant direct or indirect environmental impact.

If any of the generated products from the project are bartered, sold or traded, including logs, chips, or firewood then a permit under the California Forest Practice Rules is needed.

All projects using public funding (state or federal) require review under CEQA or NEPA, depending on ownership jurisdiction and/or funding source.

Permits are required from multiple agencies when projects include: clearing land, grading land, operating in or adjacent to wetlands or watercourses, causing smoke, or affecting sensitive plant and animal species.

WHEN IS AN RPF REQUIRED?

- For projects falling under the jurisdiction of the CA Forest Practice Rules (i.e., commercial endpoints) with some exemptions (e.g., Post-Fire Recovery Exemption [1038(g)] and Structure Protection 150-300 feet Exemption [103(c)(6)]).
- CA Vegetation Management Program (VMP)
- CA Forest Improvement Program (CFIP).
- CalVTP in forested landscapes.

However, it can often be prudent to consult with RPFs even on forest management projects that don't require a license for their expertise.

Some key elements include:

- Decisions trees
- Types of CAL FIRE permits and basic requirements
- More specifics on overall permitting
  - Developing projects that fit into a categorical Exemption can streamline the process. Elements necessary for this include:
    1. No operations in sensitive areas or at sensitive times of year
    2. Minimal ground disturbance
    3. Focus on small trees and brush
- Possible funding sources

CEQA/FUNCTIONAL EQUIVALENTS

The best options for small private landowners wanting to manage and remove trees immediately after a wildfire, particularly when permits are needed, are a **CEQA exemption** or an emergency notice under the **Forest Practice Rules** (FPRs, which apply if removed woody material is or has the potential to be commercialized, bartered, or traded). Refer to **this** resource or the planning and permitting document previously linked for more information.

RCDs can serve as CEQA lead agency and thus are well positioned to organize collaborative projects. The lead agency decides whether a project is exempt and has the responsibility of carrying out or approving a project. This includes deciding if an Environmental Impact Report (EIR), CEQA Exemption, or Negative Declaration is applicable for the project. CEQA projects, especially when an EIR is required, can take longer and be more cumbersome than expected, so RCDs should budget accordingly. Referencing previously completed environmental compliance documents whenever possible will save time and unnecessary effort. While the FPRs are functionally equivalent to an EIR under CEQA, the RCD cannot be lead agency.

CARCD hosted a **two-Part CEQA Workshop for RCDs** with experienced staff from Feather River RCD, Tehama RCD, and the Governor's Office of Planning and Research. The workshop addressed what CEQA is, what it means to be a lead agency, which document to use when, how much to budget for CEQA document prep, and what types of forest projects require CEQA. Presenters went over a CEQA checklist, providing tips on how to navigate the process and included some specific **CEQA Examples**. The workshop targeted individuals ranging from CEQA experts to newcomers.

Other helpful resources include **CAL POLY's Fuels Management Training program**. They regularly feature webinars discussing the California Vegetation Treatment Program (CalVTP), which streamlines the CEQA process when working in specific ecosystems with specific treatments. **Learn more about the CalVTP here**.

NEPA

CARCD has organized NEPA workshops, but unfortunately, recording permission was not granted. If you are interested in obtaining more NEPA material, please feel free to reach out. Existing Resources on Public Lands:

Post-fire Restoration Framework for National Forests in California

Good Neighbor Authority USFS

Good Neighbor Authority BLM

Entering into a Good Neighbor Authority (GNA) with USFS or BLM allows RCDs to conduct projects on federal lands, including hazardous fuels reduction. GNAs do have some work limitations such as construction of permanent roads.

If your RCD doesn't already have one set up, CAL FIRE has a master GNA with USFS and BLM with funding and may be able to subcontract with your RCD. CAL FIRE is also working on a "parent" agreement RCDs can work under statewide. More information to come.

ARCHEOLOGY

Completing archeology (arch) review for permitting is a pinch point. However, if CAL FIRE is the lead agency, you can utilize the MOU CAL FIRE has with CLFA to allow RPFs/arch certified staff to work underneath their licenses. CAL FIRE is the lead agency if the FPRs are being used. In some cases, CAL FIRE will also be the lead agency if they are funding the project and have agreed to do so. But this scenario is now rare.

If CAL FIRE is not the lead agency, budget adequately for a professional Archaeologist. This can be an expensive and time-consuming process, so starting on the Arch process with a professional as early as possible is recommended.

RCD EXAMPLE

❋ The arch process for Feather River RCD (FRRCD) is presenting challenges. While FRRCD is using the FPRs for wood removal, and thus the arch process is covered via CAL FIRE's MOU, the reforestation stage of their work isn't covered. The reforestation occurs once the emergency notice has been completed and as a result, they need to do an arch review with a professional Archaeologist. Keep this in mind as a possibility, and budget and plan appropriately.

Figure 17. Alpine County, CA. Photo credit: Sierra Riker.

Figure 18. El Dorado County, CA. Photo credit: Sophia Lemmo.

Wood Management and Utilization

COMMERCIAL OPTIONS

Commercial operations (including wood sold, bartered or traded) require that the Forest Practice Rules be followed with CAL FIRE as the lead agency.

Salvage Logging

Salvage logging, the selling of burnt logs to mills, can be a good post-fire option for small non-industrial landowners to remove standing dead trees and fuel, and potentially sell the trees. While current market challenges make profitable salvage operations near impossible, there are still examples throughout the state of these funds being used to offset other recovery efforts. Often there is a bottleneck at the mills after large wildfires, so lining up the logs and contractors as quickly as possible is necessary to take advantage of this option. Also, the wood quality degrades quickly after fire, so log removal is best done in the first post-fire season, sometimes second. The rate of degradation depends on environmental conditions like precipitation amounts.

Post-fire permits that allow for commercial salvage logging include a Notice of Emergency Timber Operations (an "Emergency Notice" [1052], only cut dead and dying) or a Post-Fire Recovery Exemption [1038(g)] (only for 300' around an existing or destroyed permitted structure). While both are from the FPR's only the Notice of Emergency requires an RPF. You can find **helpful flyers that CDFW and WQCB provide regarding post-harvest timber operations here**. These flyers are attached to validated Emergency Notices when they are sent to landowners.

RCD EXAMPLE

❋ In Feather River RCD's EFRT program, revenue from log sales is typically used to offset the operating costs. Feather River RCD achieves this through vesting the ownership of merchantable materials with the contracted LTO. The RCD then tracks log and chip revenue and balances it against operating costs. Removal of biomass can be more expensive than mastication or on-site chipping, and usually requires a subsidy to cover transportation costs. Once grant dollars are involved, landowners will not see any revenue.

Biomass market

While selling logs and biomass is currently challenging in many parts of the state, there are a variety of grant options that can be used to help remove wood from the forest including the **American Forest Foundation's Forest Biomass Transportation Incentive Program**.

Due to market constraints, being creative with wood utilization is becoming necessary. More information on Mobile/Modular Wood Processing Technologies can be found **here** written by Martin Twer, Biomass Program Director of The Watershed Center.

NON-COMMERCIAL OPTIONS

See call out box on previous page for **when is a permit needed**.

Debris Removal

For non-commercial debris removal, permit needs depend on funding and impact. Often a CEQA exemption is used. Note that if the wood is not sold, finding an outlet for the material is still important. The State's Consolidated Debris Removal Program has two phases:

PHASE 1 "Local government, state and federal agencies have organized teams of experts and contractors to inspect the property and assess, make safe, and/or remove any household hazardous waste that may pose a threat to human health, animals, and the environment such as batteries, herbicides, pesticides, propane tanks, asbestos siding, and paints. Phase I is automatic and includes all residential properties that have been destroyed by the fires." – CAL OES

PHASE 2 "...local, state and federal officials will coordinate to conduct fire-related debris removal from the property elected to participate in the State Program by signing a Right-of-Entry Form." – CAL OES

CAL OES has tasked CalRecycle to manage wildfire debris removal operations throughout the state. Property owners should contact their local county or city for details on enrolling in this government-financed disaster recovery program. Check if your County is included **here**.

Broadcast Burning

When conducting broadcast burns, Smoke Management Plans are required. See the **Prescribed Fire Information Reporting System User Manual** for more information regarding Smoke Management Plans and other management plans.

Pile Burning

Pile burning is a great option for many landowners and is often easier than conducting other types of burns. To get the proper permit, check whether the property is in a local, state, or federal responsibility area **here**.

State responsibility areas require a burn permit to be submitted through **CAL FIRE**, as well as verification that it is a permissible burn day with the local air quality management agency. To burn in local responsibility areas, you need to contact your local city/county fire authorities, which can include Fire Safe Councils, the County website, etc.

Lop and Scatter

In the short term, lop and scatter treatments increase fire risk and intensity. This increase in fire risk decreases over time with decomposition. While this technique can be helpful to reduce erosion and stream sedimentation, and to aid potential suppression efforts, it should be carefully considered in the context of location and objectives. Many RCDs choose to avoid this treatment unless other prescriptions are not possible.

Figure 19. El Dorado County, CA. Photo credit: Sierra Riker.

RCD EXAMPLE

❋ Sonoma RCD notes that lop and scatter is not an effective fuels treatment in the interior coast ranges. There is insufficient quantities of snow and rain to compact fuels and aid in reasonable decomposition times. Sonoma RCD only uses lop and scatter as a last resort and reserves the treatment for ladder fuels on slopes that exceed equipment limitations, or in areas where equipment can be used to trample the slash.

RCDs in the lower foothills record similar observations about insufficient quantities of precipitation to justify lop and scatter. Given the frequency of drought, the same is often true for higher elevation zones as well. Lop and scatter is also not right for all slash types. For example, Manzanita takes decades to decompose, even with moisture. Some forestry practitioners steer clear of lop and scatter whenever possible. However, lop and scatter can be necessary in steep areas not accessible with equipment or where pile burning isn't an option.

Figure 20. El Dorado County, CA. Photo credit: Sophia Lemmo.

Chipping (blowing/piling/etc.)

Chipping converts small diameter trees and shrubs into wood chips, usually for onsite disposal. While commonly used in wildfire mitigation, leaving chips on site temporarily increases fuel density and therefore fire severity. While chips decompose faster than lop and scatter debris, the rate depends on environmental conditions. Benefits of chipping and leaving on site include reducing soil erosion, enhancing soil moisture retention, creating a fire suppression-friendly environment, and contributing to a more fire-adapted landscape in the long term. Chipping is best at reducing ladder fuels when burning is not a viable option. Chipping programs for private landowners are offered by many Fire Safe Councils and some RCDs, often funded through the California Climate Investments initiative or CAL FIRE.

Mastication

Mastication is the process of mulching down smaller trees and brush, leaving behind finer debris (similar to the output from a chipper). It's completed with a skid-steer or excavator with a mounted attachment. It can be cost effective for larger areas and has many of the same pros and cons as chipping.

Landowner firewood

Logs/debris can be left onsite for landowner firewood. However, if the firewood will be sold, bartered or traded, an **FRP permit** is required.

Other Brush Management Options

Along with the aforementioned chipping, mastication, and burning options, herbicide, herbivory, and hand grubbing are other brush management options. For more information about them please refer to the **Competing Vegetation** section below.

FOREST REGENERATION

Please refer back to the **Wildfire Severities**, and **Select Habitat Types** sections for decision matrices and information about when it is appropriate to reforest. Depending on the environment, low to moderate severity fires may recover with natural regeneration. Also, some species, typically hardwood or serotinous species, are great re-sprouters and are adapted to coming back after fire.

Rather than reinvent the wheel, this playbook recommends this resource: **Reforestation Practices for Conifers in California**. Many considerations go into reforestation—**site assessment, seeds, seedlings, site preparation, vegetation management, planting, pre-commercial thins, etc.** A planted stand is a long-term investment that needs monitoring and maintenance over time. One challenge is finding grant money that will allow for this long-term maintenance.

This handbook highlights some reforestation considerations throughout this chapter, however, please refer to the Reforestation Practices for Conifers in California book for extensive information on conifer regeneration.

Here are some other resources on reforestation:

- **Post-fire Reforestation Considerations**
- **Reforestation/Reburn Reading List** – Originally Compiled and Distributed at the UCCE Reforestation Field Tour led by Ryan Tompkins: Reforestation in a burning landscape field tour 2022.
  - This reading list includes information on why removing fuels from the landscape is important in large patches of high severity burns, the importance of managing the planted stand well into the future, and (if it is a management goal) how to eventually foster a more complex forest structure and maintain it until it can eventually have a regular fire return frequency.

Ordering Seedlings

Ordering seedings requires planning up to two years in advance. When ordering ensure your seed source is applicable and high quality. Pre-plan species, and trees per acre. Each nursery has ordering deadline as well:

- **One tree planted**
  - Sometimes they have last minute seedlings leftover so it is always worth reaching out.
- **Seedlings of Hope**
- **El Dorado RCD**
  - In 2014, the RCD entered into an agreement with the US Forest Service's Placerville Nursery to grow seedlings ordered through the RCD by landowners to be used for establishing forests, woodlots, windbreaks and wildlife areas throughout the state of California.

Figure 21. Mariposa County, CA. Photo credit: Sierra Riker.

PLANTED STANDS

When reaching out to the public about reforestation, verbiage can be important. Recently, Rob York of UC Berkeley had the thought of calling areas planted after fires "Planted Stands" rather than "Plantations." This typically evokes better and more apt imagery.

Figure 22. Antelope Cluster Plantation, Plumas County, CA. Photo credit: Travis Freed, SIG.

- Orders must be in by December 1st, 2023 for planting in the winter '24/spring '25 planting season.
- **Seedling Order Form**

- **Lewis Moran Reforestation Center**
  - The center also is in need of cone crops.
  - Announcement as of 7/22: "ATTENTION LANDOWNERS! Identifying healthy trees for cone collection is an important first step to harvesting seeds for future reforestation needs. CAL FIRE is asking landowners to assist with locating developing cone crops on native California conifers (pine, fir, cedar, redwood). A potential stand of conifer trees consists of approximately 15-20 healthy trees with the top third of the tree containing unopened cones. Please take note of the location (e.g. GPS coordinates) and tree species observed. Please contact the Seed Bank Manager with information about your potential crop."

- **Mast Reforestation**
  - They recently have been making a lot of acquisitions of nursery and tree seeds and are now the biggest tree seed holder in western US. They have a focus on private landowners.

- **Cal Forest Nurseries**
  - Recently bought by Mast.

Sometimes, the USFS has a backstock of seedlings that become available. These excess seedlings are posted on the **Reforestation Pipeline's Podio page**. Maintaining partnerships with regional representatives is another means to claim excess seedlings. The drawback to last-minute seedlings is that often trees can only be planted on lands that have already completed CEQA/NEPA.

To proactively ensure local seed availability, investing in cone collecting is a good option. You can do this through partnering with the state of California or organizations like American Forests through their **Reforestation Pipeline Partnership**, which are creating cone surveying and collection programs.

Planning for Resilience

Incorporating climate resilience in your planting design is important. For example, a **recent study** (Bernal et al., 2022) found that future conditions will reduce the carrying capacity of forested landscapes. Thus, carefully considering lower tree densities is recommended. However, different species warrant different planting densities as they have varying survival rates (see **Chapter 12, Reforestation of Areas Burned by Large Wildfires**). There are also adaptive ways to design the planting, like employing a "cluster" or diamond planting scheme. "For example, planting 3 seedlings close together in a group with 27 foot spacing between groups would require planting only about 180 trees per acre. If the goal is to

have at least one tree remaining in each group, the stand will soon have spacing more similar to the historical spacing of a mature forest. This approach addresses the possibility of mortality at each planting site and allows multiple species to be planted at each site. It also could serve to reduce the cost of manual release in rehabilitating burned sites projects where herbicide use is restricted as the number of manual release circles per acre is reduced" (Grey, **Chapter 12, Reforestation of Areas Burned by Large Wildfires** page 8) (see Figure 22).

There are emerging theories on "assisted migration" or shifting species distributions to reflect projected climates. Note, however, that the scientific literature on assisted migration is not well developed and is mixed some cases. Always critically think/research about objectives, site characteristics, resilience, and adaptability. One resource that considers climate adaptations in choosing seeds is: **https://reforestationtools.org/climate-adapted-seed-tool/**

RCD EXAMPLE

❋ Butte County RCD's Concow Resilience Project is a 784-acre climate-adaptive reforestation project on federal lands in the highest-severity burn portion of the Camp Fire. In the year after the Camp Fire, Butte County residents and land managers gathered to envision "the next forest." Residents identified closely with the dense conifer forest they lost, even as they acknowledged that without a century of fire suppression (including the dispossession and genocide of Indigenous peoples), the forest would never have been so dense or coniferous. By 2055, the Concow area's climate is projected to no longer support black oaks and ponderosas, but rather blue oaks and gray pines. As a result, partners chose to focus on restoring pertinent oaks, and at a relatively low tree density. Managing for a future climate rather than a past climate helps reduce the possibility of repeated disasters.

Competing Vegetation

The post-fire environment is ripe for invasive species to take over. The open canopy and added nitrogen create an ideal situation for many competing vegetation, especially invasive species. In certain environments, within a year of the fire, brush like Ceanothus sp. can become dense and choke out other species. Burned snags and debris, paired with brush fosters an environment highly susceptible to reburns. Competing vegetation is also highly competitive at accessing limited resources, such as water, which negatively impacts forest seedling survival (see Figure 23). Early mitigation not only increases success of subsequent reforestation, but also reduces costs. The more time transpires before site prep, the harder the competing vegetation is to control.

RCD EXAMPLE

❋ After the 2020 CZU burn, broom cropped up and dominated a lot of the burn scar. RCD of Santa Cruz wished they had the foresight to warn landowners about this and act earlier.

Figure 23. Seedling roots versus shrub roots. Photo credit: Ryan Tompkins, UCCE.

Figure 24. Mariposa County, CA. Photo credit: Sierra Riker

The options generally consist of:

- Chemical control (herbicide, desiccants or growth regulators)
- Mechanical control (logging, piling, ripping, mulching, masticating, subsoiling, chipping, etc.)
- Manual control (cutting, grubbing, pulling, etc)
- Biological control (using naturally occurring plants/substances/organisms)
- Cultural (burning, grazing, etc.) – also refer to the **The Use of Fire as a Tool for Controlling Invasive Plants**

The use of one does not preclude the use of another; they often can complement each other.

Again, **Reforestation Practices for Conifers in California** is the go-to guide on all things related to conifer reforestation. However, controlling competing vegetation can be critical in reforesting conifers and thus is highlighted here. Below is an excerpt from the Vegetation Management Chapter.

Competing Vegetation Management Treatment Toolbox

Treatments	Cost / Acre	Considerations	Effective Duration
No Action	$0	▪ Seedlings survival threatened ▪ No control over shrub resurgence ▪ High fuel load, potential for reburn	No effectiveness
Chemical (Herbicide)	$–$$	▪ Reliably effective germinant suppressant shrub ▪ Low soil disturbance ▪ Weather / seasonally dependent ▪ High knowledge need	4–6 years
Mechanical	$$+	▪ Soil disturbance ▪ Limited to prior to planting	3–5 years
Manual (hand-grubbing)	DIY, or $$$	▪ Time-consuming ▪ Laborious ▪ Often only possible at low acreage	1–2 years
Targeted Grazing	$$–$$$	▪ Unmanaged grazing may cause damage to seedlings ▪ Requires supervision	1–3 years
Prescribed Fire	$$–$$$	▪ Potentially removes shrubs / herbaceous fuels if targeted ▪ May not be suitable for young seedlings	1–6 years

Table 3. Competing Vegetation Management Treatment Toolbox. UCCE Forest Factsheets: Post-fire Competing Vegetation Management Series.

"The success of forest regeneration depends on many things. In California's Mediterranean climate, the most critical factor which influences the success or failure of establishing a new forest is competing vegetation (Powers 1999). Competing vegetation can and will deprive newly established conifer seedlings of valuable light, nutrients and most importantly, water (White & Newton 1989). In California, where summer temperatures can exceed one hundred degrees, relative humidity may be in the single digits and long periods without rainfall are common, competing vegetation in excess of just twenty five percent cover may be enough to influence growth and survival of first year seedlings. (Oliver 1984)

Pioneer brush species and hardwoods inherently grow faster than conifer seedlings and can quickly overtop planted trees depriving them of valuable light needed for photosynthesis (McDonald & Abbott 1997). Herbaceous vegetation in the form of grasses and forbs has adapted to capitalize on early available soil moisture for growth, and can quickly deplete available water for seedlings (White, Witherspoon & Newton 1990). It is important to realize that any vegetation other than the planted conifers are utilizing light, nutrients and water that are required for successful establishment of new seedlings.

The impacts of competing vegetation on conifer seedlings have been well documented. Ponderosa pine (Pinus ponderosa) survival was dramatically increased by controlling bear clover (Chamabatia foliolosa). Tappeiner & Radosevich (1982) demonstrated that in areas where bear clover was not controlled, ponderosa pine survival ranged from six to twelve percent survival compared to eighty to one hundred percent where it was removed. The same study also predicted wood volume losses of 75 percent by age 50 if bear clover was not controlled. Fisk (1984) also estimated volume losses of up to 70 percent in mixed conifer forests where bear clover was not controlled. Oester et al. (1995) showed survival increased from 18 percent to 63 percent and stem volume increased from 39 cubic centimeters to 819 cubic centimeters in ponderosa pine five years after planting from a single application of hexazinone compared to untreated controls in northeastern Oregon. In a study by White & Newton (1989) ponderosa pine growth was substantially reduced by manzanita ground cover as low as 20 to 30 percent. Powers (1999) showed a threefold gain in stem volume averaged over all sites using herbicides compared to the Chapter 8: Forest Vegetation Management 5 non-treated controls eight years after treatment in the Garden of Eden Study. Ponderosa pine growth was reduced by 80 to 90 percent three years after planting when greenleaf manzanita cover reached 50 percent (Radosevich 1984). Controlling competing vegetation is most important early in the life of a new forest. McDonald & Fiddler (2001) showed that delaying release treatments until four years after planting and then treating each year for the next three years did not significantly increase growth over the non-treated controls. Small trees that received release treatments during the first three years after planting were statistically larger McDonald & Fiddler (2001)" (excerpt from Chapter 8: Forest Vegetation Management by Ed Fredrickson and Mark Grey in the **Reforestation Practices for Conifers in California**)

Also see: Bohlman, G.N., North, M. and Safford, H.D., 2016. Shrub removal in reforested post-fire areas increases native plant species richness. Forest Ecology and Management, 374, pp.195-210.

Figure 25. Plumas County, CA. Photo credit: Feather River RCD.

Figure 26. Impact of the 2021 Dixie Fire on an area previously burned and then planted after the 2007 Moonlight Fire. The left side shows a USFS planted stand that used minimal brush control, while the right side shows private land that used herbicides. Photo credit: Ryan Tompkins, UCCE.

Herbicide

In many environments, like the Sierra Nevada or Cascades, herbicides may be necessary for successful reforestation (see Figure 23). However, their use can be controversial among private landowners. CARCD is currently working with UCCE on creating pamphlets and info-graphs on herbicide use. Below are some helpful tables about herbicides:

Chemical Compound	Product Name Containing the Chemical	Application
Glyphosate	Accord XRT, RoundUp Pro	Foliar
Imazapyr	Polaris	Foliar/Soil
Triclopyr	Garlon	Foliar
Hexazinone	Velpar	Soil
Indaziflam	Esplanade	Soil
Sulfometuron	Oust	Soil
Aminopyralid	Milestone	Soil/Foliar
Clopyralid	Transline	Foliar/Soil
Penoxsulam	Cleantraxx	Soil
Metsulfuron	Escort XP	Foliar

Table 4. Common Herbicides.

Several certifications are often required to utilize herbicides and other pest control measures. A Pesticide Control Advisor (PCA) is a person who offers a recommendation on any agricultural use, holds themself as an authority on any agricultural use, or solicits services or sales for any agricultural use. A PCA with experience in forest management should be involved whenever herbicide is applied. Often spray contractors have a particular PCA they partner with. A Qualified Applicator Certificate (QAC) allows you to apply or supervise the application of federally restricted use pesticides or state restricted materials. A Qualified Applicator License (QAL) does the same, but also allows you to supervise the pesticide applications made by a licensed pest control business/contractor. For forestry projects, ensure your contractor holds a **"Forestry" category QAL (category E)**. For more information about how to receive these certifications, see the links below.

PCA certification info

QAL certification info

QAC certification info

Reporting requirements for pesticide use vary by county so be sure to look into your county's requirements.

Planting

Note that this playbook is only highlighting portions of the **reforestation** process. Once you have made it to the planting stage you should have secured an appropriate seed source of high quality and controlled competing vegetation. Consider factors like species, location, time of planting, and bare-root verse container seedlings (which can depend on the previously mentioned factors [e.g., container is better for fall]). Plan spacing and species based on expert advice, applicable regulations, and research. Planting season varies based on aspect, elevation, climatic condition, soil and ground, and access.

RCD EXAMPLES

* Feather River RCD is replanting portions of the Dixie Fire at around 150 trees per acre and planting them in a clump formation. 3 seedlings in a clump, each about 10 ft apart. They designed this reforestation in collaboration with UCCE and new research. They hope planting a lower density will alleviate the need for follow up treatments like PCT, and foster a more resilient and resistant landscape.

Due to the seedling shortage in California, it is important to avoid wasting seedlings. Handle, transport, store, and plant them properly, ensuring refrigeration or freezer storage to preserve their quality and carbohydrate reserves. Keep the root systems moist. Be mindful of differences between bare-root and container seedlings, such as "bagging-up" fewer bare-root seedlings on hot, dry, or windy days. Employ experienced contractors for planting and follow a systematic and organized planting plan. Focus on one seedling at a time during planting, paying attention to scalping, planting hole preparation, tree positioning, soil compaction, and micro-sites. If pests are prevalent on your site, protect the seedlings from damage. Please refer to the **Reforestation Practices for Conifers in California** for more information.

In other words, ensure you are well versed in the process of planting prior to planting and/or supervising planters.

EROSION

There is a need for effective communication to landowners about when to take immediate action relating to hazardous runoff from structures verse a less immediate need for remediation.

RCD EXAMPLES

* After the 2020 CZU Fire in Santa Cruz County, the drinking water supply for approximately 100,000 people was threatened by toxic materials from 1,500 burned structures. With the rainy season approaching, the RCD of Santa Cruz County partnered with the County of Santa Cruz, CalOES and CCC to develop and implement a Toxic Runoff Control Program. To implement the program as quickly as possible, the County of Santa Cruz declared a Public Health Emergency, which

Figure 27. Tamarack Fire restoration in Alpine County, CA. Photo credit: Sierra Riker.

Figure 28. Lassen County, CA. Photo credit: Ryan Thompkins.

allowed the partners access to properties forgoing the Right of Entry Agreement Process. Over just a few weeks, the program installed runoff control measures on the 450 properties with the greatest potential to contaminate drinking water. While the mission had some serious challenges, including logistics and costs related to the CCC camp and the Covid pandemic in general, ultimately, the partners were successful in protecting critical drinking water supply and water quality for threatened steelhead and endangered coho salmon.

* Mariposa RCD's NRCS office is doing assessments but are not able to help with erosion control unless erosion is actively occurring. NRCS keeps Mariposa RCD informed of those assessments to allow the RCD to reach out and conduct erosion prevention work.

If you would like to engage in erosion control work, a good contact for information is **richard.muhl@waterboards.ca.gov**.

OTHER EROSION RESOURCES:

- More broad then just pertaining to fires, but often road work is associated: **2015 Handbook for Forest Ranch and Rural Roads**
- **Understanding Wildfire Impacts**
- **Managing Drainage and Erosion on Private Property and Roads After Fire—Santa Cruz RCD**
- **Preparing for Post-Fire Changes Along Streams and Waterways—Santa Cruz RCD**

LONG TERM

Monitoring

Monitoring the effectiveness of your treatment over time is important, but can be hard to secure funding for. For example, monitoring seedling survival over time, fuel loading over time, and other metrics can help inform your future management decisions. Writing funds into grants early on, or perhaps negotiating with entities like One Tree Planted can be a good option for getting this work covered. Looking into collaborating with UCCE or CARCD are other options as well to both help find funding and design effective monitoring plans.

Funding Sources/Options

Long term funding to maintain post-fire restoration is a huge challenge. Often RCDs rely on cost share programs to work on private lands, CAL FIRE grants, along with other **Funding Source Assessment**. A few RCDs have relations with local community foundations or with their water district to maintain some regular funds. Other RCDs participate and apply for USFS/NRCS Joint Chiefs Proposals.

If reforestation was part of your post-fire work, completing PCTs and creative silviculture to transform the stand from a single age cohort to a multiage complex stand may be desired.

REFERENCE RESOURCES FROM RCD'S

As illustrated in this playbook, recovery from wildfire is a complex and never-ending process. Along with the resources referenced throughout this handbook, CARCD maintains a **shared drive of post-fire resources** **found here**. Feel free to add to it, request additional resources, and use the ones available. It is intended to be a living drive that facilitates peer learning.

RCD Post-Fire "Team" (Informal)

Below is a list of RCD contacts who have delt firsthand with post-fire recovery and have relevant knowledge to share. Many of them also have helpful licenses for completing forest management. The "Team" will host quarterly peer-forums to share post-fire lessons and questions. Meetings will be emailed out on CARCD forest and fire listserv. Reach out to CARCD to be added.

CONTACTS TO REACH OUT TO WITH ADDITIONAL QUESTIONS

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Figure 29. Lassen County, CA. Photo credit: Catherine Wooster.

Notes:

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