CALIFORNIA PRESCRIBED FIRE MONITORING PROGRAM

Metadata Document

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LIST OF TABLES

1. SITES

An overview of each site, including site and plot codes, ownership, burn units, and years sampled, is provided in Table 1, with detailed information for each site available in Table 2.

Table 1. Overview information for each site

Site	Site Code	Plot Code	Land Owner	Burn Units	Years Sampled	Plot Count
Bear Mountain	BearMountain	BM	Stanislaus National Forest	BM1 BM2 BM3 BM4	2019 2021 2024	27
Big Chico Creek Ecological Reserve	BigChicoCreekEcologicalReserve	BLK BOW	California State University Chico / Big Chico Creek Ecological Reserve	BCCER_undetermined	2023	11
Bliss SP	BlissSP	bliss	State Parks	North Central South	2019	15
Bouverie	Bouverie	BOUV	Fire Forward / Audubon Canyon Ranch	Cougar Fins Gilman	2021 2023	12
Burton Creek	BurtonCreek	BRT	State Parks	B1 B2 B3 B4 BUc BUd Control	2019 2020 2023 2024	47
Calaveras Big Trees North	CalaverasBigTreesNorth	BTN	State Parks	6 7 8	2020 2022 2023	34
Calaveras Big Trees South	CalaverasBigTreesSouth	BTS	State Parks	South_grove	2022 2023 2024	58
Caples	Caples	numeric	Eldorado National Forest	Cap0	2013-2018 2019 2020	108
Cleveland Kitchen Creek	ClevelandKitchenCreek	CKC	Cleveland National Forest	40 41 42a 42b 47	2023 2024	43

Site	Site Code	Plot Code	Land Owner	Burn Units	Years Sampled	Plot Count
Cleveland Los Huecos	ClevelandLosHuecos	CLH	Cleveland National Forest	57 58 59	2023 2024	25
Concow Pyro	ConcowPyro	CONCOW	Feather River Watershed / Concow Pyrodiversity Project	1a 2a 8a	2021	17
Downieville	Downieville	RedAnt	Tahoe National Forest	RedAnt Control	2020	31
Fort Bragg	FortBragg	HEN KAY UQL TRE FWIL ZIE	Jackson Demonstration State Forest / Redwood Resiliency Program	HEN KAY UQL TRE WIL ZIE	2024	30
French Meadows	Frenchmeadows	FM FMT	The Nature Conservancy / American River Conservancy	10 17A 19A 19B 19C 19D 19E	2019 2021 2022	77
Grove Of Old Trees	GroveOfOldTrees	GOT	Fire Forward / LandPaths / Point Blue	Zone1 Zone2 Zone3 Road	2022 2023	15
Henrycoe	Henrycoe	HCM	State Parks	HC0	2021 2022 2023	14
Humboldt Dog Valley	HumboldtDogValley	HDV	Humboldt-Toiyabe National Forest	DV7	2022 2023 2024	16
Independence	Independence	Indy	The Nature Conservancy / American River Conservancy	IND0 A	2020 2024	41
Inyo Antelope	InyoAntelope	ANT	Inyo National Forest	antelope2 antelope11b	2020 2023 2024	19
Inyo Dry Creek	InyoDryCreek	DRY	Inyo National Forest	drycreek7 drycreek20 drycreek41	2020 2022 2023	26

Site	Site Code	Plot Code	Land Owner	Burn Units	Years Sampled	Plot Count
Inyo Springs Fire	InyoSpringsFire	SPR	Inyo National Forest	Alpha Bravo Charlie Delta Echo Foxtrot Golf Hotel ControlA ControlB	2019 2020 2023	45
IshKay Klamath	IshKayKlamath	IKK	Mid-Klamath Watershed Council / Karuk Tribe	40	2022	13
Klamath	Klamath	KLAMATH	Mid-Klamath Watershed Council / Karuk Tribe	KLA0	2021 2022	18
Lone Bobcat	LoneBobcat	LBW	Private - Janaia Donaldson	A B C	2020 2022	7
Modoc Lava	ModocLava	MOD	Modoc National Forest	5 10 910 3000 Control ControlB Mast1 Mast2	2020 2021 2022	41
Modoc Rush	ModocRush	RUSH	Modoc National Forest	102 120	2022 2023 2024	12
Molakides	Molakides	MOL	Private - Doris Molakides	2022-01	2022	5
Odell	Odell	Odell	Private - Ted Odell	ODELL0	2022	5
Pacific Union College	PacificUnionCollege	PUC	Pacific Union College	1 4 6a 9	2022 2024	20
Rio Lindo	RioLindo	RIO	Fire Forward / Rio Lindo Adventist Academy	NorthA NorthB	2021 2022 2023	9
San Bernardino Grass Valley	SanBernardinoGrassValley	GRV	San Bernardino National Forest	Eldorado	2023	10

Site	Site Code	Plot Code	Land Owner	Burn Units	Years Sampled	Plot Count
Shaver Lake Dinkey Creek	ShaverLakeDinkeyCreek	SHL	Southern California Edison (SCE)	Dinkey_C Dinkey_D Dineky_E Dineky_F	2022 2023 2024	45
Shaver Lake South Shore	ShaverLakeSouthShore	SHL	Southern California Edison (SCE)	A B C	2021 2022 2023 2024	26
Sly Park	Slypark	hcp spi	Sly Park Recreation Area	SpiA SpiB Hcp-east Hcp-west	2019 2020 2021 2024	22
Sugar Pine Point	SugarPinePoint	SPP	State Parks	SP0_1 SP0_2	2020 2023	2
WilderRanch	WilderRanch	WIL	State Parks	RNSP0	2021 2023	20

Table 2. Detailed information for each site.

Site	General Information
Bear Mountain	Only allowed to tag the first tree of each plot, therefore in the tree data all the other trees have *NA* as tree tag. All burn units were affected by the Rim Fire in 2013.
Big Chico Creek Ecological Reserve	Plot location determined by BCCER; BLK = Black Oak Plots, BOW = Blue Oak Plots. Plots were planned to be burned during fall and winter of 2024 and 2025, but the Park Fire burned the entire reserve in 2024.
Bliss SP	Tree tags were not allowed to be used at this site, therefore in the tree data they all have *NA* as tree tag.
Bouverie	All burn units were burned by the 2017 Nuns Fire. Some areas were very steep and full of poison oak, which made sampling challenging.
Burton Creek	BUd burned in 2015; therefore there are no Prefire data. BUc has not burned yet but was thinned and piled. B4 is missing Postfire Immediate measurement, because it was still too hot to enter the unit when crew was there to sample.
Calaveras Big Trees North	Tree tags were not allowed to be used at this site, therefore within the tree data they have all *NA* as tree tag. Burn unit 7 was not able to be Postfire Immediate sampled, due to unsafe conditions until the end of the field season. During the 1-year Postfire, 7 plots (BTN019, BTN022, BTN028, BTN003, BTN014, BTN031, BTN033) could not be sampled, due to treefall hazard.
Calaveras Big Trees South	Very large and complex unit therefore sampling was difficult and slow, Prefire sampling done in three different years (2022, 2023, 2024).

Site	General Information
Caples	The Caples project started on Sep 30, 2019 and proceeded until Oct 10, 2019 - at which point it was declared a wildfire. About 437.1 ha were burned as prescribed fire, with an additional 953.0 ha burned after the fire was declared a wildfire. Prefire data (2013-2018) was collected by USDA FS crews. Prefire data does not have tree height The USDA FS has continued to collect data within the Caples project following Caldor Fire of which some Caples plots were reburned. Plot XY location to be sent upon request. Please contact Becky Estes, Forest Service, becky.estes@usda.gov for interest in the Caples project data.
Cleveland Kitchen Creek	Burn Unit 40 is a pile burn unit (no broadcast burn yet). During broadcast burn some burn unit perimeters were changed, therefore some plots remained unburned (CKC270, CKC336) or are very close to edge. Botany protocol was changed to only record the three most common forbs and grasses instead of all vegetation classes (life forms). Regen protocol was changed for Postfire measurements to record any conifer regeneration within entire plot. No Post-Immediate measurement.
Cleveland Los Huecos	Area thinned (mostly shrubs) and pile burned (except 57), they worked on burning piles across a long time period: from December 2023 to May 2024, broadcast burn planned for 2025. Botany protocol was changed to only record the three most common forbs and grasses instead of all vegetation classes (life forms). Regen protocol was changed for Postfire measurements to record any conifer regeneration within the entire plot. No Immediate-Post measurement.
Concow Pyro	Area affected by the Camp Fire 2018. Measurements were taken after Wildfire. Some plots were burned during a prescribed fire in December 2024, but no Postfire data collected yet.
Downieville	Sampling was curtailed because of proximity of North Fire.
Fort Bragg	Plots were established for the Redwood Resiliency Program to assess forest structure. The area is not supposed to be burned.
French Meadows	We were only allowed to tag the first tree of each plot, therefore in the tree data all the other trees have *NA* as tree tag.
Grove Of Old Trees	Burn unit 'Road' includes two plots that are laying outside the other burn unit perimeters and are serving as control plots.
Henrycoe	2021 pre pile burn sampling episode. The area burned twice, because of timing crew could not do measurements after the first burn. State Parks did their own 1yr-Post measurement.

Site	General Information
Independence	2020 sampling east of meadow, which is also management concern (encroachment).
Inyo Antelope	In 2023, we were not able to find two of the plots (ANT005, ANT007).
Inyo Dry Creek	In burn unit drycreek7 was a prescribed burn conducted in 2018, no Prefire data.
Inyo Springs Fire	The crew established plots ahead of the flames of the Springs Fire 2019. Many of the plots had been previously prescribed burned. Control plots were established in 2020.
IshKay Klamath	Tree tags were not allowed to be used at this site, therefore in the tree data they have all *NA* as tree tag.
Klamath	The plots were established in locations specified by the Karuk Tribe and Mid-Klamath Watershed Council.
Lone Bobcat	One of two privately owned parcels burned. Reduces risk to neighbors, showcases joint funding of treatment and participation of community/PBA. Only one plot (LBW006) burned. The ownership changed.
Modoc Lava	Burn units along power line corridor were prescribed burned in 2021 with extensive help of Forest Service burn crews.
Odell	Tree tags were not allowed to be used at this site, therefore in the tree data they have all *NA* as tree tag. Only three plots (Odell002, Odell003, Odell005) burned.
Pacific Union College	Part of PUC forest managed for recreation and teaching. Only burn unit 6a burned.
Rio Lindo	BU is lateral strip separating school & vineyards.
San Bernardino Grass Valley	Pile burn unit. Not burned yet.
Shaver Lake Dinkey Creek	Area effected by Nutmeg Fire in September 2022, in which 4-plots were affected (plot numbers 44, 48, 55 and 56) Burn units are part of strategic ridge chosen for buffering effect of Lake-side from potential fires coming upslope from south. Much of the Dinkey ignitions was “pile-casting” or “creepy piles” - wherein piles were lit and then fire was allowed to move around within the control line around the burn unit. The piles were created from an intensive restoration project following tree morality from the bug beetle outbreak (2016-2018). Unfortunately, we don’t have good dates for these ignitions.
Sly Park	Tree tags were not allowed (Tag ID listed as *NA*). Rx fire managed for burning surface fuels and removal of small diameter non-timber species only. Plot spi08 could not be found in 2024 and therefore has no measurements of that year. Plot spi04 could not be measured in 2024, because of an aggressive ground wasp nest. Burn Unit spi_B is a 35 year old PIPO plantation (spi_B) burned 1/31/2020. Burn Unit spi_A (shaded fuel break) burned on 2/11/2020 and 2/20/2020.

Site	General Information
WilderRanch	Coast Redwood Mixed Evergreen Forest is bordered by grasslands on either side.

2. DESCRIPTION OF THE TABLES

The database comprises five tables: Plot Description, Species, Trees, Fuels and Regen, with shared columns detailed below. The specific columns for each table are described afterward. We also added an informative table named Plot Treatment History Table, which contains information about the times and dates that plots have been sampled.

Table 3. Common columns for all tables

Variable	Column Name	Definition	Selection Options
Sampled Site	site	The specific site that was sampled.	36 different sites (see Section 1)
Sampled Burn Unit	burn_unit	The burn unit where each plot is located.	See Section 1
Sampled Plot	plot_id	The plot name.	Each plot received a unique plot ID, often including the site code (see Section 1) and three numbers. There are a few sites whose plots do not include the site code and/or only 1 to 2 numbers.
Sampled Year	year	The year in which the sampling was conducted.	2013_2018 (Caples data), 2019, 2020, 2021, 2022, 2023, 2024
Prefire or Postfire Sample	pre_post_fire	When the sample occurred, before Rxfire (prefire) or after (postfire).	prefire, postfire
Time of Prefire or Postfire Sampling	post_time	For the prefire sampling, plots could be sampled one (1st) or twice (2nd). Some sites were also mechanically thinned (Cleveland Los Huecos, Burton Creek) before the Rx fire (**post_trtmt**). After the Rxfire, the plots were sampled at several times (1, 2, 4, 5 or 8yr)	Prefire: - 1st - 2nd - post_trtmt Postfire: - immediate - 1yr - 2yr - 4yr - 5yr - 8yr

Variable	Column Name	Definition	Selection Options
Specific Sampling Timing	timing_label	A combination of the last two rows, the type of sampling (**pre_post_fire**) and the timing (**post_time**). This column has an organizational purpose within the database.	- prefire_1st - prefire_2nd - prefire_post_trtmt - postfire_immediate - postfire_1yr - postfire_2yr - postfire_4yr - postfire_5yr - postfire_8yr

Plot description table

Table 4. Plot description table

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Fire Severity	fireseverity	0, 1, 2, 3, 4, 5	Immediate-Post or 1yr-Postfire	**Visual assessment** of fire severity class of any recent fire on the plot, based on table **A1.1 in the Appendix**. Observations of old signs of fire are added to the plot history or notes column.
Slope of Plot	slope_percent	Percent (%)	Prefire	Using a clinometer, the **slope of the plot is measured to the nearest 1%** from the plot center to the plot edge in two directions along the aspect axis (upslope and downslope). These two measurements are averaged to determine the plot's slope.
Aspect of Plot	aspect_degree	Degrees (°)	Prefire	Aspect is the **direction the slope of the plot faces in degrees (0-360°)**. Using a hand-held compass and standing at the top edge of the plot, the predominant aspect is measured and recorded to the nearest 1 degree. The aspect is measured in the same direction as the slope.
Most Common Vegetation within Plot	existing_veg		Every time (Sampled until 2021)	The **three most common species** (four/six-letter code) in order of dominance within the plot.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Witness Tree Distance	witnesstree_dist_m	Meter (m)	Prefire (if WT died, new measurements Postfire)	The **witness tree is the first live tree** (≥ 7.6 cm DBH) tagged, clockwise from 0 degrees (true north) from plot center. The distance is recorded (nearest 0.1m) from base of tree to the plot center. In the case that all trees within the plot died, a witness tree (not tagged) outside the plot is selected and in addition the DBH as well as the species are getting recorded. This tree will be the closest live tree to the plot edge, therefore in some instances the distance can be >11.3m (plot radius is 11.3m).
Witness Tree Azimuth	wtree_azimuth_degree	Degrees (°)	Prefire (if WT died, new measurements Postfire)	The **witness tree's position measured in degrees (0-360°),** taken as a clockwise angle from true north to the plot center. When measuring a witness tree's azimuth, the measurement is taken by standing at the witness tree facing plot center, placing the compass's north needle pointing toward plot center, and turning the degree reading to measure how many degrees it differs from true north to plot center. In combination with the witness tree distance measurement, this allows the witness tree's exact position to be mapped and helps to relocate the plot center in future surveys.
Witness Tree Tag Number	wtree_TagNo		Prefire (if WT died, new measurements Postfire)	The **number of the tag** on the witness tree.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Total Vegetation Cover	total_veg_percent	Percent (%)	Every time, except Immediate-Post	Cover of **all living vegetation** (trees, shrubs, grass, and forbs) as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Total Tree Cover	tot_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2023)	Cover of **all trees (live and dead) of all size classes** (TOV, TSA, TSE) as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Modal Height of Total Trees	tot_height_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2023)	Modal height of **all trees in overstory layer (live and dead)** within plot.
Total Dead Overstory Cover	deadtree_all_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2023)	Cover of **all sizes dead trees** (TOV, TSA, TSE) as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Average Height of Dead Overstory	deadtree_ht_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2023)	Average height of **all sizes dead trees** (TOV, TSA, TSE) **in overstory layer** within plot.
Total Live Overstory Cover	tov_percent	Percent (%)	Every time, except Immediate-Post	Cover of all **living trees within the overstory layer** (≥ 1.37 m and ≥ 7.6cm DBH) as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Average Height of Live Overstory	tov_ht_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2023)	Average height of **all live trees in overstory layer** within plot. Based off of sampled heights in tree data.
Total Live Sapling Cover	tsa_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2023)	Cover of **all living saplings (tree species, ≥ 1.37m tall and < 7.6cm DBH)** as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Average Height of Saplings	tsa_ht_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2023)	Average height of **all live saplings** within plot.
Total Live Seedling cover	tse_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2023)	Cover of **all living seedlings (tree species, < 1.37m tall)** as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Mean Maximum Height of Seedlings	tse_ht_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2023)	Mean height of **all tallest (per species) live seedlings** within plot. Based off of sampled heights in regeneration data.
Total Live Resprout cover	tre_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2023)	Cover of **all living resprouts (tree species, < 1.37m tall and originated from stump or tree)** as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Average Height of Resprouts	tre_ht_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2023)	Average height of **all live resprouts** within plot. Based off of sampled heights in regeneration data.
Total Shrub Cover	tos_percent	Percent (%)	Every time, except Immediate-Post	Cover of **all living shrubs** (> 1.8 m tall) as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Average Height of Shrubs	tos_ht_m	Meter (m)	Every time, except Immediate-Post	Average height of **all live shrubs** within plot.
Total dead Shrub Cover	ds_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2021)	Cover of **all dead shrubs** as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Average Height of Dead Shrubs	ds_ht_m	Meter (m)	Every time, except Immediate-Post (Sampled until 2021)	Average height of **all dead shrubs** within plot.
Total Forb Cover	tof_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2024)	Cover of **all forbs** as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Modal Height of Forbs	tof_ht_m	Meter (m)	Every time, except Immediate-Post	Modal height of **all present forbs** within plot.
Total Grass Cover	tog_percent	Percent (%)	Every time, except Immediate-Post (Sampled until 2024)	Cover of **all graminoids/grasses** as a percent of the entire plot from a birds-eye view, estimate cover to nearest 1%. This value ignores plant overlap and cannot exceed 100%.
Modal Height of Grasses	tog_ht_m	Meter (m)	Every time, except Immediate-Post	Modal height of **all graminoids/grasses** within plot.
Cover of Bare Soil	baresoil_percent	Percent (%)	Every time, except Immediate-Post	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **bare soil** within plot.
Litter Cover	litter_percent	Percent (%)	Every time	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **litter** within plot.
Black Litter Cover	blacklitter_percent	Percent (%)	Every time	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **blackened litter** within plot (not applicable [NA] for Prefire sampling).
Cover of Coarse Woody Debris	cwd_percent	Percent (%)	Every time	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **CWD** within plot.
Cover of Cones	cones_percent	Percent (%)	Every time (Sampled until 2022)	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **cones** within plot.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Boulder/Bedrock cover	boulder_bedrock_percent	Percent (%)	Every time (Sampled until 2022)	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **boulders and bedrock (> 600 mm diameter)** within plot.
Small Rock cover	smallrock_percent	Percent (%)	Every time (Sampled until 2022)	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **small rock (<75 mm diameter)** within plot.
Large rock cover	rock_percent	Percent (%)	Every time	Until 2022: Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **large rock (75 – 600 mm diameter)** within plot. From 2023 on: Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **all rock** within plot.
Cover of Ash	ash_percent	Percent (%)	Every time	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **ash** within plot, not applicable [NA] to Prefire sampling.
Cover of Basal Vegetation	basal_veg_percent	Percent (%)	Every time	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **live and dead basal vegetation** within plot (imagine all plants being sliced off at their base and then summing their surface areas as a % of plot area).
Cover of Cryptograms	cryptograms_percent	Percent (%)	Every time (Sampled until 2022)	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **cryptograms (moss, fungi, etc.)** within plot.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Cover of Road surface	road_percent	Percent (%)	Every time (Sampled until 2021)	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of existing **road** within plot.
Cover of Burn Piles	burnpile_percent	Percent (%)	Every time (Started Sampling in 2023)	Estimated percent ground surface cover (birds eye view), to the nearest 1%, of **burn piles** within plot.
Shrub torching percent	shrub_torch_percent	Percent (%)	Immediate-Post or 1yr-Postfire (Sampled until 2022)	Estimated percent torch (amount visibly burned off by fire) for shrubs, total amount of shrubs = 100%.
Shrub scorching percent	shrub_scorch_percent	Percent (%)	Immediate-Post or 1yr-Postfire	Estimated percent scorch (amount visible heated by fire) for shrubs, total amount of shrubs = 100%.
Cover of Unburned Shrubs	shrub_unburn_percent	Percent (%)	Immediate-Post or 1yr-Postfire (Sampled until 2022)	Estimated percent unburned (amount visible not affected by fire) shrubs within plots, total amount of shrubs = 100%.
Percent of area burned in a plot	area_burned_percent	Percent (%)	Every time	Visual assessment of the percentage of the plot burned
History of Site/Burn Unit/Plot	history		Every time	Any interesting **previous events** within site/burn unit/plot.
Witness Tree Species	witnesstree species		Prefire (if WT died, new measurements Postfire)	The **tree species of the witness tree** in six letter codes, if the witness tree is not tagged.

Species table

Table 5. Species table

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Status of Species	status_live_dead	live, dead	Every time, except Immediate-Post	Records whether the species is **alive or dead** at the time of sampling.
Lifeform of Species	life_form	TR, SH, FB, GR, FERN, OTHERS	Every time, except Immediate-Post	For each species, one of the following life forms: tree [TR], shrub [SH], forb [FB], graminoids/grasses [GR], or fern [FERN] gets recorded. For other life forms **[OTHER].**
Layer code	layer_code	TOV, TSA, TSE, TRE	Every time, except Immediate-Post	For each tree species one of the following layer codes **overstory [TOV], sapling [TSA], seedling [TSE] or resprout [TRE]** gets recorded.
Existing Species	species_code		Every time, except Immediate-Post	Each species present within plot is recorded in a separate row, with **a six-letter code for all species.** See section 4 for species name codes.
Percent cover	percent_cover	Percent (%)	Every time, except Immediate-Post	**Percent cover within the plot to nearest 1% per species**, if percent cover is < 1% trace cover [tr] gets recorded. Plants reaching over plot edge get recorded as well. Since plants and layers overlap **the summed values can be > 100%.**
Modal Height of Shrubs	model_ht_m	Meter (m)	Every time, except Immediate-Post	For **each shrub species**, the modal height is recorded at the nearest 0.1 meter.

Trees table

Table 6. Trees table

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Tag Number	tag_id		Every time	Within the plot, all live trees ≥ 7.6cm DBH and ≥ 1.37 m tall are **tagged clockwise from the plot center** beginning at the North transect (0 degrees). If two trees are right behind each other, the closest one to plot center will be measured first. A tree on the edge of the plot counts as "in" if the center of the bole (pith) at the base is 11.3m (radius of plot) or closer to the plot center (measured with tape). Dead and trees are not tagged. And some landowners do not allow tagging, in these cases the trees will be NA in the dataset.
Status of Tree	status_live_dead	live, dead, stump	Every time	Is the present tree **live or dead** at the time of sampling. When the tree has just the stump, we recorded it, and then measured the height and diameter.
Tree species	species_code		Every time	**The tree species are in six-letter codes**
Tree Diameter	dbh_cm	Centimeter (cm)	Prefire and 1yr-Postfire	For live and dead trees ≥ 7.6cm DBH and ≥ 1.37 m tall. **Diameter at breast height (measured at 1.37m above the ground)**, from the uphill side of the slope.
Tree Height	height_m	Meter (m)	Prefire and 1yr-Postfire	Measured height, **from base to tip.**

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Height to Tree Live Crown	ht_to_live_crown_m	Meter (m)	Prefire and 1yr-Postfire *until 2023, then:* Every time	Height from the ground to the beginning of vertically continuous foliage. Single, isolated branches below the continuous crown are not included. Measurements were taken to the nearest 0.1m. For epicormically sprouting trees, put "epicormic crown" in the notes column.
Live Crown Ratio	live_crown_ratio_percent	Percent (%)	Every time (Sampled until 2020)	Estimated percent of the crown of the tree that is alive.
Crown Class	crown_class	OP, DO, CO, IN, OV, RE, AB, IB	Every time, (Sampled until 2020)	Crown class is the description of the **relative position of the tree crown** with respect to competing vegetation surrounding the tree. The classification is based on how much light the tree's crown is receiving, not its position in the canopy. See different crown classes at **A1.2 in Appendix**.
Crown Width	crown_width_m	Meter (m)	Every time, (Sampled until 2021)	Measured **crown width per tree.** Two measures are made, one of the widest width and one orthogonal to that, the average is taken.
Bole char height	bolechar_m	Meter (m)	Immediate-Post or 1yr-Postfire	**Average height** of the char on bole. Two measures are made: one of the highest bole char and one of the lowest and the average is taken.
Decay Class	decay_class	0, 1, 2, 3, 4, 5	Every time	For standing dead trees (snags), **estimated decay class** 0 through 5 based on table **A1.3 in Appendix**.
Scorch height	scorch_ht_m	Meter (m)	Immediate-Post or 1yr-Postfire	The highest point of scorching (browned/reddened, heat damaged leaves after fire) within the crown.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Percent crown scorch	scorch_percent	Percent (%)	Immediate-Post or 1yr-Postfire	The estimated percent of the tree crown that is scorched/browned.
Torch height	torch_ht_m	Meter (m)	Immediate-Post or 1yr-Postfire	The **highest point** of torching (blackened, burned off leaves or branches after the fire).
Percent crown torch	torch_percent	Percent (%)	Immediate-Post or 1yr-Postfire	The estimated percent of the tree crown that is torched/consumed by fire.
Health Indications	health_code		Every time	Any health remarks, if necessary. This column has a drop-down with health code examples.
	health_code2		Every time	Any **health remarks** not included in drop down of previous column.
Resprout on Tree	resprout	yes, no	Immediate-Post	Resprouts found on trees after fire, **yes or no**.
Stump Diameter	stump_diam_cm	Centimeter (cm)	Every time (Sampled until 2021)	**Stump diameter,** looking from above.
Stump Height	stump_ht_m	Meter (m)	Every time (Sampled until 2021)	Measured height, from base to highest point.

Fuels table

Table 7. Fuels table

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Litter Fuel Load	fuelload_litter_Mgha	Metric tons per Hectare (mg/ha)		The fuel load of litter in metric tons per hectare calculated from the average litter depth, **see section 4. Calculations**.
Duff Fuel Load	fuelload_duff_Mgha	Metric tons per Hectare (mg/ha)		The fuel load of duff in metric tons per hectare calculated from avearge duff depth, **see section 4. Calculations**.
1-hour Fuel Load	fuelload_1h_Mgha	Metric tons per Hectare (mg/ha)	Every time	**Fuel loading of 1-hr fuels (<0.64 cm diameter) in Mg/ha,** determined as the average loading from four Brown's fuels transects.
10-hour Fuel Load	fuelload_10h_Mgha	Metric tons per Hectare (mg/ha)	Every time	**Fuel loading of 10-hr fuels (0.64 - 2.54 cm diameter)** in Mg/ha, determined as the average loading from four Brown's fuels transects.
100-hour Fuel Load	fuelload_100h_Mgha	Metric tons per Hectare (mg/ha)	Every time	**Fuel loading of 100-hour fuels (2.54-7.6 cm diameter)** in Mg/ha, determined as the average loading from four Brown's fuels transects.
Sound Coarse Woody Debris loading	fuelload_1000s_Mgha	Metric tons per Hectare (mg/ha)	Every time	Fuel loading of sound 1000-hour fuels (diameter at point of transect intersection ≥ 7.6 cm) (decay classes 1-3, see A1.4 in Appendix) in Mg/ha, determined as the average loading from four Brown's fuels transects.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Rotten Coarse Woody Debris loading	fuelload_1000r_Mgha	Metric tons per Hectare (mg/ha)	Every time	Fuel loading of rotten 1000-hour fuels (diameter at point of transect intersection ≥ 7.6 cm) (decay classes 4-5, see A1.4 in Appendix) found on the four transects within plot in Mg/ha, determined as the average loading from four Brown's fuels transects.
Fine fuel loading	fuelload_fwd_Mgha	Metric tons per Hectare (mg/ha)		The total fine fuel loading, **1-hour, 10-hour, and 100-hour fuels combined**, in metric tons per hectare.
Total Coarse Woody Debris loading	fuelload_1000h_Mgha	Metric tons per Hectare (mg/ha)		The total 1000-hour fuel load, **sound and rotten combined**, in metric tons per hectare.
Total Surface Fuel loading	fuelload_surface_Mgha	Metric tons per Hectare (mg/ha)		The total surface fuel load, in metric tons per hectare. This is the sum of the **litter, fine fuels (1-100 hour), and 1000-hour** fuel loads.
Total Fuel loading	fuelload_total_Mgha	Metric tons per Hectare (mg/ha)		The total fuel load, in metric tons per hectare. This is the sum of the **litter, duff, fine fuels (1-100 hour), and 1000-hour** fuel loads.
Duff Depth	duff_depth_cm	Centimeter (cm)	Every time	**The average of sampled duff depths along the fuel transects**. Duff is between the litter and mineral soil, and includes decomposing organic material, decomposed to the point that there are no clearly identifiable whole organic materials like pine needles, leaves, twigs, etc., although larger decomposing tree branches etc. can sometimes be found in duff.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Litter Depth	litter_depth_cm	Centimeter (cm)	Every time	**The average of sampled litter depths within plot**. Litter is undecomposed or only partially decomposed organic material that can be readily identified (e.g., plant leaves, needles, twigs, etc.).
Fuel Depth	fuel_depth_cm	Centimeter (cm)	Every time	**The average of sampled fuel depths within plot.** Fuel depth is the height between the bottom of the litter layer (top of duff) to the highest dead fuel not attached to a rooted plant (branch or needles or stick, etc.). Since it includes the litter, this measurement can never be lower than the litter depth. All litter is fuel but not all fuel is litter.

Regen Table

Table 8. Regen table

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Existing Species	species_code		Every time, except Immediate-Post	Each **tree species present within regen plot (4.37m radius around plot center)** is recorded in a separate row, with **a six-letter code** (with some exceptions for unknowns, which may have longer codes). A seedling key for conifer species was used to support the identification, **see A1.5 in Appendix**.
Status of Species	status_live_dead	live, dead	Every time, except Immediate-Post	Records whether species is **alive or dead** at the time of sampling.
Lifeform of Species	layer_code	tse, tsa, tre	Every time, except Immediate-Post	For each species, one of the following layer code: **seedling [tse], sapling [tsa], or resprout [tre]** gets recorded.
Number of Seedlings	tse_count		Every time, except Immediate-Post	Number of **tree seedlings (< 1.37 m in height), for each species and age** separately, is recorded. If regen plot is covered with homogeneous, extremely dense seedlings, all seedlings in one quarter of regen plot get counted and multiplied by 4.
Height of Tallest Seedling	tse_ht_m	Meter (m)	Every time, except Immediate-Post	Height of the tallest individual seedling.
Age of Seedling	tse_age	0, 1+ (before 2022 every seedling was aged)	Every time, except Immediate-Post	Estimated age class, 0 (first year) and 1+ (older than one year).

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Number of Saplings	tsa_cohort_count		Every time, except Immediate-Post	Number of **tree sapling (>1.37 m tall but <7.6 cm diameter), of each species,** is recorded. A separate row for each individual sapling (count = 1) is used, except if groups of saplings are an obvious cohort (count > 1). Cohort meaning them having similar heights and DBH.
Height of Sapling	tsa_ht_m	Meter (m)	Every time, except Immediate-Post	Measured height, from base to tip. In the case of cohorts, the modal height is recorded.
Diameter of Sapling	tsa_dbh_cm	Centimeter (cm)	Every time, except Immediate-Post	Measured diameter at breast height (at 1.37m above the ground), from the uphill side of the slope. In the case of cohorts, the modal DBH is recorded.
Number of Resprouts in Cohort	tre_count		Every time, except Immediate-Post	Number of **sprouts within each resprout cohort** (cohort ≥ 1). Resprouts may be counted as a **cohort, when originating from the same stump/trunk or < 1m apart**. If there is no visible stump/trunk for origin of resprout, count stems as seedlings. *From 2024 on:* Resprouts > 1.37m tall, got count as saplings.
Height of Tallest Resprout	tre_ht_m	Meter (m)	Every time, except Immediate-Post	Height of the tallest individual sprout per cohort.

Variable	Column Name	Units	Time Sampled	Definition / Measurement Method
Diameter of Biggest Resprout	tre_dbh_cm	Centimeter (cm)	Every time, except Immediate-Post (Sampled until 2023)	Measured **diameter at breast height (at 1.37m above the ground)**, if resprout is > 1.37m tall, from the uphill side of the slope. In the case of **cohorts, the DBH of the biggest sprout** is recorded.

Plot treatment history table

Table 9. Plot treatment history table

Variable	Column Name	Units	Definition
Prior Rxfire	priorburn_rx_year	YYYY	The **year when a prescribed fire burned**, before the project started. (rx2 = second prescribed burn)
	priorburn_rx2_year	YYYY	
Prior Wildfire history	priorburn_wildfire_year	YYYY	The **date** (month, year, and the name of the wildfire) **when a wildfire burned**, before the project started.
	priorburn_wildfire_month	MM	
	priorburn_wildfire_name	text	
Post Wildfire	postburn_wildfire_year	YYYY	The **date** (divided by month and year, as well as, the name of the wildfire) **when a wildfire burned**, during the project.
	postburn_wildfire_month	MM	
	postburn_wildfire_name	text	
Plot Burned	burn	yes, no	If the plot **burned** (combination of the two previous columns), **yes or no.**
Rxfire	burn_hour	HHMM	The **date** (hour, day, month and year) **when a prescribed burn was conducted**, during the project.
	burn_day	DD	
	burn_month	MM	
	burn_year	YYYY	
Second Rxfire	burn2_hour	HHMM	The **date** (hour, day, month and year) **when a second prescribed burn was conducted**, during the project.
	burn2_day	DD	
	burn2_month	MM	
	burn2_year	YYYY	

Variable	Column Name	Units	Definition
First Prefire Sampling	prefire_1st_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **first conducted Prefire sampling.**
	prefire_1st_day	DD	
	prefire_1st_month	MM	
	prefire_1st_year	YYYY	
Second Prefire Sampling	prefire_2nd_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **second conducted Prefire sampling.**
	prefire_2nd_day	DD	
	prefire_2nd_month	MM	
	prefire_2nd_year	YYYY	
Post-Thinning	prefire_post_trtmt_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted Prefire sampling,** if it was after a mechanical thinning. If an area got sampled twice after mechanical thinning and a prescribed burn still was not conducted, two years are present within the "prefire_post_trtmt _year" column.
	prefire_post_trtmt_day	DD	
	prefire_post_trtmt_month	MM	
	prefire_post_trtmt_year	YYYY	
Immediate Postfire	postfire_immediate_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted** Postfire **sampling**, if it was immediately (<1 year) after the prescribed burn**.**
	postfire_immediate_day	DD	
	postfire_immediate_month	MM	
	postfire_immediate_year	YYYY	
1 Year Postfire	postfire_1yr_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted** Postfire **sampling**, if
	postfire_1yr_day	DD	

Variable	Column Name	Units	Definition
	postfire_1yr_month	MM	it was 1 year after the prescribed burn**.**
	postfire_1yr_year	YYYY	
2 Year Postfire	postfire_2yr_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted Postfire sampling**, if it was 2 years after the prescribed burn**.**
	postfire_2yr_day	DD	
	postfire_2yr_month	MM	
	postfire_2yr_year	YYYY	
4 Year Postfire	postfire_4yr_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted Postfire sampling**, if it was 4 years after the prescribed burn**.**
	postfire_4yr_day	DD	
	postfire_4yr_month	MM	
	postfire_4yr_year	YYYY	
5 Year Postfire	postfire_5yr_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted Postfire sampling**, if it was 5 years after the prescribed burn**.**
	postfire_5yr_day	DD	
	postfire_5yr_month	MM	
	postfire_5yr_year	YYYY	
8 Year Postfire	postfire_8yr_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted Postfire sampling**, if it was 8 years after the prescribed burn**.**
	postfire_8yr_day	DD	
	postfire_8yr_month	MM	
	postfire_8yr_year	YYYY	
Second Immediate Postfire	postfire_2nd_immediate_date	MM/DD/YYYY	The **date** (divided by day, month and year, as well as, the entire date) of the **conducted Postfire sampling**, if
	postfire_2nd_immediate_day	DD	

Variable	Column Name	Units	Definition
	postfire_2nd_immediate_month	MM	it was immediately (<1 year) after the **second prescribed burn.**
	postfire_2nd_immediate_year	YYYY	
Plot location	Latitude	Degrees (°)	Angular distance north or south of the Earth's equator
	Longitude	Degrees (°)	Angular distance east or west of the Prime Meridian (Greenwich)
Notes	notes		Any **interesting facts** about the plot and the sampling were conducted.

3. SPECIAL SAMPLING CASES

The database has some exceptional sampling cases, which are summarized in the table below.

Table 10. Database special cases

Site	Effected Plot IDs	Explanation
Burton Creek	Burn unit B1: plots BRT007, BRT008, BRT009, BRT010, BRT014	In 2019 only fine fuels got measured as postfire_immediate after these plots were burned in November of 2019, no other measurements got taken. It was during the winter time while the field crew was not working.
	Burn unit B2: plots BRT001, BRT002, BRT011, BRT015, BRT016 Burn unit BUc: plots BRT017, BRT018, BRT019, BRT020, BRT021, BRT022	In 2020, only fine fuels were remeasured as prefire_1st in addition to the prefire_1st of 2019. The next remeasurements in 2023 are then marked as prefire_2nd.
Caples	Burn unit Cap0: All plots (except controls)	Approximately 437.1 ha burned as a prescribed fire from September 30th through October 9th in 2019. On October 10th the prescribed fire was converted to a wildfire (Caples Fire.). An additional 953.0 ha burned as a wildfire, for a total of 1,390.1 ha burned.

Site	Effected Plot IDs	Explanation
Concow Pyro	All plots	All plots were sampled in 2021 (prefire_1st), but some data on Camp Fire effects was also recorded.
Cleveland Los Huecos	Burn unit 58: plots CLH029, CLH030, CLH031, CLH032, CLH212, CLH215, CLH217, CLH227, CLH229, CLH243, CLH252 Burn unit 59: plots CLH041, CLH042, CLH043, CLH263, CLH264	These plots were mechanically thinned after the first sampling in 2023 (prefire_1st). The field crew returned again in 2023 to conduct a resample after the thinning (prefire_post_trtmt). In 2024 the piles of the thinning were burned and a Postfire measurement was conducted (postfire_1yr).
	Burn unit 57: plots CLH201, CLH202, CLH204, CLH205, CLH206 Burn unit 59: plots CLH241, CLH248, CLH249	These plots were first sampled in 2023 (prefire_1st). After that, a mechanical treatment was applied to all plots of Burn units 57 and 59, which consisted of thin +pile and burn. However, in some plots (CLH201, CLH202, CLH204, CLH205, CLH206, CLH241, CLH248, CLH249), the piles were not burned. The field crew returned twice, in 2023 and 2024, to resample and both times the data is marked as prefire_post_trtmt.
	Burn unit 58: plot CLH210	This plot lies within a mechanical thinning unit, though it does not show any sign of treatment. Therefore, the data was not resampled in 2023 and marked as prefire_2nd in 2024.
Inyo Springs Fire	Burn unit springs_unknown: plot SPR031, SPR032, SPR033, SPR034, SPR035, SPR036	These plots were first measured in 2019 (prefire_1st) and in 2020 measured Postfire (postfire_1yr). The data is incomplete, meaning not all columns of all tables have data. Explanations for this can be either a glitch in the tablet while recording the data and/or mistakes while combing the data from the two tablets used in the field.

Site	Effected Plot IDs	Explanation
	All burn units/plots (except controls)	These plots burned in the Springs Fire. The Springs Fire was a lightning ignition that was managed for resource benefit. Nearly all of the area was burned.
Odell	Burn unit ODELL0: Odell002, Odell003, Odell005	Even though these plots burned in early 2022, the 1yr Postfire protocol was used in June of 2022. Therefore, data is marked as postfire_1yr.
Sly Park	All plots	Postfire immediate sampled in 2020 was just fuel sampling.

4. DATA VALIDATION

Plot description table

We replaced values in the 'tsa_ht_m' column less than 1.37 m with NA.

We replaced values in the 'tsa_dbh_cm' column higher than or equal to 7.6 cm with NA

We replaced values in the 'tse_ht_m' column higher than or equal to 1.37 m to 'tsa_ht_m'.

Species table

The species codes have been revised using the *Jepson eFlora* (Jepson Flora Project, 2024) and the following naming convention has been used:

- Species codes are 6-letter codes, that represent the first three letters of the genus and the first three letters of the species.

- In case the same 6-letter species codes represent two different species or genus, an 8- or even 10-letter code is used to differentiate between the two.

CODE	Name
ARCTGLAN	*Arctostaphylos glandulosa*
ARCTGLAU	*Arctostaphylos glauca*
CALYCOCCID	*Calycanthus occidentalis*
CALYSOCCID	*Calystegia occidentalis*
GALIUTRIFI	*Galium trifidum*
GALIUTRIFL	*Galium triflorum*
LILIPARD	*Lilium pardalinum*
LILIPARV	*Lilium parvum*
LUPINALBIC	*Lupinus albicaulis*
LUPINALBIF	*Lupinus albifrons*

-Some species do not follow the 6- 8- 10 letter codes rule:

CODE	Name
PINMON	*Pinus monticola*
PINMONO	*Pinus monophylla*

- In case the species-genus or -family were unidentifiable, the codes are written as genus/family/order_sp OR lifeform_unknown.

- In case the species, genus or family were unidentifiable, but different species/genus were assessed on the same site for the same year without being able to identify them further, the following convention code is used:

"Genus/family_sp_SITECODE_year_number", ex: "juncus_sp_BM_2019_1".

- For the lifeform names: lifeform_unknown. If a lifeform name is the same for the same site but has different numbers added to it, it has the following naming convention: "Lifeform_unknown_sitecode_year_number", ex: "Grass_unknown_BM_2019_1"

Trees table

There are values for ht_to_live_crown_m (45 cases), bolechar_m (39 cases) and scorch_ht_m (68 cases) bigger than height_m. We have not applied any filter, and left it as a decision to make when analyzing data.

There were 31 cases where the scorch percentage was smaller than the torch percentage. The scorch percentage can never be less than the torch because the torch is a part of the scorch. In these cases, we added the scorch percentage to the Torch percentage.

In the trees dataset, at some plots and sampling times, there were no trees. The crew was there, but there were no trees to measure. These plots are detailed in the Annex (A1).

Fuels Table

The Rfuel package (Foster, 2018) was used to estimate surface fuel loads. This method is based on Brown's transects (line-intercept transects) in forests dominated by Sierra Nevada conifer species. Raw data is available upon request.

This package requires both fuels and trees data for each plot. As we do not sample trees immediately after fire, we used prefire trees data for these plots. However, there were several plots that did not have tree data associated, and these were not calculated.

Dead and Live trees were used in the calculations.

Regen table

There were 'tsa_ht_m' heights below 1.37, and by definition they should be higher. (37 cases). We recategorize heights <1.37 to TSE (move to TSE_ht column, and TSE_age too). For those (5 cases) with counts of cohorts, we did not recategorize them.

We checked for TSA, TSE, and TRE to determine if there were values for other lifeforms on the same row, and added rows accordingly.

Regen plot is considered as the microplot (1/70 acre), and the macroplot is the whole plot (1/10 acres). Some sampling episodes had regen assessed in the macroplots and they are detailed in the Annex (A2).

Acronyms

- TOT VEG: total vegetation

- TOT: Total tree (All size classes, can be <1.37 m tall if majority cover is TSE)

- TOV: Total overstory (≥1.37 m tall and ≥7.6 cm DBH)

- TSA: Sapling (≥1.37 m tall and <7.6 cm DBH)

- TSE: Seedling (<1.37 m tall)

- DT: Dead tree (all size classes, can be <1.37 m height if majority cover is TSE)

- TOS: live shrub cover of all size classes

- DS: dead shrub cover of all size classes

		DBH_cm	Height_m
seedling	tse		<1.37
sapling	tsa	<7.6	≥1.37
trees	tov	≥7.6	≥1.37

References

Foster, D. E. 2018. *Rfuels: Estimate Fuel Loads From Brown's Transects for Sierra Nevada Conifers*. https://github.com/danfosterfire/Rfuels.

Jepson Flora Project. (2024). *Jepson eFlora*. University of California, Berkeley. https://ucjeps.berkeley.edu/eflora/

US Forest Service. 2015. *FSVeg Common Stand* Exam, User Guide, Chapter4: Collecting and Recording Data. ver. 2.12.6. Pages 4-65, 4-111, 4-114, 4-115

Welch, K. R., H. D. Safford, and T. P. Young. 2016. Predicting conifer establishment post wildfire in mixed conifer forests of the North American Mediterranean-climate zone. Ecosphere 7(12):e01609. 10.1002/ecs2.1609. Page 7

Appendix

A1.1 Fire Severity Classes

Fire Severity Class	Description
0	Unburned
1	Light patchy burn pattern, very little overstory mortality, groups of surviving shrubs/saplings
2	Lightly burned, isolated overstory mortality, most shrubs/saplings dead
3	Moderately burned, mixed overstory mortality, understory mostly burned to ground
4	High severity, significant proportion (75-100%) of overstory killed, dead needles remaining on trees 1 year later
5	High severity burn, total/near total mortality of overstory, most needles consumed in fire

(Welch et al., 2016)

(US Forest Service, 2015)

A1.2 Crown Classes

Code	Name	Description
OP	Open-grown or Isolated	Tree crowns receive full light from above and from all sides. In even-aged stands, these trees have their crowns well above the general canopy.
DO	Dominant	Tree crowns receive full light from above and partly from the sides. Crowns extend above the general level of the crown cover of others of the same stratum and are not physically restricted from above, although possibly somewhat crowded by other trees on the sides.
CO	Codominant	Tree crowns receive full light from above, but comparatively little from the sides. Crowns form a general level of crown stratum, are not physically restricted from above and are crowded by other trees from the sides.
IN	Intermediate	Tree crowns occupy a definitely subordinate position and are subject to strong lateral competition from crowns of dominants and codominant. They receive little direct light from above through small holes in the canopy, but no light from the sides.
OV	Overtopped	Tree crowns receive no direct light from above or from the sides and are entirely below the general level of dominant and codominant trees.

Code	Name	Description
RE	Remnant	Trees that remain from a previous management activity or catastrophic event. The tree is significantly older than the surrounding vegetation. Remnant trees do not form a canopy layer and are usually isolated individuals or small clumps. This definition is from the Region 6 Inventory and Monitoring System field procedures for the Current Vegetation Survey.
AB	Leader Above Brush	The terminal leader of the tree is above the surrounding brush, while the middle or lower crown may be within the brush canopy.
IB	Leader Within Brush	The terminal leader and upper crown of the tree is within the brush canopy.
UB	Leader Overtopped by Brush	The crown of the tree is completely overtopped by the surrounding brush. Brush cover crown classes only apply to isolated or dominant trees with brush competition; therefore, brush cover crown class codes are used as modifiers for open-grown or dominant trees. Competition from adjacent trees is more important than competition from shrubs if they both occur. Generally, brush cover crown codes are used in stands where overstory tree competition is absent.

(US Forest Service, 2015)

A1.3 Snag Decay Classes

Code	Bark	Heartwood Decay	Sapwood Decay	Limbs	Top Breakage	Bole Form	Time Since Death
1	Tight, intact	Minor	None to incipient	Mostly Present	May be present	Intact	≤5 years
2	50% lose or missing	None to advanced	None to incipient	Small limbs missing	May be present	Intact	>5 years
3	75% missing	Incipient to advanced	None to 25%	Few remain	Approx. 1/3	Mostly intact	>5 years
4	75% missing	Incipient to advanced	25%+	Few remain	Approx. 1/3 to ½	Losing form, soft	>5 years
5	75%+ missing	Advanced to crumbly	50%+ advanced	Absent	Approx. ½+	Form mostly lost	>5 years

(US Forest Service, 2015)

A1.4 Log Decay Classes

Code	Bark	Twigs	Texture	Shape	Wood Color	Portion of log on ground
1	Intact	Present	Intact	Round	Original	None, elevated on supporting points
2	Intact	Absent	Intact to soft	Round	Original	Parts touch, still elevated, sagging slightly
3	Trace	Absent	Hard large pieces	Round	Original to faded	Bole on ground
4	Absent	Absent	Soft blocky pieces	Round to oval	Light brown to faded brown	Partially below ground
5	Absent	Absent	Soft, powdery	Oval	Faded light yellow or gray	Mostly below ground

(US Forest Service, 2015)

A1.5 Conifer Seedling Key

- Cotyledons needle-like, isosceles triangle, glaucus above (except PICA)
  - Glaucus above
    - 3-4 (~7) cotyledons, 16-30 mm.....PICO
    - 6-10 (usu 7-8) cotyledons, 16-30 mm.....PIMO
    - 7-13 cotyledons, 40-80 mm, ±serrulate near base.....PIJE
  - Not glaucus above
- Cotyledons linear, obtuse triangle
    - >10 mm long cotyledons <--> <10 mm, 3-4 cotyledons, glaucus above.....TSME
    - Outer bud scales elongate and free, not resinous, light red-brown, 6-13 cotyledons, 30-45 mm.....ABMA
    - Outer bud scales not elongated or free, resinous, dark brown, 5-8 cotyledons, 20-30 mm.....ABCO
    - Young needles with acute end, tiny bristle, not glaucus, reddish scales, 5-8 (~10) cotyledons, 12-25 mm.....PSMA

Annex

A1. Sampling episodes with no trees found in the plots

site	burn_unit	plot_id	year	pre_post_fire	post_time
Caples	Cap0	2019	15	postfire	immediate
Caples	Cap0	2020	15	postfire	1yr
Caples	Cap0	2020	18	postfire	1yr
Caples	Cap0	2019	18	postfire	immediate
BearMountain	BM4	2021	BM23	postfire	2yr
Frenchmeadows	19E	2020	FM68	prefire	1st
Klamath	KLA0	2021	KLAMATH004	prefire	1st
Klamath	KLA0	2022	KLAMATH006	postfire	1yr
Klamath	KLA0	2021	KLAMATH006	prefire	1st
Klamath	KLA0	2021	KLAMATH007	prefire	1st

A2. Sampling episodes were regen was assessed in the macroplots

site	burn_unit	plot_id	year	pre_post_fire	post_time
Caples	Cap0	29	2020	postfire	1yr
InyoAntelope	antelope2	ANT017	2020	prefire	1st
ClevelandKitchenCreek	42a	CKC266	2024	postfire	1yr
ClevelandKitchenCreek	42a	CKC269	2024	postfire	1yr
ClevelandKitchenCreek	42b	CKC278	2024	postfire	1yr
ClevelandKitchenCreek	41	CKC290	2024	postfire	1yr
ClevelandKitchenCreek	41	CKC294	2024	postfire	1yr
ClevelandKitchenCreek	47	CKC327	2024	postfire	1yr
ClevelandKitchenCreek	47	CKC333	2024	postfire	1yr
ClevelandLosHuecos	58	CLH030	2024	postfire	1yr
ClevelandLosHuecos	58	CLH031	2024	postfire	1yr
ClevelandLosHuecos	58	CLH032	2024	postfire	1yr
ClevelandLosHuecos	59	CLH041	2024	postfire	1yr
ClevelandLosHuecos	57	CLH201	2024	prefire	post_trtmt
ClevelandLosHuecos	57	CLH202	2024	prefire	post_trtmt
ClevelandLosHuecos	57	CLH204	2024	prefire	post_trtmt
ClevelandLosHuecos	57	CLH205	2024	prefire	post_trtmt
ClevelandLosHuecos	57	CLH206	2024	prefire	post_trtmt
ClevelandLosHuecos	58	CLH210	2024	prefire	2nd
ClevelandLosHuecos	58	CLH212	2024	postfire	1yr
ClevelandLosHuecos	58	CLH215	2024	postfire	1yr
ClevelandLosHuecos	58	CLH217	2024	postfire	1yr
ClevelandLosHuecos	58	CLH227	2024	postfire	1yr
ClevelandLosHuecos	58	CLH229	2024	postfire	1yr
ClevelandLosHuecos	58	CLH243	2024	postfire	1yr
ClevelandLosHuecos	59	CLH248	2024	prefire	post_trtmt
ClevelandLosHuecos	59	CLH249	2024	prefire	post_trtmt
ClevelandLosHuecos	58	CLH252	2024	postfire	1yr
ClevelandLosHuecos	59	CLH263	2024	postfire	1yr
ClevelandLosHuecos	59	CLH264	2024	postfire	1yr