Ocate B Post-Wildfire Immediate
Field Inventory Summary / November 2023
New Mexico Forest and Watershed Restoration Institute

Photo by Carolina May

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Introduction and Project Description

The Southwest Ecological Restoration Institutes (SWERI) includes three university-based restoration institutes: the New Mexico Forest and Watershed Restoration Institute (NMFWRI), the Colorado Forest Restoration Institute (CFRI), and the Ecological Restoration Institute (ERI) in Arizona. These institutes work together to develop a program of applied research and service to help create healthy forests, prevent wildfires, sustain the resiliency of water supplies to wildfires, and create jobs. NMFWRI is located at Highlands University (HU) in Las Vegas, NM. According to the Southwest Forest Health and Wildfire Prevention Act (P.L. 108-317), the authorizing legislation for the SWERI, the purpose of the institutes is to "promote the use of adaptive ecosystem management to reduce the risk of wildfires and restore the health of forest and woodland ecosystems in the Interior West." NMFWRI has partnered with the United States Forest Service (USFS) and other agencies to monitor more than 2,350 plots on Collaborative Forest Restoration Program (CFRP) and other restoration projects across the state since 2007. The NMFWRI's Ecological Monitoring Program maintains a professionally managed field crew to collect data on short and long-term ecosystem responses to restoration treatments. This data provides a critical scientific basis for adaptive management decisions and improved treatment effectiveness. The field crew also provides hands-on internship and training opportunities for students and recent graduates to help build New Mexico's forestry workforce.

During July 2008, October/November 2010, July 2015, June 2020, and July/August 2023 NMFWRI inventory and monitoring crews measured 29 plots across approximately 123 acres in the Gallinas Mesa region of the Ocate Creek watershed on State Trust Land. These plots were established to monitor a portion of the CFRP project 29_07 entitled *"Ocate Community Protection, Restoration, and Collaborative Management Project*" hereafter referred to as *"Ocate B CFRP."* (Note: Another portion of this project, which was treated on different timelines, was monitored and reported as Ocate A CFRP).This project has been leased out for grazing for several years, and is accessible (with a NMSLO permit), through locked gates off of State Highway 120 northeast of Ocate, in Mora County, New Mexico. The site is predominantly ponderosa pine, but includes white fir, juniper, piñon pine, Douglas-fir, and oak and ranges in elevation between 7300 - 7500 feet with flat to gently sloping topography (average of 7% slope where steepest on plots).

Thinning treatments were completed for this project between 2008 and 2010. More information on the project prescription, per NM SLO, can be found in the Supplmentary Information under Treatment Prescription (pg. 48). In spring 2022, all units were burned in the Cooks Peak wildfire at low to moderate soil burn severity. The Cooks Peak Fire was a human-caused fire that began on April 17th, 2022 and burned 59,359 acres north of Ocate, NM in Mora and Colfax counties. More information on the Cooks Peak Fire can be found here: https://inciweb.nwcg.gov/incident-information/nmn4s-cooks-peak

Monitoring Methods

The NMFWRI crew followed the protocols linked here: https://nmfwri.org/wp-content/uploads/2020/07/NMFWRI_Forest_Monitoring_Protocols-1.pdf which are based on the Department of Interior's FEAT/FIREMON Integrated (FFI) sampling protocols. They used 1/100th (2008-2010) and 1/10th acre (2010-2023) fixed plots to assess tree size (diameter and height) and density (trees/acre). A nested sub-plot of 1/1000th (2008-2010) or 1/100th acre (2010-2023) was used to

estimate understory and ground cover in all years. Photo points were taken at each plot. Surface fuels were measured using Brown's transects. The location of the plots was based on a stratified random sampling design.

For more information regarding monitoring criteria and methodology please contact NMFWRI or consult the 2008 document authored by Derr, et. al., *Monitoring the Long Term Ecological Impacts Of New Mexico's Collaborative Forest Restoration Program, New Mexico Forest Restoration Series Working Paper 5*, available on NMFWRI's website here: http://nmfwri.org/collaborative-forest-restoration-program/cfrp-long-term-monitoring.

All raw data and photo points will be provided to the managers of the project area; the goal of this report is to summarize this information in a concise manner.

Disclaimer

NMFWRI provides this report and the data collected with the disclaimer that the information contained in these data is dynamic and may change over time. The data are not better than the original sources from which they were derived. It is the responsibility of the data user to use the data appropriately and within the limitations of monitoring data in general, and these data in particular. NMFWRI gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. These data and related graphics are not legal documents and are not intended to be used as such. This includes but is not limited to using these data as the primary basis for the development of thinning prescriptions or timber sales. NMFWRI shall not be held liable for improper or incorrect use of the data described and/or contained in this report.

Analysis was also done according to our standard protocols. Note that the values reported in the tables are expressed on a per acre basis, but represent only area actually sampled. We do not scale up these values to calculate volume of wood over the project area, and warn readers of this report that they are not intended for that purpose. The accompanying tables show summaries of our data, and some differences are discussed below; however, differences that seem apparent here may not stand up to rigorous statistical tests. For some estimates, the standard deviation exceeds the mean (i.e., the coefficient of variation is greater than 100 percent), and sampling errors for some estimates exceed 100 percent. Therefore, data should be used and results interpreted with appropriate caution.

Summary

Data Summary

The Ocate B CFRP project remains a ponderosa pine dominant stand, with oak, juniper, and piñon as minor components. Growing stock basal area and density were reduced dramatically following treatments, and have remained at near constant levels since. Likewise, growing stock quadratic mean diameter increased with the removal of smaller trees during treatments and has remained relatively constant. Snag basal area and density decreased following treatments but increased immediately post-wildfire. The accompanying drop in snag quadratic mean diameter immediately post-wildfire indicates the addition of primarily small diameter fire-killed trees. However, without a substantial decrease in growing stock density, it can be assumed that fire-killed trees were balanced by new recruitment into the tree class during the last measurement period.

Live and dead tree and shrub seedling regeneration densities rose substantially following the 2022 Cooks Peak fire, indicating that the fire killed seedlings but also stimulated additional regeneration of oak and multiple shrub species. Live tree and shrub sapling densities decreased following fire and dead sapling densities increased.

While the initial reduction in ladder fuel loads from treatments rebounded 5-years post-treatment with abundant herbaceous cover, they were reduced in a drier measurement year 10-years post-treatment and remained low immediately post-wildfire. Although surface fuel loads increased following treatments, they were reduced by 75% post-wildfire.

Noted tree health concerns included mistletoe, bark beetles, and the potential for some additional post-wildfire mortality in a small number of trees that were highly charred or scorched. Access to all plots remained good via driving and hiking for the 2023 measurement period.

Management Implications:

With all portions of the project burned at low to moderate burn severity, post-wildfire recovery outlook for this area is good and the data does not suggest any immediate post-wildfire concerns. While bare soil ground cover estimates increased to 21% immediately post-wildfire, flat to gentle slopes and abundant graminoid and forb regrowth in this project reduce the concern of post-wildfire soil erosion.

The field crew noted observations of common mullein (*Verbascum thapsus)* on most plots, and several observations of musk thistle *(Carduus nutans)* and bull thistle (*Cirsium vulgare)*. These species are non-natives of potential concern for outcompeting native plants.

Following treatments and wildfire, data trends (decreased surface fuel loads, decreased ladder fuel loads, decreased growing stock basal area and density) suggest this project is at a reduced risk of high-severity wildfire. Data suggests that the 2022 Cooks Peak wildfire played a treatment maintenance role by consuming fuels and reducing the ingrowth of small trees. The noted increase in snag basal area and density following wildfire may pose a concern for increasing surface fuel loads in the future. Additional monitoring is needed to determine ongoing adaptive management strategies as the post-wildfire ecosystem develops.

Table 1. *Summary table: Ocate B. Species dominance is based on numeric density*

	Average (if applicable)				
Metric	**2008 pre-treatment**	**2010 immediately post -treatment**	**2015 5 years post-treatment**	**2020 10 years post-treatment**	**2023 immediately post-fire**
Dominant live tree	ponderosa pine	ponderosa pine	ponderosa pine	ponderosa pine	ponderosa pine
Dominant live seedling	oak sp.	Gambel oak	Gambel oak	oak sp.	Gambel oak
Dominant live sapling	--	--	Gambel oak	oak sp.	Gambel oak
Dominant live shrub (seedling class)	--	--	mountain mahogany	three-leaf sumac	three-leaf sumac
Dominant snag	ponderosa pine	ponderosa pine	Gambel oak	oak sp.	Gambel oak
Dominant aspect	--	--	East	East	East
Trees per acre (growing stock)	320	37	51	50	50
Basal area (growing stock, ft^2/acre)	82	24	32	33	31
QMD (inches, growing stock)	7.92	11.3	11	10.9	10.9
Average tree height (ft) (growing stock)	27	36	32	--	33
Height of tallest tree (ft)	67	66	70	--	76
Average LiCrBHt (ft)	12	15	17	--	12
Live tree seedlings per acre	1930	203	3340	3010	8110
Live tree saplings per acre	--	--	20.7	279	224
Live shrub seedlings per acre	--	--	51.7	283	862
Tree canopy cover (%)	--	18	17	19	25
Grass & Forb cover (%)	--	--	--	47	54
Total tons surface fuels per acre	13	12	16	20	4.9

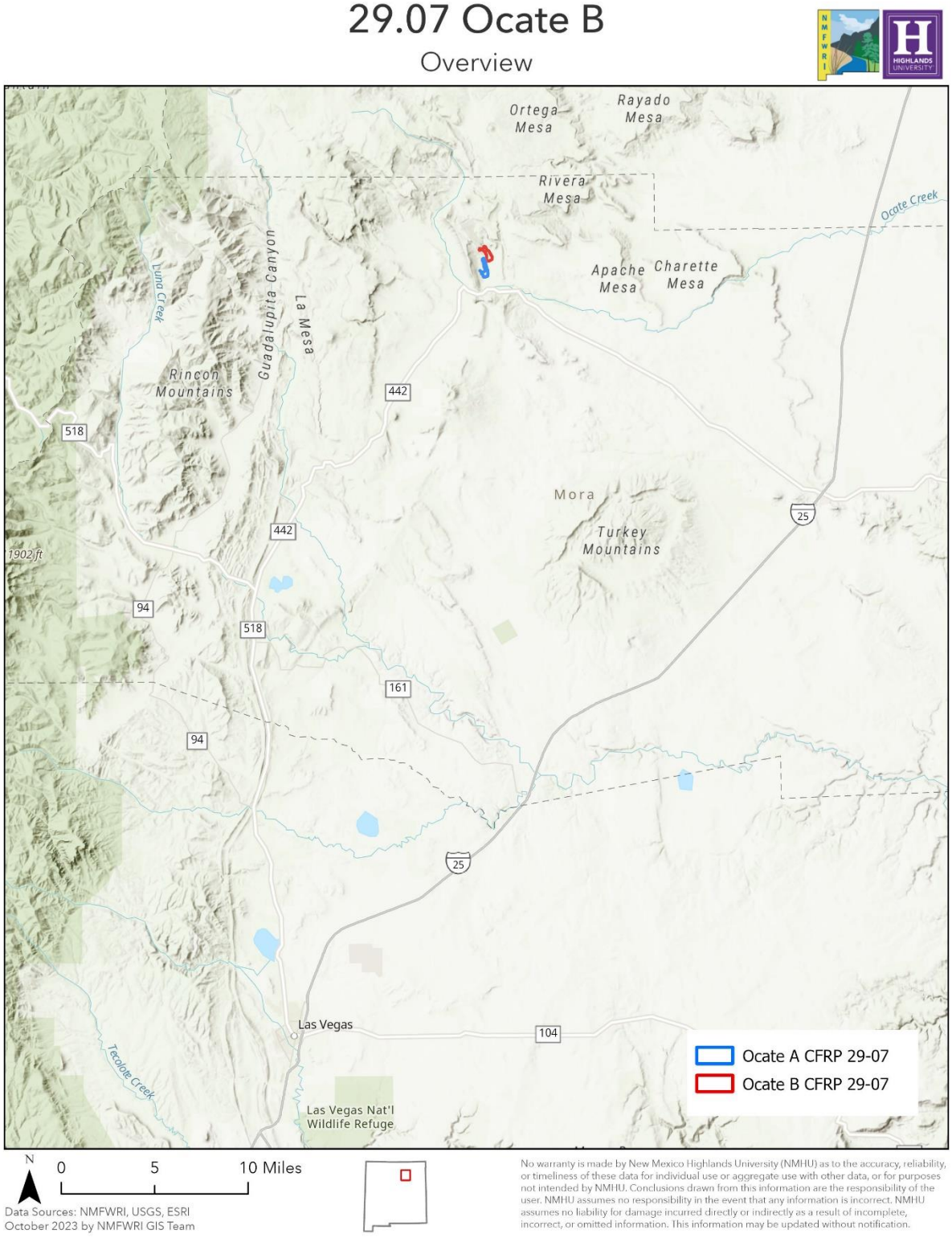

***Figure 1**. Regional overview map of 29-07 Ocate CFRP project areas*

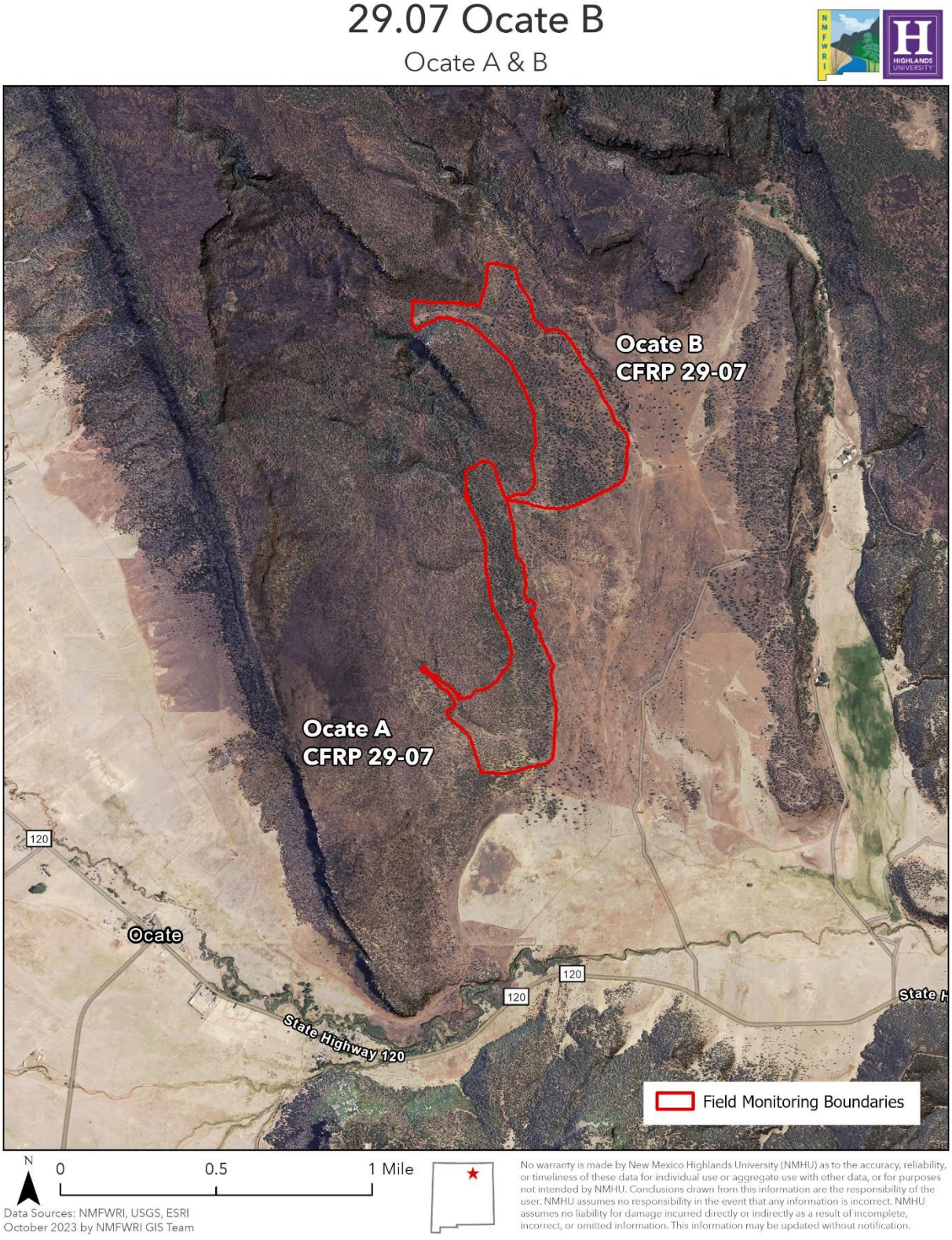

Figure 2. *Map of 29-07 Ocate B and Ocate A project areas with satellite imagery*

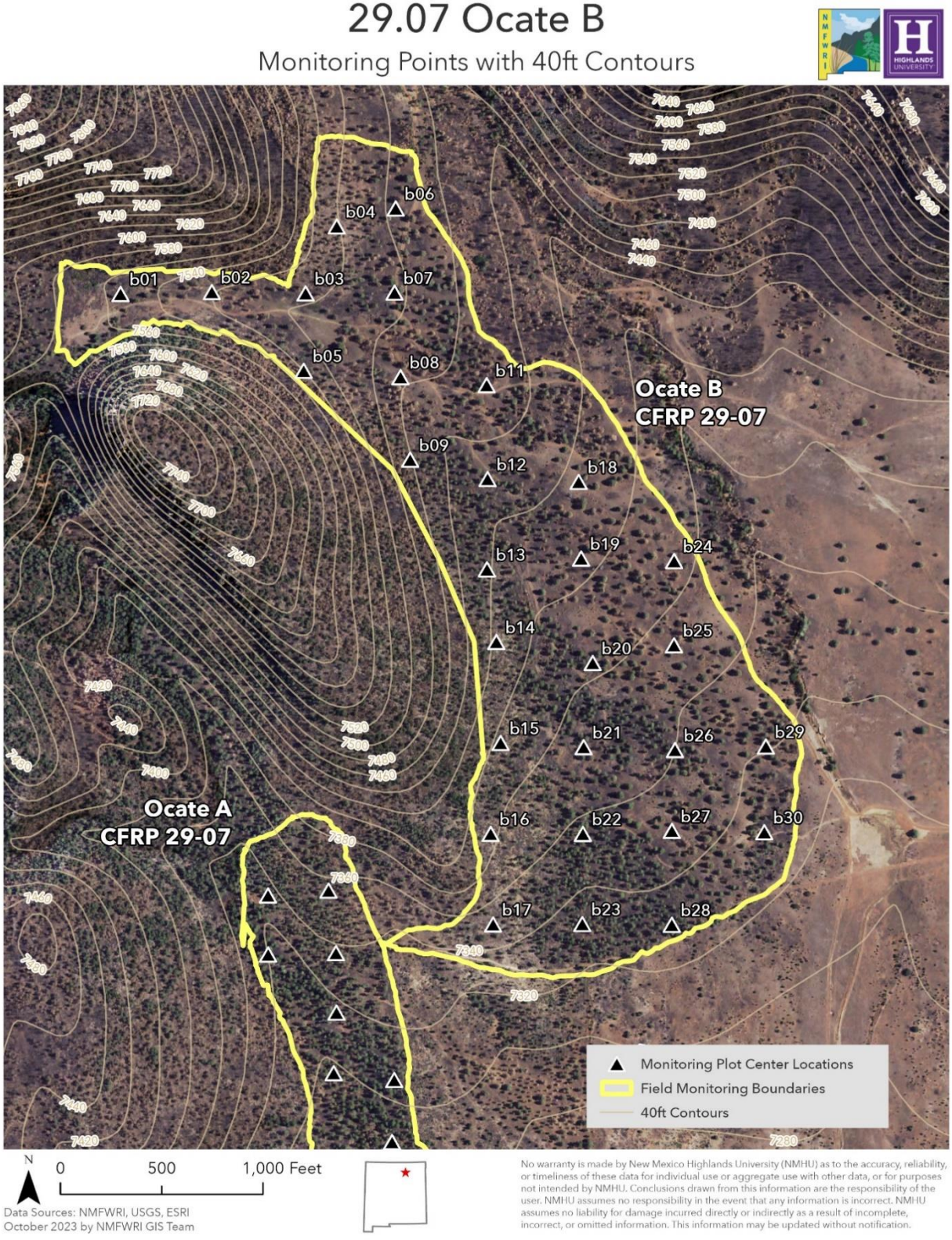

Figure 3. *Map of 29-07 Ocate B project area and monitoring plots with 40 ft elevation contours*

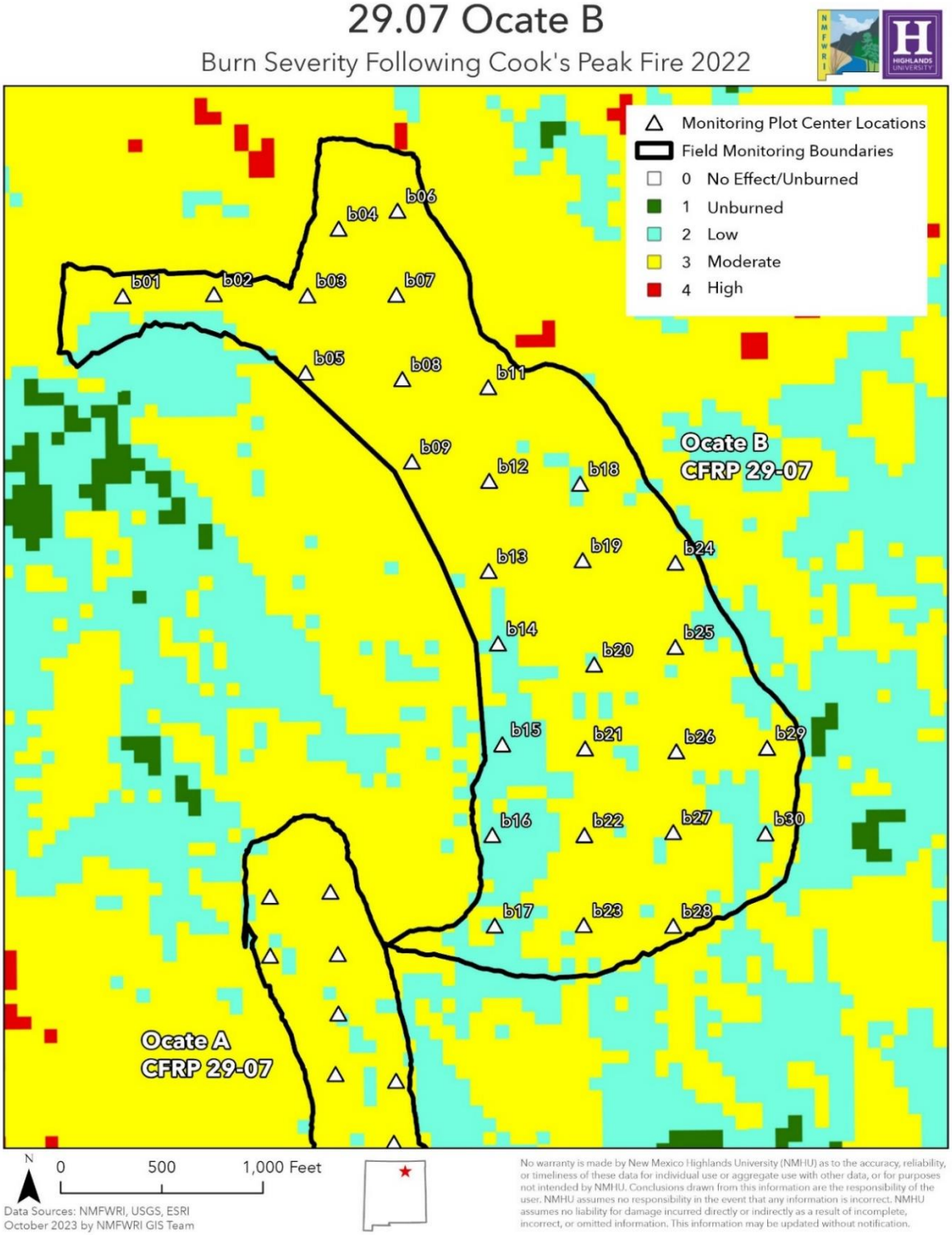

Figure 4. *Map of 29-07 Ocate B project area and monitoring plots with burn severity ratings following 2022 Cooks Peak fire. Additional burn severity information available here: https://nmhu.maps.arcgis.com/home/item.html?id=a7ff9c3da9674db58d47a651475b80cf*

Tree Component

Overstory trees

The overstory was dominated by ponderosa pine across all measurement periods for growing stock trees. While ponderosa pine made up the majority of snags immediately pre and post-treatment, Gambel oak and other oak species were the dominant snag in the later three measurement periods. Other species with minor overstory components included one-seed juniper, Rocky Mountain juniper, Douglas-fir, and piñon.

Species Symbol	Scientific Name	Common Name
JUMO	*Juniperus monosperma*	one-seed juniper
JUSC2	*Juniperus scopulorum*	Rocky Mountain juniper
PIED	*Pinus edulis*	piñon
PIPO	*Pinus ponderosa*	ponderosa pine
PSME	*Psuedotsuga menziesii*	Douglas-fir
QUERC	*Quercus sp.*	oak sp.
QUGA	*Quercus gambelii*	Gambel oak

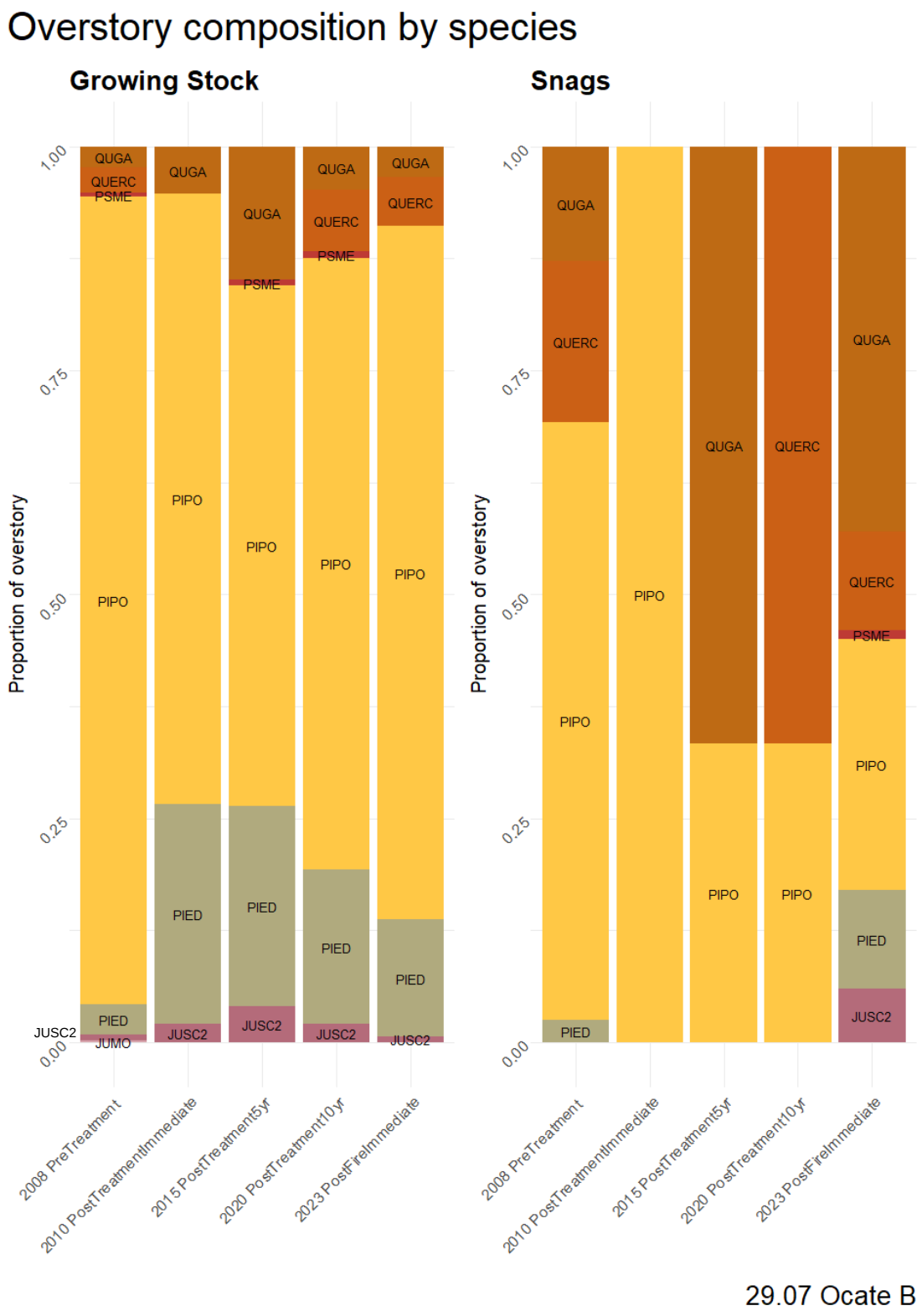

***Figure 5**. Species composition by status across both measurement periods for all trees (>1" DBH)*

Growing Stock

Growing stock mean height increased from 27 ft pre-treatment, to 36 ft immediately post-treatment, before reducing to 32 ft 5-years post-treatment and remaining relatively steady at 33 ft immediately post-wildfire. Mean live crown base height increased from 12 ft pre-treatment, to 15 ft immediately post-treatment, to 17 ft 5-years post-treatment, before returning to 12 ft immediately post-wildfire. Heights for the 10-years post-treatment measurement could not be validated and are not reported here.

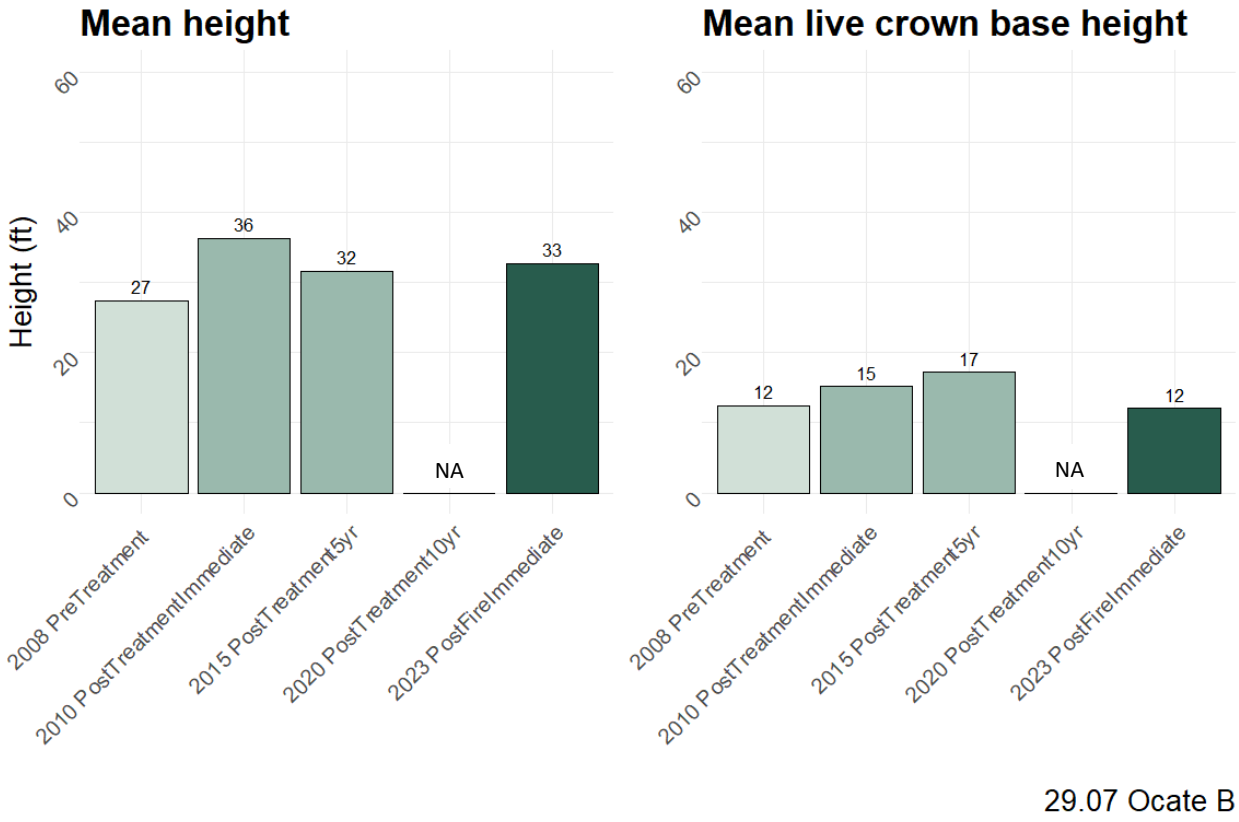

Figure 6. *Mean height and live crown base height for growing stock trees (>1" DBH, live + sick status). Mean values represent averages of plot means for each monitoring status*

Growing stock mean basal area declined substantially from 82 sqft/acre pre-treatment to 24 sqft/acre immediately post-treatment, before rising to 32 sqft/acre and remaining relatively steady at 34 and 31 sqft/acre 10-years post-treatment and immediately post-wildfire. Mean tree density followed a similar pattern, dropping from 320 trees per acre pre-treatment to 37 trees per acre immediately post-treatment, before rising to 51 trees per acre 5-years post-treatment and remaining relatively constant at 52 trees per acre 10-years post-treatment and 50 trees per acre immediately post-wildfire. Quadratic mean diameter rose from 7.92 inches pre-treatment to 11.3 inches immediately post-treatment before falling slightly to 11 inches 5-years post-treatment and remaining constant at 10.9 inches 10-years post-

treatment and immediately post-wildfire. These trends are consistent with a shift towards fewer, larger trees following initial treatments. Growing stock metrics remained steady over the measurement periods since the treatments were completed, and were largely unaffected by the 2022 Cooks Peak fire.

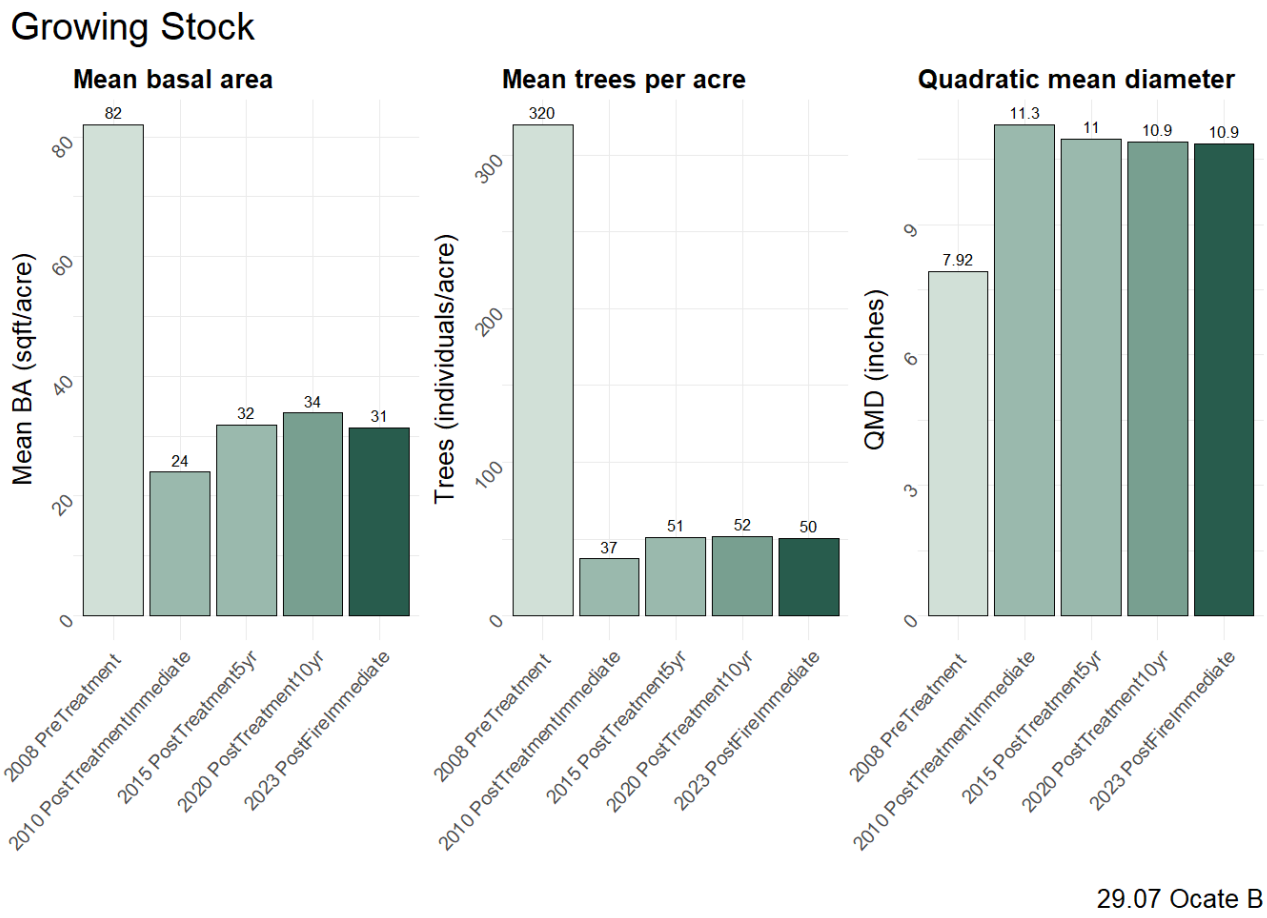

Figure 7. *Mean basal area, mean trees per acre, and quadratic mean diameter for growing stock trees across both measurement periods (>1" DBH, live + sick status). Mean values represent averages of plot means for each monitoring status*

Snags

Snag mean basal area decreased from 5.3 sqft/acre pre-treatment to 0.66 sqft/acre immediately post-treatment, to 0.56 sqft/acre 5-years post-treatment, to 0.52 sqft/acre 10-years post-treatment, before increasing to 1.3 sqft/acre immediately post-wildfire. Mean snag density decreased from 27 trees per acre pre-treatment, to 2.4 trees per acre immediately, increasing to 4.1 trees per acre 5-years post-treatment, and decreasing to 3.2 trees per acre 10-years post-treatment before rising to 34 trees per acre immediately post-wildfire. Snag quadratic mean diameter increased from 5.3 inches pre-treatment to 6.05 inches immediately post-treatment, to 6.64 inches 5-years post-treatment, to 7.08 inches 10-years post-treatment, before falling to 3.15 inches immediately post-wildfire. These trends are consistent with the removal of snags during initial treatments and the mortality of small live trees during the 2022 Cooks Peak fire. As there was no decline in mean growing stock density immediately post-

wildfire, it can be inferred that roughly the same number of small trees that were killed by the fire also grew into the tree class between the 10-year post-treatment and immediately post-wildfire measurement.

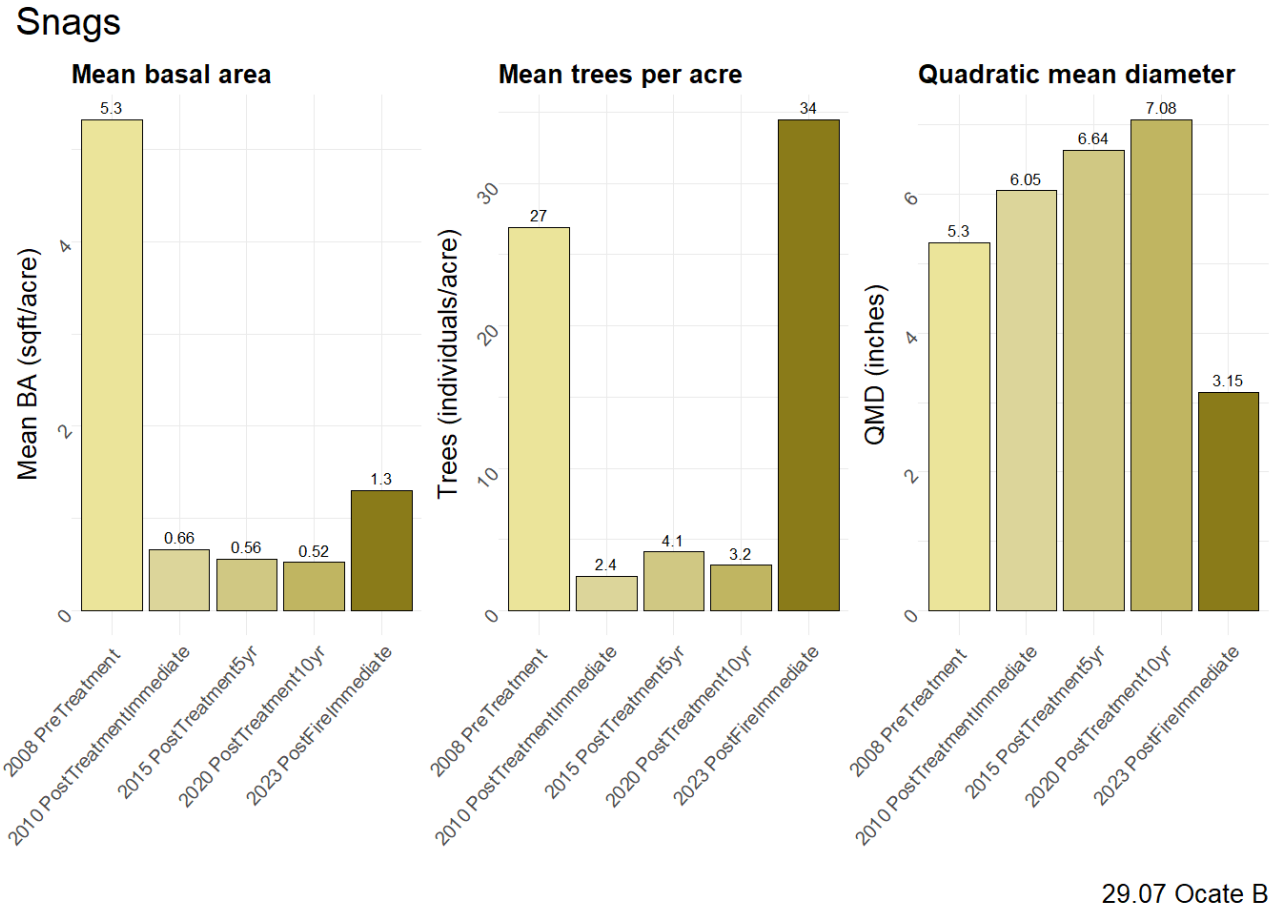

Figure 8. *Mean basal area, mean trees per acre, and quadratic mean diameter for snags across both measurement periods (>1" DBH). Mean values represent averages of plot means for each monitoring status*

Damages

Overstory damages were recorded across each measurement period. Mistletoe, dead top, forked top, and foliage disease were the most frequent damages recorded in the pre-wildfire measurements. Immediately post-wildfire, fire char and scorch were overwhelmingly the most frequent damage recorded. Following fire, an increase in bark beetle activity and decrease in mistletoe infection was observed. These trends are consistent with research that suggests fire reduces mistletoe infection while increasing tree susceptibility to beetle outbreaks. (Conklin & Armstrong, 2005; Davis et al. 2012) Variability in damage data collection by crews may have contributed to some variation in damages recorded for each measurement period.

29.07 Ocate B: Damage Observations on Growing Stock Trees

Table 2. *Table of damages observed on growing stock trees by monitoring status. Multiple damages may be recorded per individual tree.*

Monitoring.Status	Damage Code	Count	Description
2008 PreTreatment	23001	5	Mistletoe
2008 PreTreatment	99001	1	Broken top
2008 PreTreatment	99002	1	Dead top
2008 PreTreatment	99004	5	Uncharacteristic forked top
2008 PreTreatment	99016	1	Unusually sparse foliage/foliage loss
2008 PreTreatment	99037	1	Leaning bole
2010 PostTreatmentImmediate	23001	6	Mistletoe
2010 PostTreatmentImmediate	99002	2	Dead top
2010 PostTreatmentImmediate	99004	2	Uncharacteristic forked top
2010 PostTreatmentImmediate	99037	2	Leaning bole
2015 PostTreatment5yr	99002	1	Dead top
2020 PostTreatment10yr	10000	1	General insects
2020 PostTreatment10yr	11000	1	Bark beetles
2020 PostTreatment10yr	23001	5	Mistletoe
2020 PostTreatment10yr	25000	8	Foliage disease
2020 PostTreatment10yr	50008	1	Lightning scar
2020 PostTreatment10yr	90000	3	Unknown damage
2020 PostTreatment10yr	99001	2	Broken top
2020 PostTreatment10yr	99002	1	Dead top
2020 PostTreatment10yr	99004	1	Uncharacteristic forked top
2020 PostTreatment10yr	99037	3	Leaning bole
2023 PostFireImmediate	11000	20	Bark beetles
2023 PostFireImmediate	23001	2	Mistletoe

Monitoring.Status	Damage Code	Count	Description
2023 PostFireImmediate	25000	10	Foliage disease
2023 PostFireImmediate	30000	113	Fire char and/or scorch
2023 PostFireImmediate	40000	1	Mammal damage
2023 PostFireImmediate	41010	11	Bird damage
2023 PostFireImmediate	99002	5	Dead top
2023 PostFireImmediate	99004	15	Uncharacteristic forked top
2023 PostFireImmediate	99016	1	Unusually sparse foliage/foliage loss
2023 PostFireImmediate	99026	2	Wounds or cracks

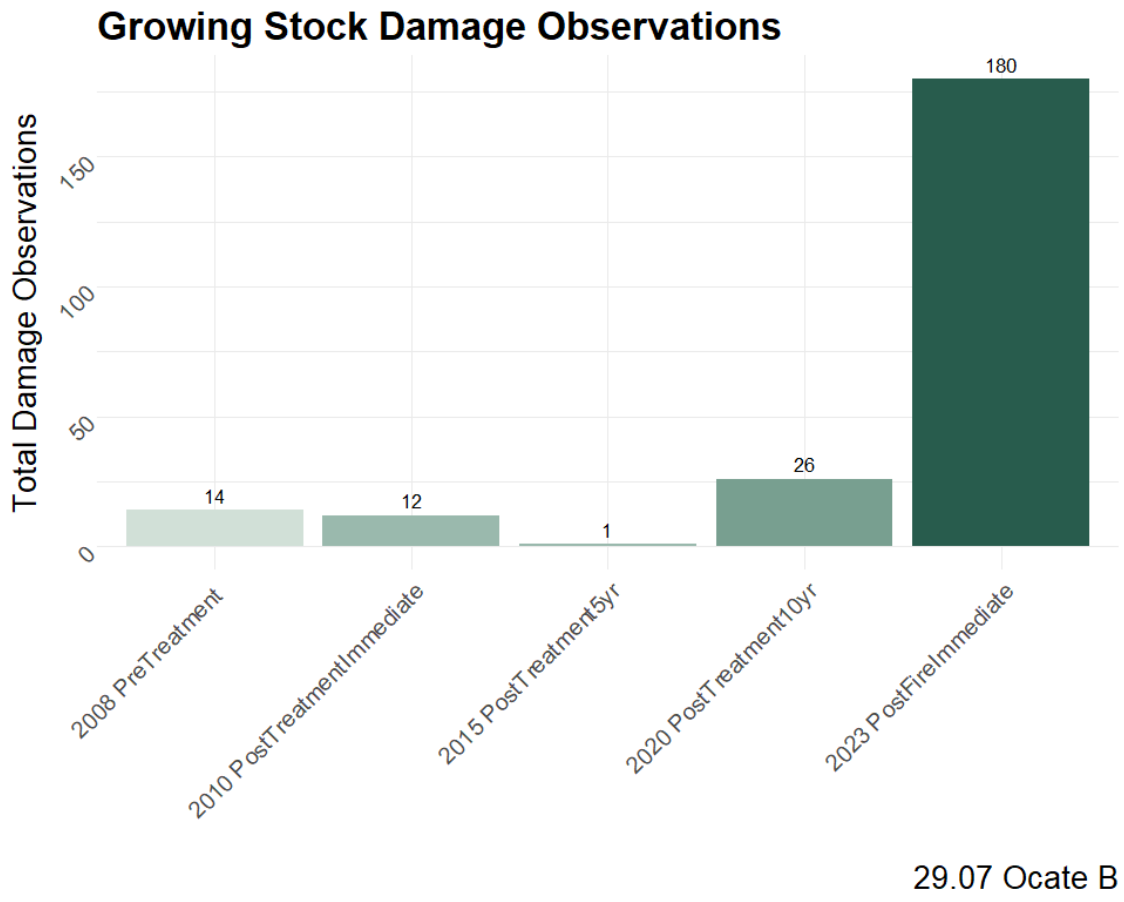

Figure 9. *Damage observation count totals by monitoring status for growing stock trees. Multiple damages may be recorded per individual tree. Damage data collection by crew between monitoring statuses may affect observation totals.*

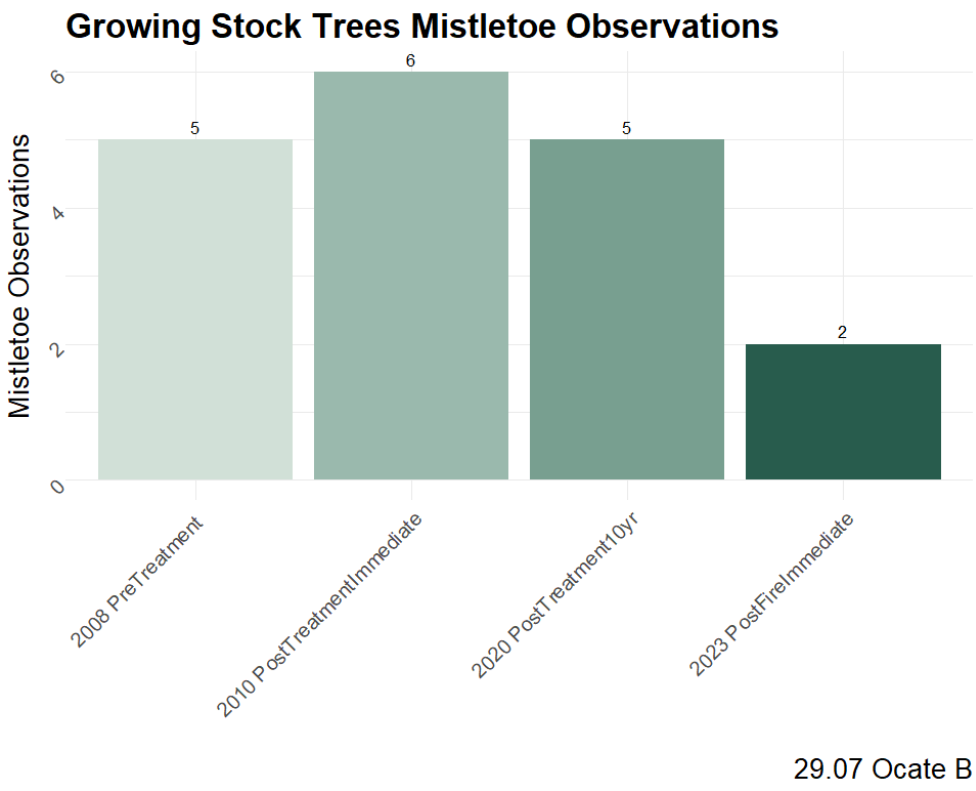

Figure 10. *Mistletoe observations on growing stock trees by monitoring status*

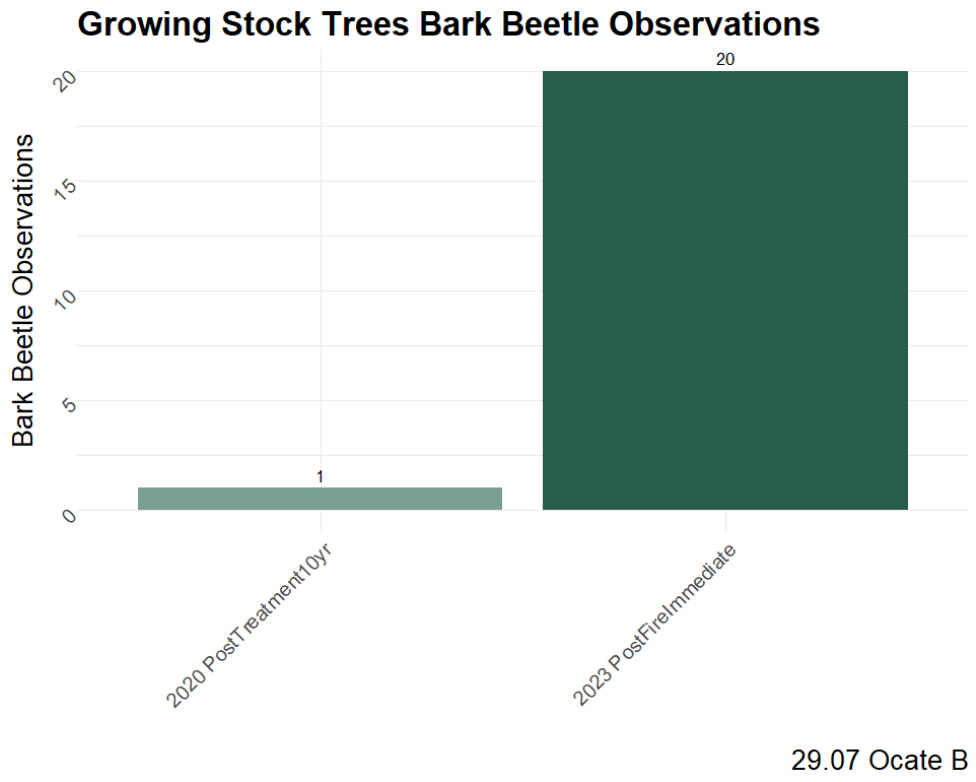

Figure 11. *Bark beetle observations on growing stock trees by monitoring status*

29.07 Ocate B: Damage Observations on Snags

Table 3. *Table of damages observed on snags by monitoring status. Multiple damages may be recorded per individual snag.*

Monitoring.Status	Damage Code	Count	Description
2008 PreTreatment	99004	1	Uncharacteristic forked top
2015 PostTreatment5yr	99001	2	Broken top
2020 PostTreatment10yr	99001	3	Broken top
2023 PostFireImmediate	11000	1	Bark beetles
2023 PostFireImmediate	25000	2	Foliage disease
2023 PostFireImmediate	30000	73	Fire char and/or scorch
2023 PostFireImmediate	41010	3	Bird damage
2023 PostFireImmediate	99004	7	Uncharacteristic forked top
2023 PostFireImmediate	99037	2	Leaning bole

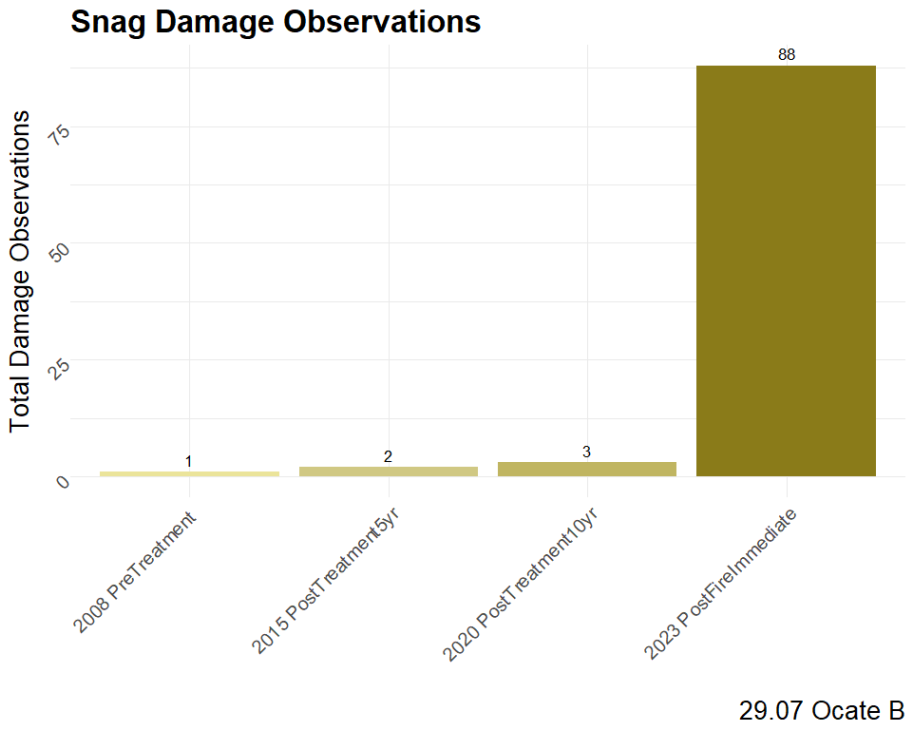

Figure 12. *Damage observation count totals by monitoring status for snags. Multiple damages may be recorded per individual snag. Damage data collection by crew between monitoring statuses may affect observation totals.*

Char & Scorch

Immediately post-wildfire, char height averaged 6.9 ft and scorch height averaged 15 ft across trees in the project. These values are consistent with low to moderate fire severity, as mean growing stock height for this measurement period was 33 ft.

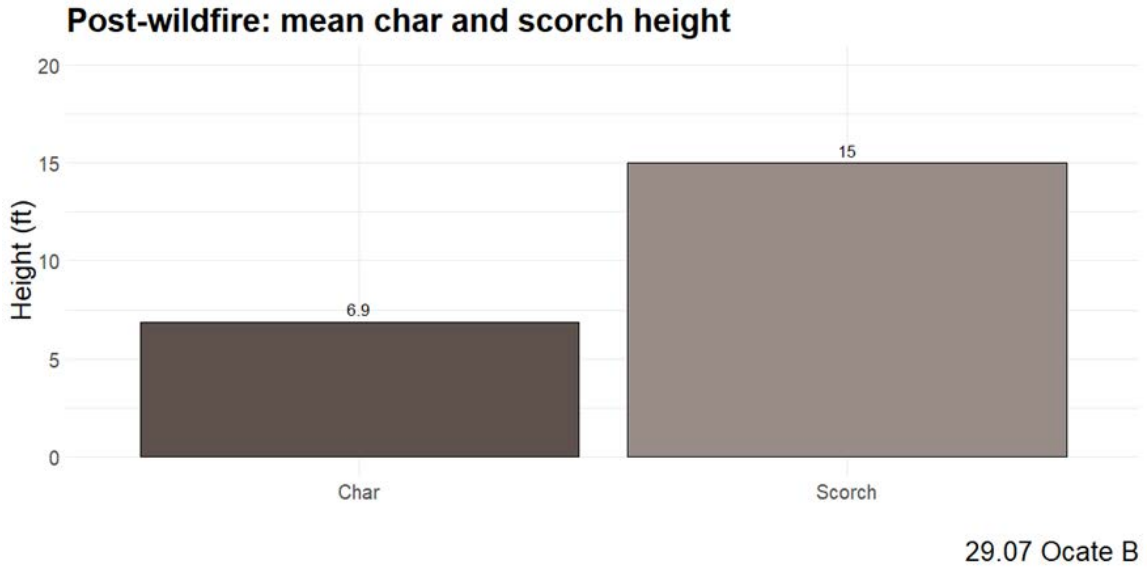

Figure 13. *Mean char and scorch height following the 2022 Cooks Peak Fire. Mean values represent averages of plot means for each monitoring status*

Seedlings, Saplings, & Shrubs

Mean live tree seedling density decreased from 1930 individuals/acre pre-treatment to 203 individuals/acre immediately post-treatment, before rising to 3340 individuals/acre 5-years post-treatment and 3010 individuals/acre 10-years post-treatment. Immediately post-wildfire, mean live tree seedling density increased substantially to 8110 individuals/acre. Dead tree seedling densities were not recorded pre-treatment and immediately post-treatment, but increased from 0 individuals/acre 5-years post-treatment to 20.7 individuals/acre 10-years post-treatment to 1300 individuals/acre immediately post-wildfire. Mean live shrub seedling density was not recorded pre-treatment and immediately post-treatment, but increased from 51.7 individuals/acre 5-years post-treatment to 283 individuals/acre 10-years post-treatment to 862 individuals/acre immediately post-wildfire. Mean dead shrub seedling density was not recorded pre-treatment and immediately post-treatment, but increased from 0 individuals/acre to 5-years post-treatment to 20.7 individuals/acre 10-years post-treatment to 183 individuals per acre immediately post-wildfire. Note that shrub data collection was found to be inconsistent in the 2015 PostTreatment5yr measurement.

Mean live tree sapling density was not recorded pre-treatment and immediately post-treatment, but increased from 20.7 individuals/acre 5-years post-treatment to 279 individuals/acre 10-years post-treatment, before decreasing to 224 individuals/acre immediately post-wildfire. Mean dead tree sapling density was not recorded pre-treatment and immediately post-treatment, but increased from 0 individuals/acre 5-years post-treatment and 10-years post-treatment to 169 individuals/acre

immediately post-wildfire. Mean live shrub sapling density was not recorded pre-treatment and immediately post-treatment but increased from 0 individuals/acre 5-years post-treatment to 3.45 individuals/acre 10-years post-treatment before returning to 0 individuals/acre immediately post-wildfire. Mean dead shrub sapling density was not recorded pre-treatment and immediately post-treatment, but increased from 0 individuals/acre 5-years post-treatment and 10-years post-treatment to 31 individuals/acre immediately post-wildfire.

For additional information on seedling and sapling species, see Additional Figures.

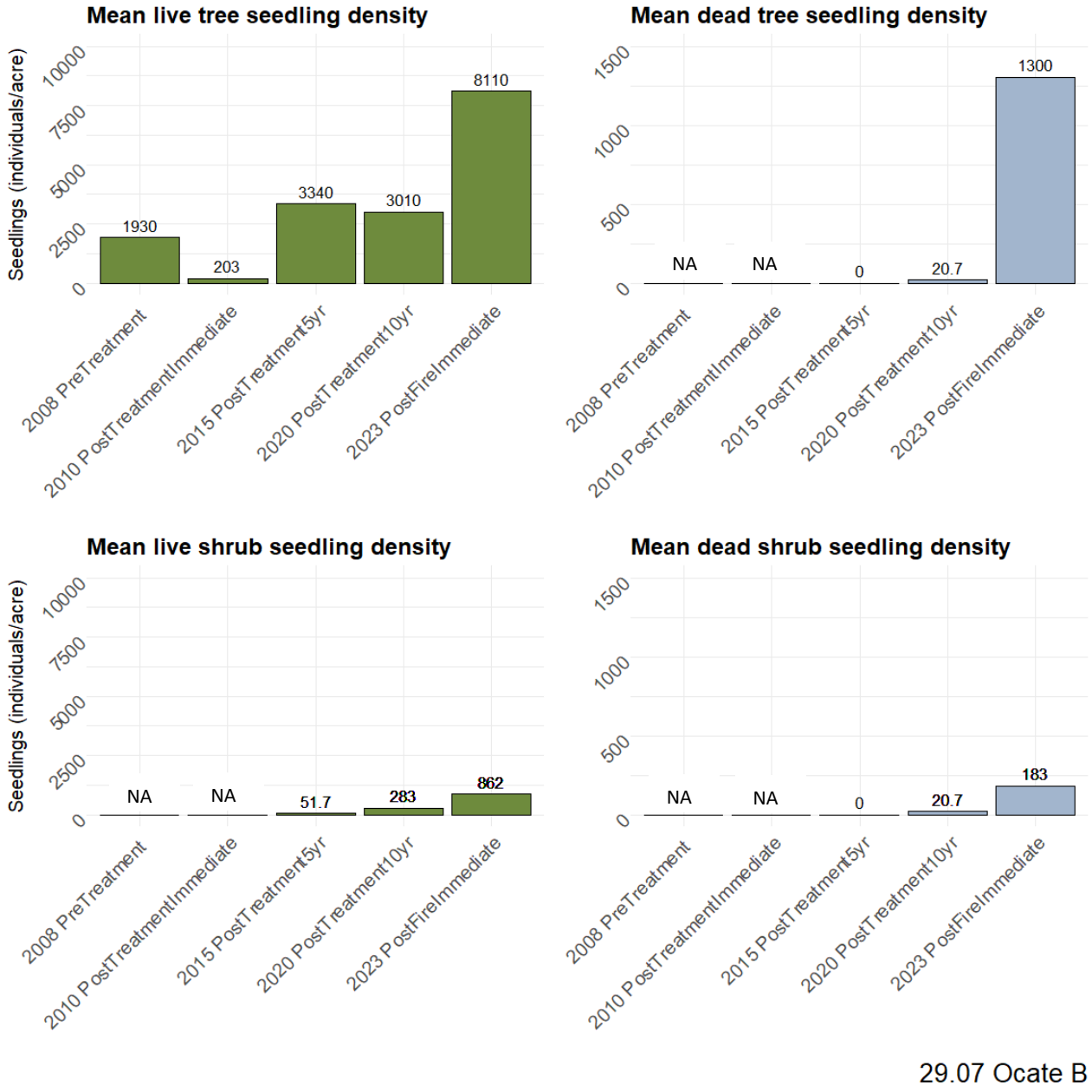

Figure 14. *Regeneration densities of trees and shrubs in the seedling class across all measurement periods*

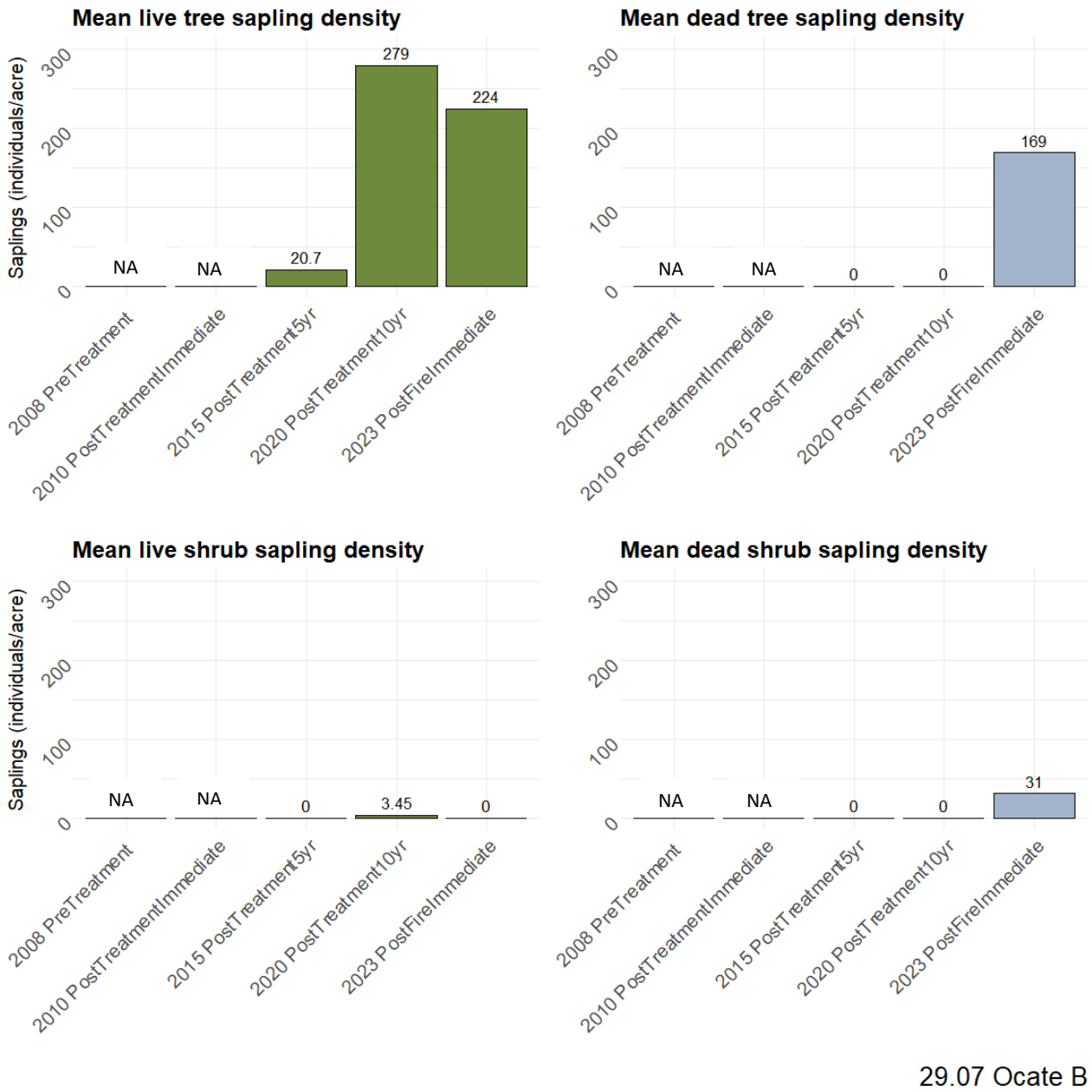

***Figure 15**. Regeneration densities of trees and shrubs in the sapling class across all measurement periods*

Stand Tables

Stand tables provide another way to visualize trees in an area. They represent the number of trees per acre in certain diameter classes and provide other summary values in a concise format. For the 2010 Post-treatment Immediate measurement, stand tables are not available due to multiple plot sizes.

2008 Pre-treatment

Table 4. *Stand table of species metrics for the 2008 pre-treatment measurement period*

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	4	6	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	*16*	
Pinon pine	TPA	2.76	4.14	2.07	1.38	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*11*	*3.4%*
	BA/AC	0.01	0.13	0.16	0.21	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.77*	*0.93%*
	AVE HT. (HL)	8	13	12	18	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
JUMO	COUNT	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*1.0*	
One-seed juniper	TPA	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.69*	*0.22%*
	BA/AC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.00036*	*0.00044%*
	AVE HT. (HL)	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	*3.0*	
Rocky Mnt juniper	TPA	0.69	0.69	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*2.1*	*0.65%*
	BA/AC	0.00	0.01	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.10*	*0.13%*
	AVE HT. (HL)	6	12	0.00	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUGA	COUNT	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*11*	
Gambel oak	TPA	0.00	6.90	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*7.6*	*2.4%*
	BA/AC	0.00	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.14*	*0.17%*
	AVE HT. (HL)	0.00	13	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUERC	COUNT	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*13*	
Oak	TPA	0.00	8.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*9.0*	*2.8%*
	BA/AC	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.12*	*0.14%*
	AVE HT. (HL)	0.00	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species	*COUNT*	*6*	*30*	*4*	*3*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*44*	
Sub-total	*TPA*	*4.14*	*20.69*	*2.76*	*2.07*	*0.69*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*30*	*9.5%*
	BA/AC	*0.01*	*0.35*	*0.19*	*0.31*	*0.26*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.1*	*1.4%*
	AVE HT. (HL)	*8*	*12*	*12*	*16*	*21*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*		
Summary by Size	*TPA*		*28*			*2.8*							*0.0*						*30*	
Class for Woodland	*TPA %*		*91%*			*9.1%*							*0.0%*						*100%*	
Species	*BA/AC*		*0.55*			*0.57*							*0*						*1.1*	
	BA/AC %		*49%*			*51%*							*0%*						*100%*	
	QUADRATIC MEAN DIA.		*1.92*			*6.15*							*0.00*						*2.60*	
	AVE HT. (HL)		*12*			*19*							*0.0*						*15*	

Forestland Species		Saplings			Pole			Mature Trees											Total by Species & Covertype	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
PIPO Ponderosa pine	COUNT	0	162	70	47	43	38	23	18	7	9	1	0	0	0	0	0	0	*418*	
	TPA	0.00	111.72	48.28	32.41	29.66	26.21	15.86	12.41	4.83	6.21	0.69	0.00	0.00	0.00	0.00	0.00	0.00	*288*	*90%*
	BA/AC	0.00	2.18	3.93	6.43	10.11	13.76	12.12	13.25	6.79	10.93	1.37	0.00	0.00	0.00	0.00	0.00	0.00	*81*	*99%*
	AVE HT. (HL)	0.00	12.34	20.62	29.82	34.48	40.99	48.59	47.25	46.68	53.25	58.00	0.00	0.00	0.00	0.00	0.00	0.00		
PSME Douglas-fir	COUNT	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*2.0*	
	TPA	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*1.4*	*0.43%*
	BA/AC	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.11*	*0.13%*
	AVE HT. (HL)	0.00	0.00	22.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Forestland Species Sub-total	*COUNT*	*0*	*162*	*72*	*47*	*43*	*38*	*23*	*18*	*7*	*9*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*420*	
	TPA	*0.00*	*111.72*	*49.66*	*32.41*	*29.66*	*26.21*	*15.86*	*12.41*	*4.83*	*6.21*	*0.69*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*290*	*91%*
	BA/AC	*0.00*	*2.18*	*4.04*	*6.43*	*10.11*	*13.76*	*12.12*	*13.25*	*6.79*	*10.93*	*1.37*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*81*	*99%*
	AVE HT. (HL)	*0.00*	*12*	*21*	*30*	*34*	*41*	*49*	*47*	*47*	*53*	*58*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*		
Summary by Size Class for Forestland Species	*TPA*		*161*			*88*							*40*						*290*	
	TPA %		*56%*			*30%*							*14%*						*100%*	
	BA/AC		*6.2*			*30*							*44*						*81*	
	BA/AC %		*7.7%*			*37%*							*55%*						*100%*	
	QUADRATIC MEAN DIA.		*2.66*			*7.93*							*14.3*						*7.16*	
	AVE HT. (HL)		*18*			*36*							*49*						*42*	

Stand Total		Saplings			Pole			Tree or Sawlog											Total by Class,Growing Stock & Dead	% by Class, Growing Stock vs Dead
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
Growing Stock (All living trees in woodland & forestland)	COUNT	6	192	76	50	44	38	23	18	7	9	1	0	0	0	0	0	0	*464*	
	TPA	4.14	132.41	52.41	34.48	30.34	26.21	15.86	12.41	4.83	6.21	0.69	0.00	0.00	0.00	0.00	0.00	0.00	*320*	*92%*
	BA/AC	0.01	2.53	4.24	6.73	10.38	13.76	12.12	13.25	6.79	10.93	1.37	0.00	0.00	0.00	0.00	0.00	0.00	*82*	*94%*
	AVE HT, HL	8	12	20	29	34	41	49	47	47	53	58	0.00	0.00	0.00	0.00	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	TPA		188.97			91.03							40.00						*320*	
	TPA %		59.05%			28.45%							12.50%						*100%*	
	BA/AC		6.78			30.87							44.45						*82*	
	BA/AC %		8.25%			37.60%							54.15%						*100%*	
	QMD MEAN DIA.		2.56			7.88							14.27						*6.86*	
	AVE HT, HL		17			36							49						*42*	
Dead (All dead trees in woodland & forestland)	COUNT	0	15	6	9	4	2	1	2	0	0	0	0	0	0	0	0	0	*39*	
	TPA	0.00	10.34	4.14	6.21	2.76	1.38	0.69	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*27*	*7.8%*
	BA/AC	0.00	0.17	0.38	1.29	0.91	0.67	0.58	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*5.3*	*6.1%*
	AVE HT, HL	0.00	10	20	20	29	28	34	52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*32*	
Total for all sample trees including Growing Stock and Dead	COUNT	6	207	82	59	48	40	24	20	7	9	1	0	0	0	0	0	0	*503*	
	TPA	4.14	142.76	56.55	40.69	33.10	27.59	16.55	13.79	4.83	6.21	0.69	0.00	0.00	0.00	0.00	0.00	0.00	*347*	*100%*
	BA/AC	0.01	2.71	4.62	8.02	11.28	14.43	12.70	14.57	6.79	10.93	1.37	0.00	0.00	0.00	0.00	0.00	0.00	*87*	*100%*

***Table 5**. Stand table of forestland species metrics for the 2015 post-treatment 5-year measurement period*

2015 Post-treatment 5-year

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	7	7	10	4	0	3	1	1	0	0	0	0	0	0	0	0	0	*33*	
Pinon pine	TPA	2.41	2.41	3.45	1.38	0.00	1.03	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*11*	*22%*
	BA/AC	0.00	0.06	0.29	0.29	0.00	0.59	0.29	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*1.9*	*6.05*
	AVE HT. (HL)	8	11	17	26	0.00	28	23	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*6.0*	
Rocky Mnt juniper	TPA	1.38	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*2.1*	*4.1%*
	BA/AC	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.022*	*0.070%*
	AVE HT. (HL)	5	5	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUGA	COUNT	0	19	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*22*	
Gambel oak	TPA	0.00	6.55	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*7.6*	*15%*
	BA/AC	0.00	0.17	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.25*	*0.78%*
	AVE HT. (HL)	0.00	7	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species	*COUNT*	*11*	*27*	*14*	*4*	*0*	*3*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*61*	
Sub-total	*TPA*	*3.79*	*9.31*	*4.83*	*1.38*	*0.00*	*1.03*	*0.34*	*0.34*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*21*	*41%*
	BA/AC	*0.00*	*0.23*	*0.39*	*0.29*	*0.00*	*0.59*	*0.29*	*0.41*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*2.2*	*6.9%*
	AVE HT. (HL)	*8*	*8*	*15*	*26*	*0.00*	*28*	*23*	*31*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*		
Summary by Size	*TPA*		*18*			*2.4*							*0.69*						*21*	
Class for Woodland	*TPA %*		*85%*			*11%*							*3.3%*						*100%*	
Species	*BA/AC*		*0.63*			*0.87*							*0.69*						*2.2*	
	BA/AC %		*29%*			*40%*							*32%*						*100%*	
	QUADRATIC MEAN DIA.		*2.53*			*8.15*							*13.6*						*4.37*	
	AVE HT. (HL)		*12*			*27*							*28*						*23*	

Forestland Species		Saplings			Pole			Mature Trees											Total by Species & Covertype	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
ABCO White fir	COUNT	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*1.0*	
	TPA	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.34*	*0.68%*
	BA/AC	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.0099*	*0.031%*
	AVE HT. (HL)	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
PIPO Ponderosa pine	COUNT	0	7	3	1	1	10	15	24	10	12	1	1	0	1	0	0	0	*86*	
	TPA	0.00	2.41	1.03	0.34	0.34	3.45	5.17	8.28	3.45	4.14	0.34	0.34	0.00	0.34	0.00	0.00	0.00	*30*	*58%*
	BA/AC	0.00	0.05	0.09	0.05	0.13	1.92	4.21	8.73	4.39	7.31	0.68	0.84	0.00	1.31	0.00	0.00	0.00	*30*	*93%*
	AVE HT. (HL)	0.00	7.80	16.68	35.00	40.00	39.06	45.88	47.04	46.01	50.20	40.00	34.00	0.00	70.00	0.00	0.00	0.00		
Forestland Species Sub-total	*COUNT*	*0*	*8*	*3*	*1*	*1*	*10*	*15*	*24*	*10*	*12*	*1*	*1*	*0*	*1*	*0*	*0*	*0*	*87*	
	TPA	*0.00*	*2.76*	*1.03*	*0.34*	*0.34*	*3.45*	*5.17*	*8.28*	*3.45*	*4.14*	*0.34*	*0.34*	*0.00*	*0.34*	*0.00*	*0.00*	*0.00*	*30*	*59%*
	BA/AC	*0.00*	*0.06*	*0.09*	*0.05*	*0.13*	*1.92*	*4.21*	*8.73*	*4.39*	*7.31*	*0.68*	*0.84*	*0.00*	*1.31*	*0.00*	*0.00*	*0.00*	*30*	*93%*
	AVE HT. (HL)	*0.00*	*8*	*17*	*35*	*40*	*39*	*46*	*47*	*46*	*50*	*40*	*34*	*0.00*	*70*	*0.00*	*0.00*	*0.00*		
Summary by Size Class for Forestland Species	*TPA*		*3.8*			*4.1*							*22*						*30*	
	TPA %		*13%*			*14%*							*74%*						*100%*	
	BA/AC		*0.15*			*2.1*							*27*						*30*	
	BA/AC %		*0.50%*			*7.1%*							*92%*						*100%*	
	QUADRATIC MEAN DIA.		*2.67*			*9.65*							*15.1*						*13.5*	
	AVE HT. (HL)		*13*			*39*							*48*						*47*	

Stand Total		Saplings			Pole			Tree or Sawlog											Total by Class,Growing Stock & Dead	% by Class, Growing Stock vs Dead
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
Growing Stock (All living trees in woodland & forestland)	COUNT	11	35	17	5	1	13	16	25	10	12	1	1	0	1	0	0	0	*148*	
	TPA	3.79	12.07	5.86	1.72	0.34	4.48	5.52	8.62	3.45	4.14	0.34	0.34	0.00	0.34	0.00	0.00	0.00	*51*	*93%*
	BA/AC	0.00	0.29	0.48	0.34	0.13	2.51	4.50	9.13	4.39	7.31	0.68	0.84	0.00	1.31	0.00	0.00	0.00	*32*	*98%*
	AVE HT, HL	8	8	15	28	40	36	44	46	46	50	40	34	0.00	70	0.00	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	TPA	21.72			6.55			22.76											*51*	
	TPA %	42.57%			12.84%			44.59%											*100%*	
	BA/AC	0.77			2.98			28.16											*32*	
	BA/AC %	2.42%			9.33%			88.25%											*100%*	
	QMD MEAN DIA.	2.56			9.13			15.06											*10.7*	
	AVE HT, HL	12			36			48											*46*	
Dead (All dead trees in woodland & forestland)	COUNT	0	8	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	*12*	
	TPA	0.00	2.76	0.34	0.34	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*4.1*	*7.5%*
	BA/AC	0.00	0.09	0.02	0.09	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.56*	*1.7%*
	AVE HT, HL	0.00	11	13	6	0.00	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*13*	
Total for all sample trees including Growing Stock and Dead	COUNT	11	43	18	6	1	15	16	25	10	12	1	1	0	1	0	0	0	*160*	
	TPA	3.79	14.83	6.21	2.07	0.34	5.17	5.52	8.62	3.45	4.14	0.34	0.34	0.00	0.34	0.00	0.00	0.00	*55*	*100%*
	BA/AC	0.00	0.38	0.50	0.42	0.13	2.87	4.50	9.13	4.39	7.31	0.68	0.84	0.00	1.31	0.00	0.00	0.00	*32*	*100%*

2020 Post-treatment 10-year

Table 6. *Stand table of species metrics for the 2020 Post-treatment 10-year measurement period*

Forestland Species		Saplings			Pole			Mature Trees											Total by Species & Covertype	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
PIPO Ponderosa pine	COUNT	0	26	2	2	0	5	12	19	17	10	4	1	0	0	1	0	0	*99*	
	TPA	0.00	9.29	0.71	0.71	0.00	1.79	4.29	6.79	6.07	3.57	1.43	0.36	0.00	0.00	0.36	0.00	0.00	*35*	*68%*
	BA/AC	0.00	0.11	0.08	0.11	0.00	0.95	3.35	7.15	8.00	6.36	3.03	0.88	0.00	0.00	1.44	0.00	0.00	*31*	*93%*
	AVE HT. (HL)	0.00	7.63	37.04	34.95	0.00	42.69	54.41	55.65	56.41	58.29	53.45	42.00	0.00	0.00	73.00	0.00	0.00		
PSME Douglas-fir	COUNT	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*1.0*	
	TPA	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.36*	*0.69%*
	BA/AC	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.0078*	*0.023%*
	AVE HT. (HL)	0.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Forestland Species Sub-total	*COUNT*	*0*	*27*	*2*	*2*	*0*	*5*	*12*	*19*	*17*	*10*	*4*	*1*	*0*	*0*	*1*	*0*	*0*	*100*	
	TPA	*0.00*	*9.64*	*0.71*	*0.71*	*0.00*	*1.79*	*4.29*	*6.79*	*6.07*	*3.57*	*1.43*	*0.36*	*0.00*	*0.00*	*0.36*	*0.00*	*0.00*	*36*	*69%*
	BA/AC	*0.00*	*0.12*	*0.08*	*0.11*	*0.00*	*0.95*	*3.35*	*7.15*	*8.00*	*6.36*	*3.03*	*0.88*	*0.00*	*0.00*	*1.44*	*0.00*	*0.00*	*31*	*93%*
	AVE HT. (HL)	*0.00*	*8*	*37*	*35*	*0.00*	*43*	*54*	*56*	*56*	*58*	*53*	*42*	*0.00*	*0.00*	*73*	*0.00*	*0.00*		
Summary by Size Class for Forestland Species	*TPA*		*10*			*2.5*							*23*						*36*	
	TPA %		*29%*			*7.0%*							*64%*						*100%*	
	BA/AC		*0.20*			*1.1*							*30*						*31*	
	BA/AC %		*0.64%*			*3.4%*							*96%*						*100%*	
	QUADRATIC MEAN DIA.		*1.88*			*8.83*							*15.6*						*12.7*	
	AVE HT. (HL)		*20*			*42*							*56*						*56*	

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	0	7	7	4	2	1	4	0	0	0	0	0	0	0	0	0	0	*25*	
Pinon pine	TPA	0.00	2.50	2.50	1.43	0.71	0.36	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*8.9*	*17%*
	BA/AC	0.00	0.06	0.20	0.25	0.24	0.17	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*2.1*	*6.1%*
	AVE HT. (HL)	0.00	12	18	22	27	28	34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*3.0*	
Rocky Mnt juniper	TPA	0.00	0.71	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*1.1*	*2.1%*
	BA/AC	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.050*	*0.15%*
	AVE HT. (HL)	0.00	9	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUGA	COUNT	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*7.0*	
Gambel oak	TPA	0.00	1.07	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*2.5*	*4.8%*
	BA/AC	0.00	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.12*	*0.36%*
	AVE HT. (HL)	0.00	13	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUERC	COUNT	0	6	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	*10*	
Oak	TPA	0.00	2.14	1.07	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*3.6*	*6.9%*
	BA/AC	0.00	0.03	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.16*	*0.46%*
	AVE HT. (HL)	0.00	9	10	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species	*COUNT*	*0*	*18*	*15*	*5*	*2*	*1*	*4*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*45*	
Sub-total	*TPA*	*0.00*	*6.43*	*5.36*	*1.79*	*0.71*	*0.36*	*1.43*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*16*	*31%*
	BA/AC	*0.00*	*0.13*	*0.40*	*0.30*	*0.24*	*0.17*	*1.13*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*2.4*	*7.0%*
	AVE HT. (HL)	*0.00*	*11*	*16*	*20*	*27*	*28*	*34*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*		
Summary by Size	*TPA*		*12*			*2.9*							*1.4*						*16*	
Class for	*TPA %*		*73%*			*18%*							*8.9%*						*100%*	
Woodland Species	*BA/AC*		*0.54*			*0.71*							*1.1*						*2.4*	
	BA/AC %		*23%*			*30%*							*47%*						*100%*	
	QUADRATIC MEAN DIA.		*2.89*			*6.77*							*12.0*						*5.21*	
	AVE HT. (HL)		*15*			*24*							*34*						*27*	

Stand Total		Saplings			Pole			Tree or Sawlog											Total by Class,Growing Stock & Dead	% by Class, Growing Stock vs Dead
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
Growing Stock (All living trees in woodland & forestland)	COUNT	0	45	17	7	2	6	16	19	17	10	4	1	0	0	1	0	0	***145***	
	TPA	0.00	16.07	6.07	2.50	0.71	2.14	5.71	6.79	6.07	3.57	1.43	0.36	0.00	0.00	0.36	0.00	0.00	***52***	***94%***
	BA/AC	0.00	0.25	0.49	0.42	0.24	1.12	4.48	7.15	8.00	6.36	3.03	0.88	0.00	0.00	1.44	0.00	0.00	***34***	***98%***
	AVE HT, HL	0.00	10	20	24	27	40	49	56	56	58	53	42	0.00	0.00	73	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	TPA	22.14			5.36			24.29											***52***	
	TPA %	42.76%			10.34%			46.90%											***100%***	
	BA/AC	0.74			1.78			31.35											***34***	
	BA/AC %	2.17%			5.25%			92.58%											***100%***	
	QMD MEAN DIA.	2.47			7.80			15.38											***10.9***	
	AVE HT, HL	16			35			56											***54***	
Dead (All dead trees in woodland & forestland)	COUNT	0	6	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	***9.0***	
	TPA	0.00	2.14	0.00	0.36	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***3.2***	***5.8%***
	BA/AC	0.00	0.06	0.00	0.07	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***0.52***	***1.5%***
	AVE HT, HL	0.00	10	0.00	7	0.00	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***14***	
Total for all sample trees including Growing Stock and Dead	COUNT	0	51	17	8	2	8	16	19	17	10	4	1	0	0	1	0	0	***154***	
	TPA	0.00	18.21	6.07	2.86	0.71	2.86	5.71	6.79	6.07	3.57	1.43	0.36	0.00	0.00	0.36	0.00	0.00	***55***	***100%***
	BA/AC	0.00	0.31	0.49	0.49	0.24	1.51	4.48	7.15	8.00	6.36	3.03	0.88	0.00	0.00	1.44	0.00	0.00	***34***	***100%***

2023 Post-wildfire immediate

Table 7*. Stand table of species metrics for the 2023 post-wildfire immediate measurement period*

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	0	5	4	5	2	1	2	0	0	0	0	0	0	0	0	0	0	*19*	
Pinon pine	TPA	0.00	1.72	1.38	1.72	0.69	0.34	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*6.6*	*13%*
	BA/AC	0.00	0.05	0.09	0.27	0.23	0.20	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*1.4*	*4.6%*
	AVE HT. (HL)	0.00	11	15	20	21	33	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*1.0*	
Rocky Mnt juniper	TPA	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.34*	*0.68%*
	BA/AC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.0032*	*0.010%*
	AVE HT. (HL)	0.00	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUGA	COUNT	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*5.0*	
Gambel oak	TPA	1.03	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*1.7*	*3.4%*
	BA/AC	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.0097*	*0.031%*
	AVE HT. (HL)	7	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
QUERC	COUNT	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*8.0*	
Oak	TPA	0.00	2.07	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*2.8*	*5.5%*
	BA/AC	0.00	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.094*	*0.30%*
	AVE HT. (HL)	0.00	10	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species Sub-total	*COUNT*	*3*	*14*	*6*	*5*	*2*	*1*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	33	
	TPA	*1.03*	*4.83*	*2.07*	*1.72*	*0.69*	*0.34*	*0.69*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	11	*23%*
	BA/AC	*0.00*	*0.11*	*0.14*	*0.27*	*0.23*	*0.20*	*0.58*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	1.5	*4.9%*
	AVE HT. (HL)	*7*	*10*	*14*	*20*	*21*	*33*	*31*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*		
Summary by Size Class for Woodland Species	*TPA*		*7.9*			*2.8*							*0.69*						11	
	TPA %		*70%*			*24%*							*6.1%*						100%	
	BA/AC		*0.25*			*0.70*							*0.58*						1.5	
	BA/AC %		*16%*			*46%*							*38%*						100%	
	QUADRATIC MEAN DIA.		*2.40*			*6.84*							*12.5*						*4.97*	
	AVE HT. (HL)		*12*			*24*							*31*						25	

Forestland Species		Saplings			Pole			Mature Trees											Total by Species & Covertype	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
PIPO Ponderosa pine	COUNT	1	38	4	2	2	4	12	20	15	8	5	1	0	1	0	0	0	*113*	
	TPA	0.34	13.10	1.38	0.69	0.69	1.38	4.14	6.90	5.17	2.76	1.72	0.34	0.00	0.34	0.00	0.00	0.00	*39*	*77%*
	BA/AC	0.00	0.16	0.09	0.15	0.25	0.75	3.26	7.42	7.02	4.95	3.68	0.83	0.00	1.34	0.00	0.00	0.00	*30*	*95%*
	AVE HT. (HL)	5.80	7.66	18.40	35.81	47.28	33.96	48.72	50.13	50.14	54.45	54.03	32.40	0.00	76.00	0.00	0.00	0.00		
Forestland Species Sub-total	*COUNT*	*1*	*38*	*4*	*2*	*2*	*4*	*12*	*20*	*15*	*8*	*5*	*1*	*0*	*1*	*0*	*0*	*0*	*113*	
	TPA	*0.34*	*13.10*	*1.38*	*0.69*	*0.69*	*1.38*	*4.14*	*6.90*	*5.17*	*2.76*	*1.72*	*0.34*	*0.00*	*0.34*	*0.00*	*0.00*	*0.00*	*39*	*77%*
	BA/AC	*0.00*	*0.16*	*0.09*	*0.15*	*0.25*	*0.75*	*3.26*	*7.42*	*7.02*	*4.95*	*3.68*	*0.83*	*0.00*	*1.34*	*0.00*	*0.00*	*0.00*	*30*	*95%*
	AVE HT. (HL)	*6*	*8*	*18*	*36*	*47*	*34*	*49*	*50*	*50*	*54*	*54*	*32*	*0.00*	*76*	*0.00*	*0.00*	*0.00*		
Summary by Size Class for Forestland Species	*TPA*		*15*			*2.8*							*21*						*39*	
	TPA %		*38%*			*7.1%*							*55%*						*100%*	
	BA/AC		*0.26*			*1.1*							*28*						*30*	
	BA/AC %		*0.86%*			*3.8%*							*95%*						*100%*	
	QUADRATIC MEAN DIA.		*1.79*			*8.73*							*15.6*						*11.9*	
	AVE HT. (HL)		*12*			*37*							*52*						*51*	

Stand Total		Saplings			Pole			Tree or Sawlog											Total by Class,Growing Stock & Dead	% by Class, Growing Stock vs Dead
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
Growing Stock (All living trees in woodland & forestland)	COUNT	4	52	10	7	4	5	14	20	15	8	5	1	0	1	0	0	0	***146***	
	TPA	1.38	17.93	3.45	2.41	1.38	1.72	4.83	6.90	5.17	2.76	1.72	0.34	0.00	0.34	0.00	0.00	0.00	***50***	***59%***
	BA/AC	0.00	0.27	0.23	0.42	0.48	0.95	3.84	7.42	7.02	4.95	3.68	0.83	0.00	1.34	0.00	0.00	0.00	***31***	***96%***
	AVE HT, HL	7	9	16	26	35	34	46	50	50	54	54	32	0.00	76	0.00	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	TPA	22.76			5.52			22.07											***50***	
	TPA %	45.21%			10.96%			43.84%											***100%***	
	BA/AC	0.51			1.85			29.08											***31***	
	BA/AC %	1.61%			5.89%			92.50%											***100%***	
	QMD MEAN DIA.	2.02			7.84			15.54											***10.7***	
	AVE HT, HL	12			32			52											***50***	
Dead (All dead trees in woodland & forestland)	COUNT	5	86	6	0	1	1	0	1	0	0	0	0	0	0	0	0	0	***100***	
	TPA	1.72	29.66	2.07	0.00	0.34	0.34	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***34***	***41%***
	BA/AC	0.01	0.47	0.16	0.00	0.12	0.16	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***1.3***	***4.0***
	AVE HT, HL	7	8	15	0.00	25	28	0.00	51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***25***	
Total for all sample trees including Growing Stock and Dead	COUNT	9	138	16	7	5	6	14	21	15	8	5	1	0	1	0	0	0	***246***	
	TPA	3.10	47.59	5.52	2.41	1.72	2.07	4.83	7.24	5.17	2.76	1.72	0.34	0.00	0.34	0.00	0.00	0.00	***85***	***100%***
	BA/AC	0.01	0.74	0.40	0.42	0.61	1.10	3.84	7.80	7.02	4.95	3.68	0.83	0.00	1.34	0.00	0.00	0.00	***33***	***100%***

Understory & Forest Floor Component

Ground & Aerial Cover

Cover data was taken under a different protocol during the pre-treatment measure in 2008 pre-treatment, 2010 post-treatment immediate, and 2015 post-treatment 5-year and values are not directly comparable to each category of cover data collected 2020 10-year post-treatment and 2023 post-wildfire immediate. In the 2008 pre-treatment data collection, canopy cover was assessed with a lux meter at plot center and reported in foot candles, all other canopy cover data was measured with a densiometer. Immediately post-wildfire, plant basal, bole, and litter ground cover decreased while bare soil, rock, and gravel increased. These trends are consistent with fuel consumption during wildfire. Immediately post-wildfire, tree regeneration and forb aerial cover increased, while graminoid and shrub aerial cover decreased. In every measurement year post-treatment, graminoids made up the highest category of cover.

29.07 Ocate B: Ground Cover

Monitoring.Status	PlantBasal	Bole	Litter	BareSoil	Rock	Gravel
2020 PostTreatment10yr	33%	10%	45%	1.4%	8.2%	0.7%
2023 PostFireImmediate	28%	2.2%	34%	21%	12%	3.3%

29.07 Ocate B: Aerial Cover

Monitoring.Status	Canopy	TreeRegen	Shrubs	Graminoids	Forbs
2010 PostTreatmentImmediate	18%	--	--	--	--
2015 PostTreatment5yr	17%	--	--	--	--
2020 PostTreatment10yr	19%	1.7%	19%	42%	4.5%
2023 PostFireImmediate	25%	16%	1.5%	36%	18%

29.07 Ocate B: Cover

Monitoring.Status	TreeRegen	Shrubs	Graminoids	Forbs	Litter	BareSoil	Rock	Gravel
2010 PostTreatmentImmediate	--	9.3%	40%	12%	31%	1.5%	5.6%	--
2015 PostTreatment5yr	19%	1.9%	36%	--	24%	7.2%	6.5%	0.47%

29.07 Ocate B: Cover

Monitoring.Status	Litter	BareSoil	Graminoids/Forbs	Seedlings	StandingDead	Stumps	Light(foot candle)
2008 PreTreatment	84%	14%	28%	1.9%	1.6%	3.7%	5717

Surface Fuels Vegetation (Ladder Fuels)

Ladder fuels fluctuated across measurements, with total biomass ranging from 3.5 tons per acre 5-years post-treatment to 1.5 tons per acre immediately post-wildfire. In all but the immediate post-treatment measurement, live woody fuels were the highest contributor to overall ladder fuel biomass. The initial treatment was followed by an increase in herbaceous fuels and a reduction in woody fuels in the post-treatment immediate measurement. 5-years post-treatment, an increase in woody fuels was observed. However, woody fuel loads were reduced in the 10-year post-treatment and immediate post-wildfire measurements. Seasonality may have also played a role in these results, with the 2010 post-treatment immediate measure completed in October & November when dead herbaceous fuels are more prevalent. Similarly, herbaceous fuels in the 2015 post-treatment 5-year measurement were likely responding to moisture levels that dropped by the 2020 10 year post-treatment measurement. Error in resampling heterogenous fuels across measurement periods could have contributed to additional variation.

Table 8. *Ladder fuel average percent cover, height, and biomass for each category and monitoring status*

2008 Pre-treatment

Fuel	Avg Cover (%)	Avg. Ht (ft)	Avg. Biomass (tons per acre)
HD	5.5	0.2	0
HL	15.4	0.3	0.1
SD	3.9	2.4	0.4
SL	17.2	3.1	1.9
Total			**2.4**

2010 Post-treatment immediate

Fuel	Avg Cover (%)	Avg. Ht (ft)	Avg. Biomass (tons per acre)
HD	23.4	1.4	0.9
HL	15.8	2.1	0.7
SD	2.1	0.3	0.2
SL	5.2	0.6	0.3
Total			**2.1**

2015 Post-treatment 5yr

Fuel	Avg Cover (%)	Avg. Ht (ft)	Avg. Biomass (tons per acre)
HD	22.8	0.4	0.3
HL	40.3	1	1

SD	0.9	1.9	0.4
SL	12.2	3	1.8
Total			**3.5**

2020 Post-treatment 10yr

Fuel	Avg Cover (%)	Avg. Ht (ft)	Avg. Biomass (tons per acre)
HD	12.6	0.2	0.1
HL	8.5	0.2	0
SD	0	0.5	0
SL	14.6	1.7	1.4
Total			**1.5**

2023 Post-wildfire Immediate

Fuel	Avg Cover (%)	Avg. Ht (ft)	Avg. Biomass (tons per acre)
HD	9.1	0.6	0.2
HL	10.7	0.7	0.2
SD	1.2	2.5	0.2
SL	5.5	2.3	0.9
Total			**1.5**

Surface Fuels

Total wood fuels increased from 4.1 tons per acre pre-treatment to 4.9 tons per acre immediately post-treatment, to 6.2 tons per acre 5-years post-treatment, and 9.1 tons per acre 10-years post treatment. Immediately post-wildfire, total wood fuels decreased to 1.1 tons per acre. Total surface fuels decreased from 13 tons per acre pre-treatment to 12 tons per acre immediately post-treatment, before increasing to 16 tons per acre 5-years post-treatment and 20 tons per acre 10 years post-treatment. Immediately post-wildfire, total surface fuels decreased to 4.9 tons per acre. These trends are consistent with an accumulation of post-treatment surface fuels, and the consumption of surface fuels from fire.

Ocate B: Surface Fuels

Table 9. *Fuel loads by type and monitoring status*

Monitoring Status	1-hr (tons/ acre)	10-hr (tons/ acre)	100-hr (tons/ acre)	1000-hr sound (tons/acre)	1000-hr rotten (tons/acre)	Litter (tons/ acre)	Duff (tons/ acre)	Total Fine Fuels (tons/acre)	Total Wood Fuels (tons/acre)	Total Surface Fuels (tons/acre)
2008 PreTreatment	0.07	1.2	0.71	1.4	0.7	3.3	6	**2**	**4.1**	**13**
2010 PostTreatmentImmediate	0.054	0.98	1.2	2.3	0.4	4.4	3.2	**2.2**	**4.9**	**12**

Monitoring Status	1-hr (tons/ acre)	10-hr (tons/ acre)	100-hr (tons/ acre)	1000-hr sound (tons/acre)	1000-hr rotten (tons/acre)	Litter (tons/ acre)	Duff (tons/ acre)	Total Fine Fuels (tons/acre)	Total Wood Fuels (tons/acre)	Total Surface Fuels (tons/acre)
2015 PostTreatment5yr	0.08	0.9	2	2	1.2	4.4	5.1	**3**	**6.2**	**16**
2020 PostTreatment10yr	0.024	0.68	3.4	4.7	0.3	5.2	6	**4.1**	**9.1**	**20**
2023 PostFireImmediate	0.041	0.35	0.26	0.4	0	1.8	2	**0.66**	**1.1**	**4.9**

Litter and Duff

Litter loads increased from 3.3 tons per acre pre-treatment to 4.4 tons per acre immediately post-treatment and 5-years post-treatment, to 5.2 tons per acre 10-years post-treatment before decreasing to 1.8 tons per acre immediately post-wildfire. Duff loads decreased from 6 tons per acre pre-treatment to 3.2 tons per acre immediately post-treatment, before increasing to 5.1 tons per acre 5-years post-treatment and 6 tons per acre 10-years post-treatment. Immediately post-wildfire, duff loads dropped to 2 tons per acre.

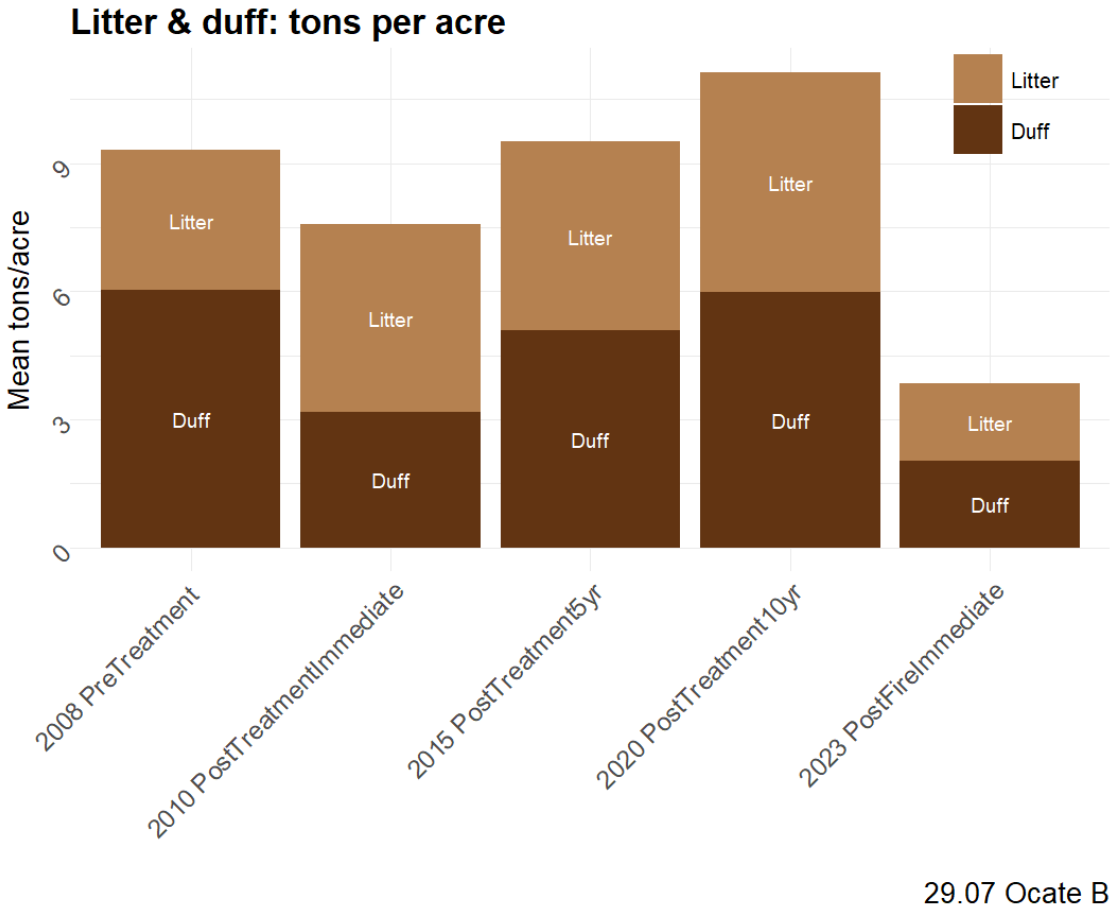

***Figure 16**. Mean litter and duff loads by monitoring status*

Fine Fuels

Total fine fuels increased across each measurement period, from 2 tons/acre pre-treatment, to 2.2 tons per acre immediately post-treatment, to 3 tons per acre 5-years post-treatment, to 4.1 tons per acre 10-years post-treatment, before decreasing to 0.66 tons per acre immediately post-wildfire.

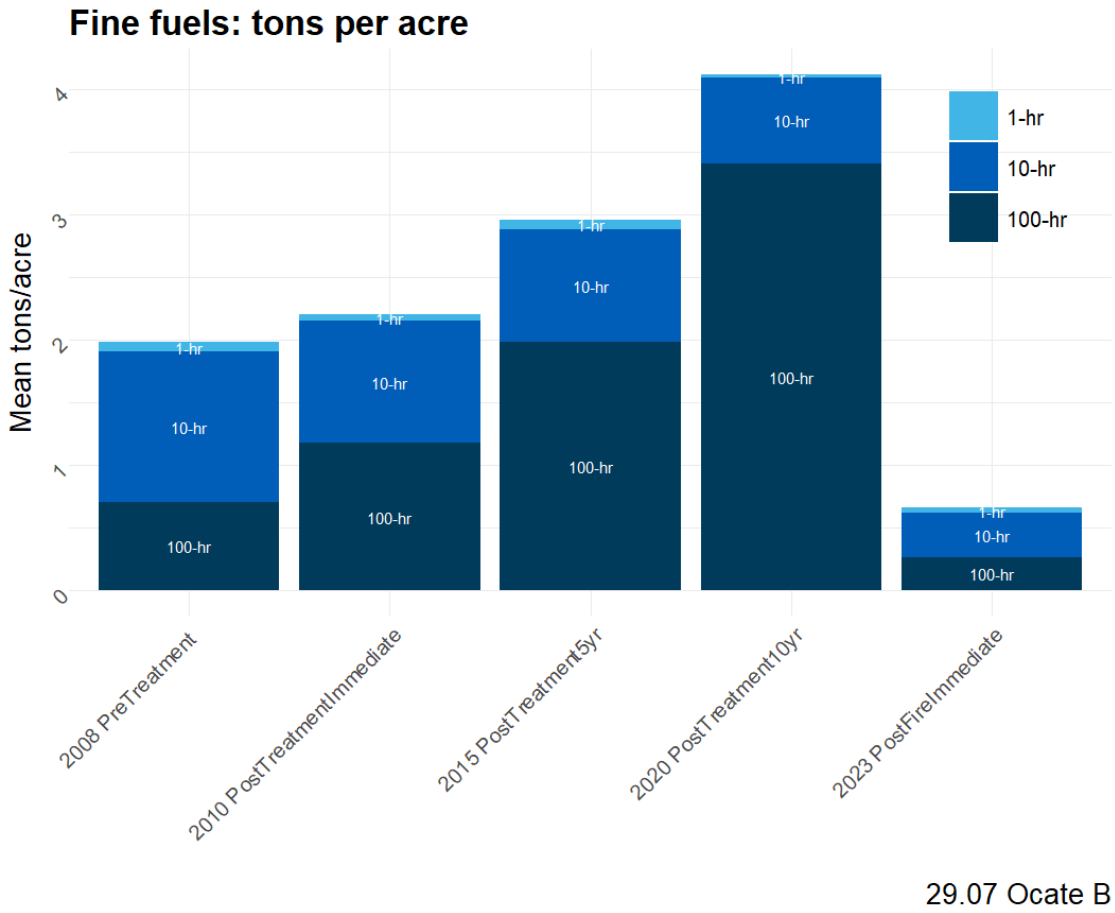

***Figure 17**. Mean litter and duff loads by monitoring status*

Thousand-Hour Fuels

Sound 1000-hr fuels increased from 1.4 tons/acre pre-treatment to 2.3 tons/acre immediately post-treatment, before decreasing to 2 tons/acre 5-years post-treatment, increasing to 4.7 tons/acre 10-years post-treatment and finally decreasing to 0.4 tons/acre immediately post-wildfire. Rotten 1000-hr fuels decreased from 0.7 tons/acre pre-treatment to 0.4 tons/acre immediately post-treatment, before increasing to 1.2 tons/acre 5-years post-treatment and decreasing to 0.3 tons/acre 10-years post-treatment, and finally 0 tons/acre immediately post-wildfire. Overall, an increase in 1000-hr fuel loads was observed each measurement period before dropping substantially due to consumption by fire.

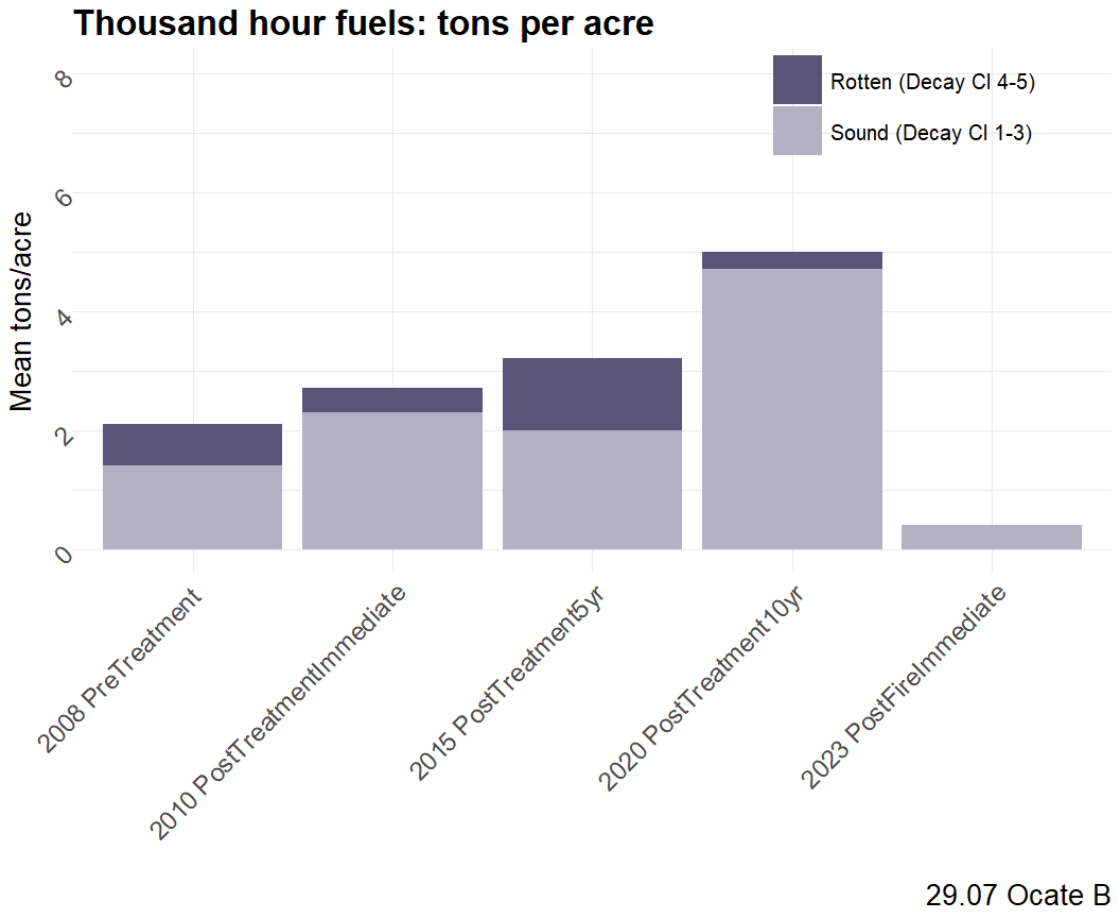

Figure 18. *Mean thousand-hour fuel loads by monitoring status*

The decay class with the highest proportion of 1000-hr fuels was class 3 for pre-treatment, 5-year post-treatment, 10-year post-treatment and immediately post-wildfire measurements, and was class 2 for the immediate post-treatment measurement. The increase in class 1 and class 2 1000-hr fuels immediately post-treatment are consistent with wood from thinning still being present on the ground, and this proportion decreases significantly by 5-years post-treatment. All rotten 1000-hr fuels are assumed to be consumed in the 2022 Cooks Peak Fire and are absent in the immediately post-wildfire measurement.

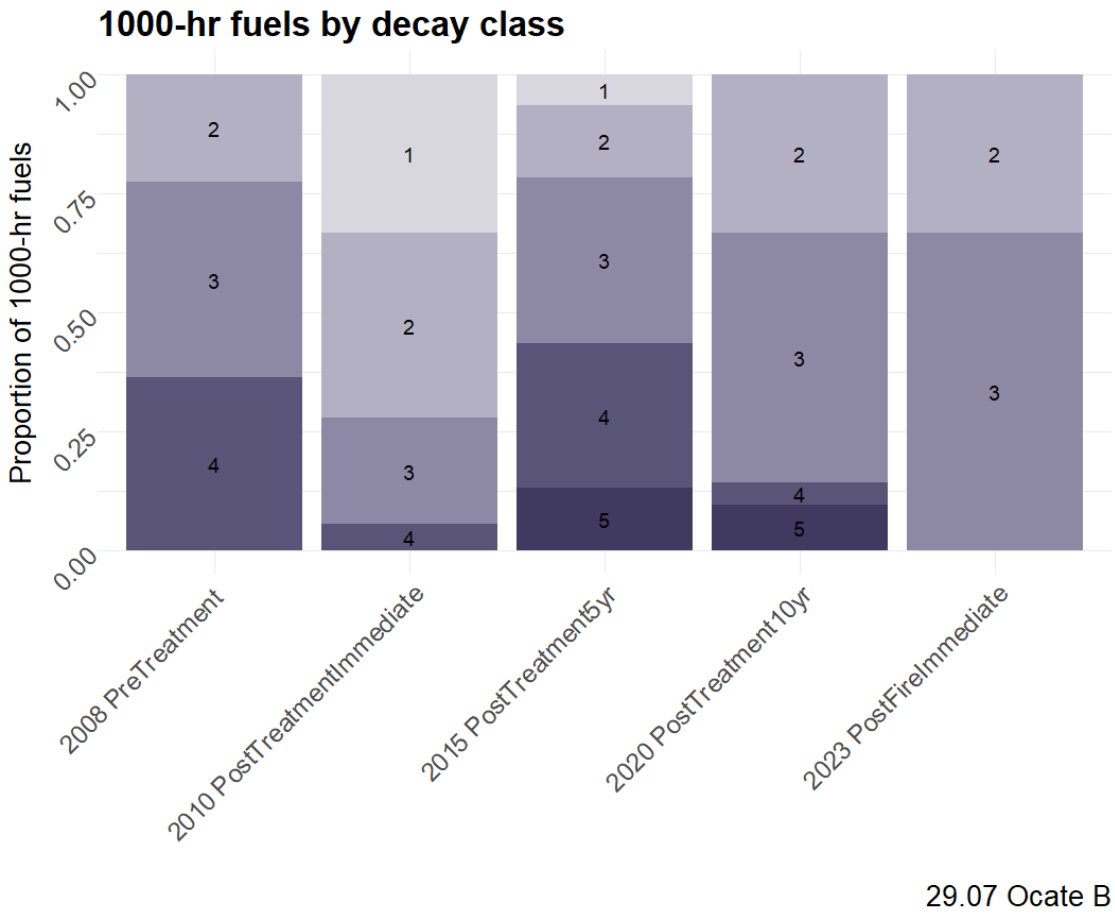

Figure 19. *Proportion of total thousand-hour fuels by decay class and monitoring status*

Photo Comparisons

Photo comparisons from each measurement period are included below. Note that while photos from 2008 and 2010 show the same directional view, photos were taken from closer distances to plot center than the following measurement periods, which were taken from 75’ north of plot center.

OB_5_C

2008 PreTreatment

2020 PostTreatment 10yr

2010 PostTreatment Immediate

2023 PostFire Immediate

2015 PostTreatment 5yr

OB_20_C

2008 PreTreatment

2020 PostTreatment 10yr

2010 PostTreatment Immediate

2023 PostFire Immediate

2015 PostTreatment 5yr

OB_22_C

2008 PreTreatment

2020 PostTreatment 10yr

2010 PostTreatment Immediate

2023 PostFire Immediate

2015 PostTreatment 5yr

Additional Resources

For additional information on forest health, forest insects and disease, and non-native species management see resources from the New Mexico Forest and Watershed Health Office: https://www.emnrd.nm.gov/sfd/forest-and-watershed-health-office/

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Southwest Forest Health and Wildfire Prevention Act of 2004, no. 108–317, 108th Congress (2004). https://www.congress.gov/108/plaws/publ317/PLAW-108publ317.pdf

Supplementary Information

Species Lists

Table 10. *List of observed tree species by species symbol, scientific name, and common name*

Species Symbol	Scientific Name	Common Name
JUMO	*Juniperus monosperma*	one-seed juniper
JUSC2	*Juniperus scopulorum*	rocky mountain juniper
PIED	*Pinus edulis*	piñon
PIPO	*Pinus ponderosa*	ponderosa pine
PSME	*Psuedotsuga menziesii*	Douglas-fir
QUERC	*Quercus sp.*	oak sp.
QUGA	*Quercus gambelii*	Gambel oak

Table 11. *List of observed shrub species by species symbol, scientific name, and common name*

Species Symbol	Scientific Name	Common Name
AMCA6	*Amorpha canescens*	leadplant
AMFR	*Amorpha fruticose*	false indigo bush
CERCO	*Cercocarpus sp.*	mountain mahogany
ECHIN3	*Echinocereus sp.*	hedgehog cactus
GUSA2	*Gutierrezia sarothrae*	broom snakeweed
OPUNT	*Opuntia sp.*	pricklypear
PHMO4	*Physocarpus monogynus*	mountain ninebark
RHTR	*Rhus trilobata*	skunkbush sumac
RICE	*Ribes cereum*	wax currant
ROWO	*Rosa woodsii*	Wood's rose
TORY	*Toxicodendron rydbergii*	western poison ivy

Plot Center Coordinates

Plot Name	Latitude	Longitude
B01	36.204446	-105.032156
B02	36.20446	-105.030628
B03	36.20443	-105.029061
B04	36.205333	-105.028529
B05	36.203381	-105.029106
B06	36.205569	-105.02754
B07	36.204429	-105.027573
B08	36.203282	-105.027486
B09	36.202162	-105.027338
B11	36.203163	-105.026047
B12	36.20189	-105.026046
B13	36.200666	-105.026071
B14	36.19968	-105.025925
B15	36.198311	-105.025869
B16	36.19708	-105.026051
B17	36.195851	-105.026025
B18	36.201839	-105.024524
B19	36.2008	-105.024494

B20	36.199382	-105.024317
B21	36.198243	-105.024482
B22	36.197067	-105.024509
B23	36.195846	-105.024533
B24	36.200754	-105.022939
B25	36.199611	-105.022955
B26	36.198192	-105.022955
B27	36.197097	-105.02302
B28	36.195825	-105.023035
B29	36.198229	-105.021434
B30	36.197067	-105.021474

Abbreviations & Acronyms

Acronym/Abbreviation/Term	Definition as used by NMFWRI
1-hr fuel	Woody surface debris < 0.25 inches in diameter
10-hr fuel	Woody surface debris 0.25 – 1 inch in diameter
100-hr fuel	Woody surface debris 1.0 – 3.0 inches in diameter
1000-hr fuel	Woody surface debris > 3.0 inches in diameter
Avg	Average
CFRP	Collaborative Forest Restoration Program
DBH	Diameter at breast height (4.5 feet)
FFI	FEAT/FIREMON Integrated
FEAT	Fire Ecology Assessment Tool
FIREMON	Fire Effects Monitoring and Inventory System
Growing stock	A combination of live and “sick” trees, excluding snags
HD	Herbaceous dead (dead non-woody species)
HL	Herbaceous live (live non-woody species)
NMFWRI	New Mexico Forest and Watershed Restoration Institute
NMSLO	New Mexico State Land Office
USFS	United States Forest Service
Sapling	Height > 4.5 feet & DBH < 1 inch
Seedling	Height <4.5 feet
Shrub	A woody species with multiple stems arising at the ground
SD	Standing dead (dead woody species)
SL	Standing live (live woody species)
“Sick”	Attribute given to trees/shrubs not expected to survive long term
Snag	Standing dead tree
Sqft/ac	Square feet per acre
SWERI	Southwest Ecological Restoration Institute
TPA	Trees per acre (trees/acre)
Tree	Height > 4.5 feet & DBH > 1 inch

Treatment Prescription

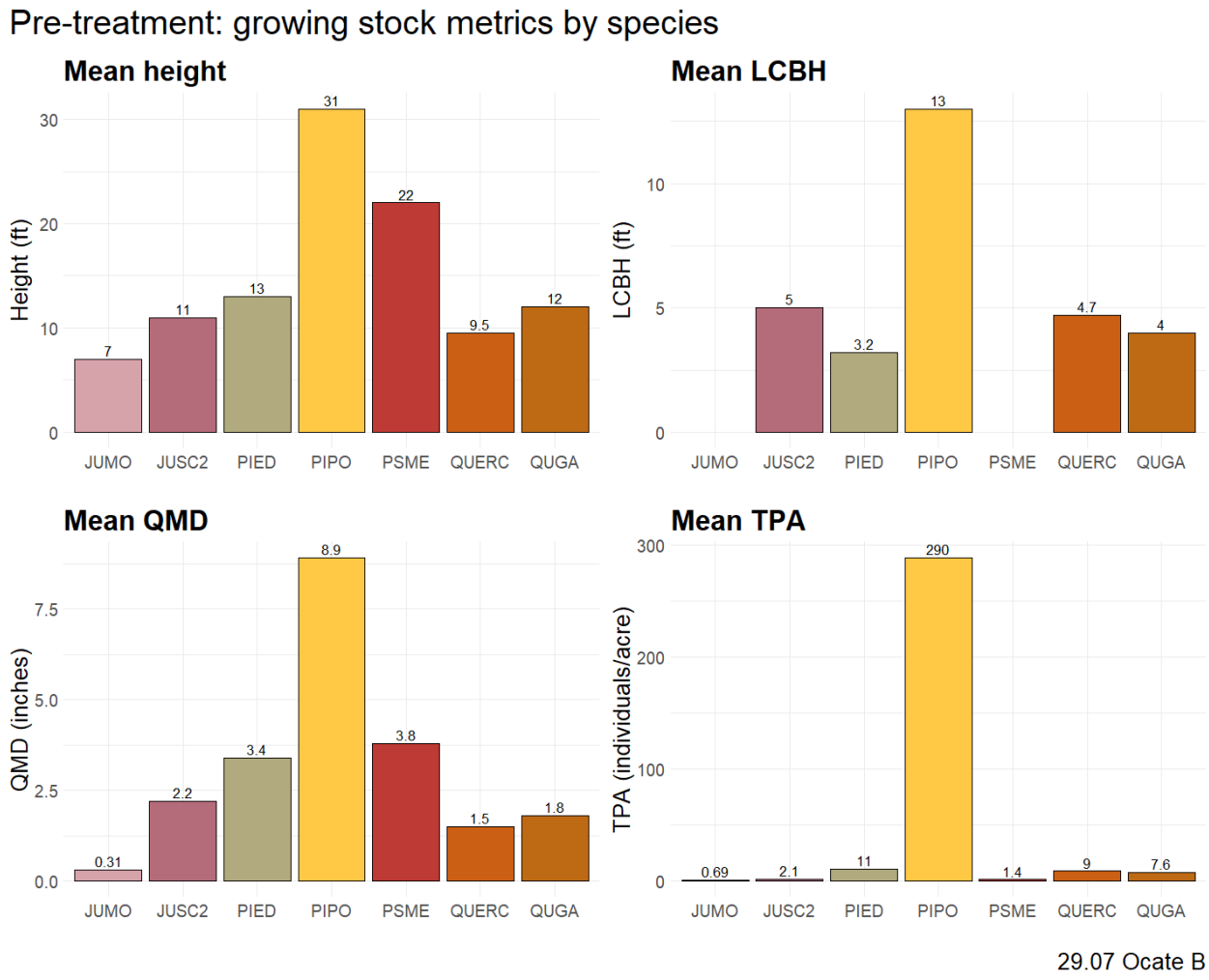
Ocate A and B Prescription: courtesy of NMSLO

- Better trees - good physiological condition, good form, good possibility for growth after release from competition - will be preferred leave trees. Poorer trees – forked, limby, crooked, etc. – will have preference for cutting. However, poorer trees may be retained to maintain uneven age class and clumpy distribution.
- Larger diameter trees will be given leave preference over smaller diameter trees of the same species.
- Individuals representing all diameter classes will be selected as leave trees, and some trees from all diameter classes may be cut.
- Any tree with a visible nest will be retained.
- All snags greater than eight inches in diameter will be left for wildlife benefit. Exceptions are allowed for worker safety.
- Existing small openings will be enlarged, with the exception of the best trees being marked as leave trees.
- Clumps of trees will be retained to be randomly located throughout the stand, and may contain trees with poorer form. Trees can be clumped around pre-settlement evidence, around obvious existing clumps, or around one or more trees that are being left because of good form or presence of a nest. Clumps should be comprised variable shapes and sizes up to ¼ acre. One to two clumps per acre should be left. Severely overtopped trees within the clump should be cut.
- Maintain diversity of tree species including Douglas fir and piñon pine.
- Do not cut oak, mountain mahogany, and shrub species.
- No deciduous trees or shrubs will be removed or damaged.
- No leave trees will be limbed, pruned, lopped, or altered in any way.
- All stumps will be cut to within three inches of the ground.
- All heavy fuels greater than 3 inches in diameter will be removed from site.

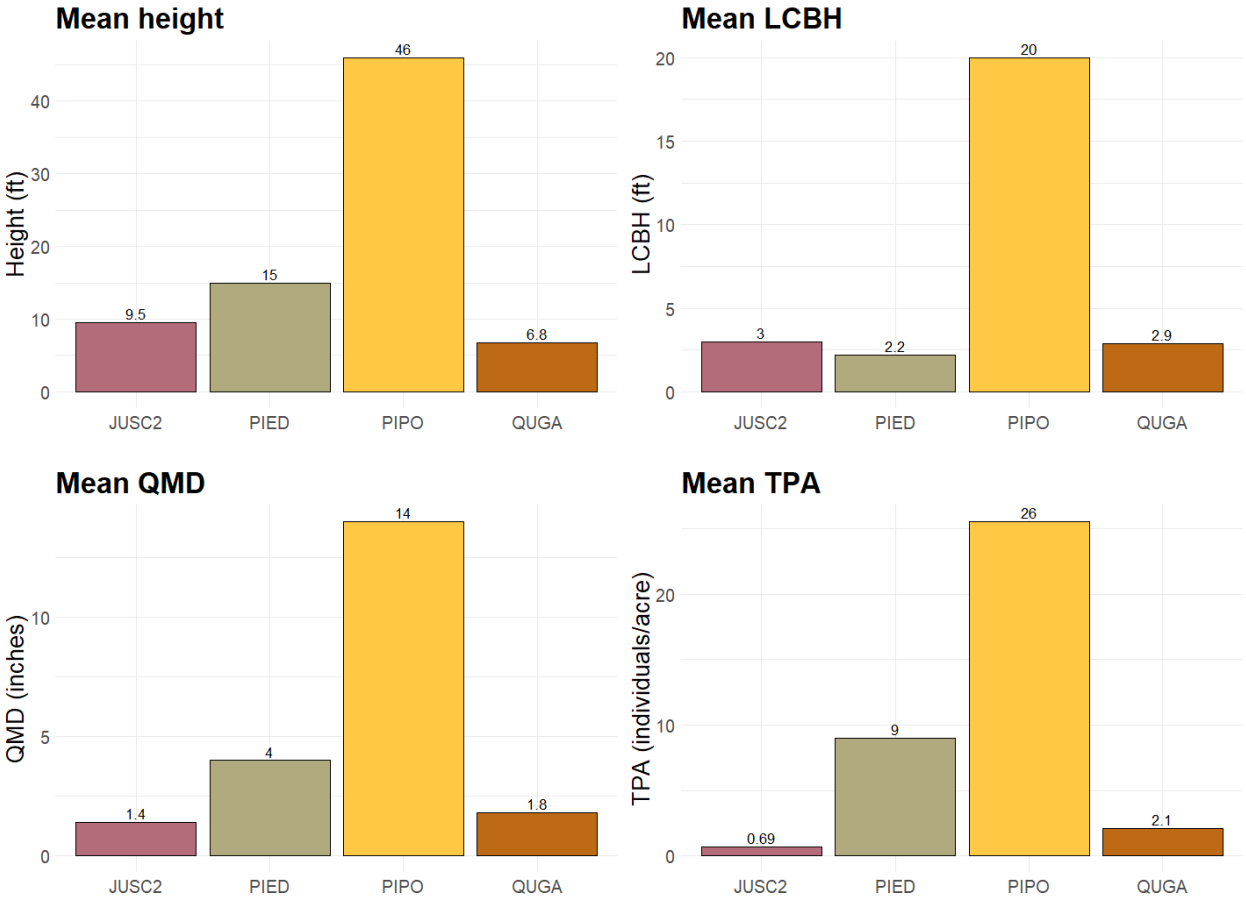
All slash and fuels less than 3 inches in diameter may be lopped and scattered not to exceed a depth of 18 inches. Minimize slash placement under tree canopies.

Additional Figures

Figure 20. *The following figures show tree (>1" DBH) metrics at the species level by status and measurement period*

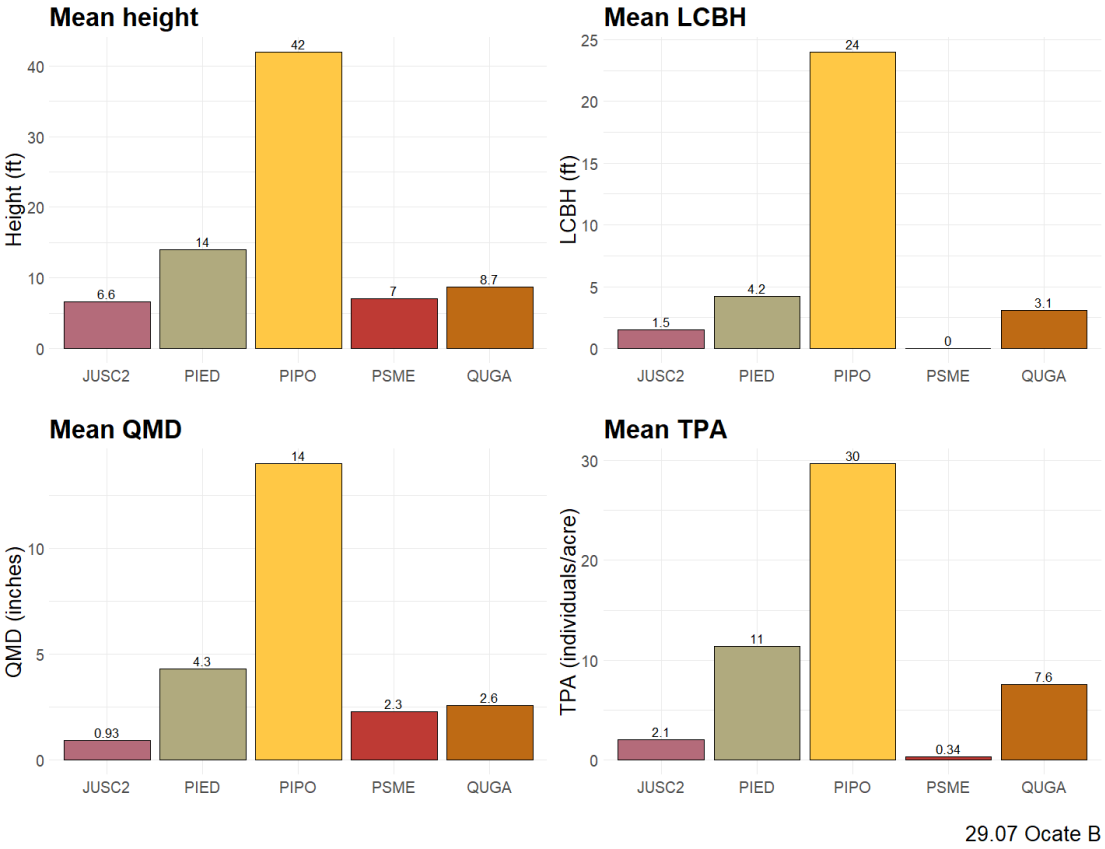


Post-treatment immediate: growing stock metrics by species



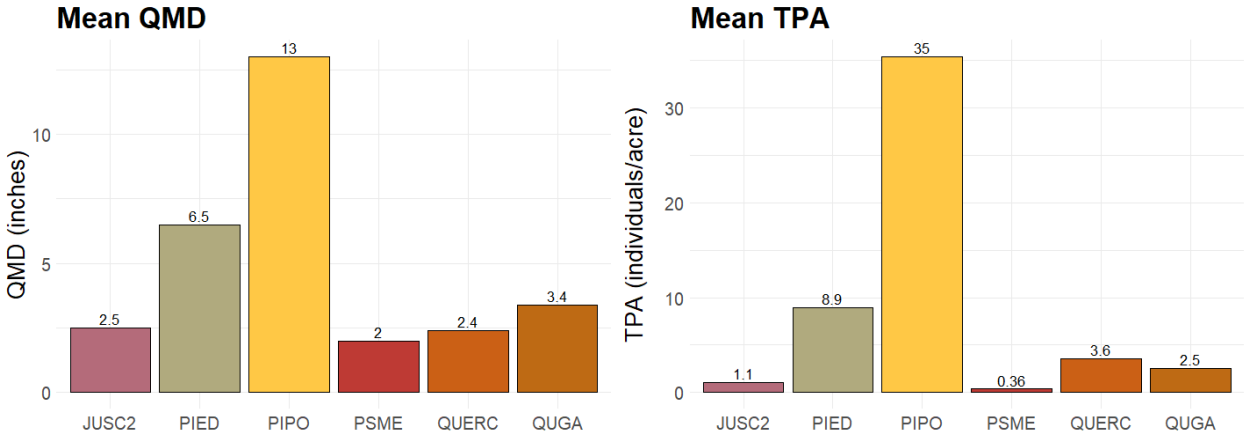
29.07 Ocate B

Post-treatment 5yrs: growing stock metrics by species



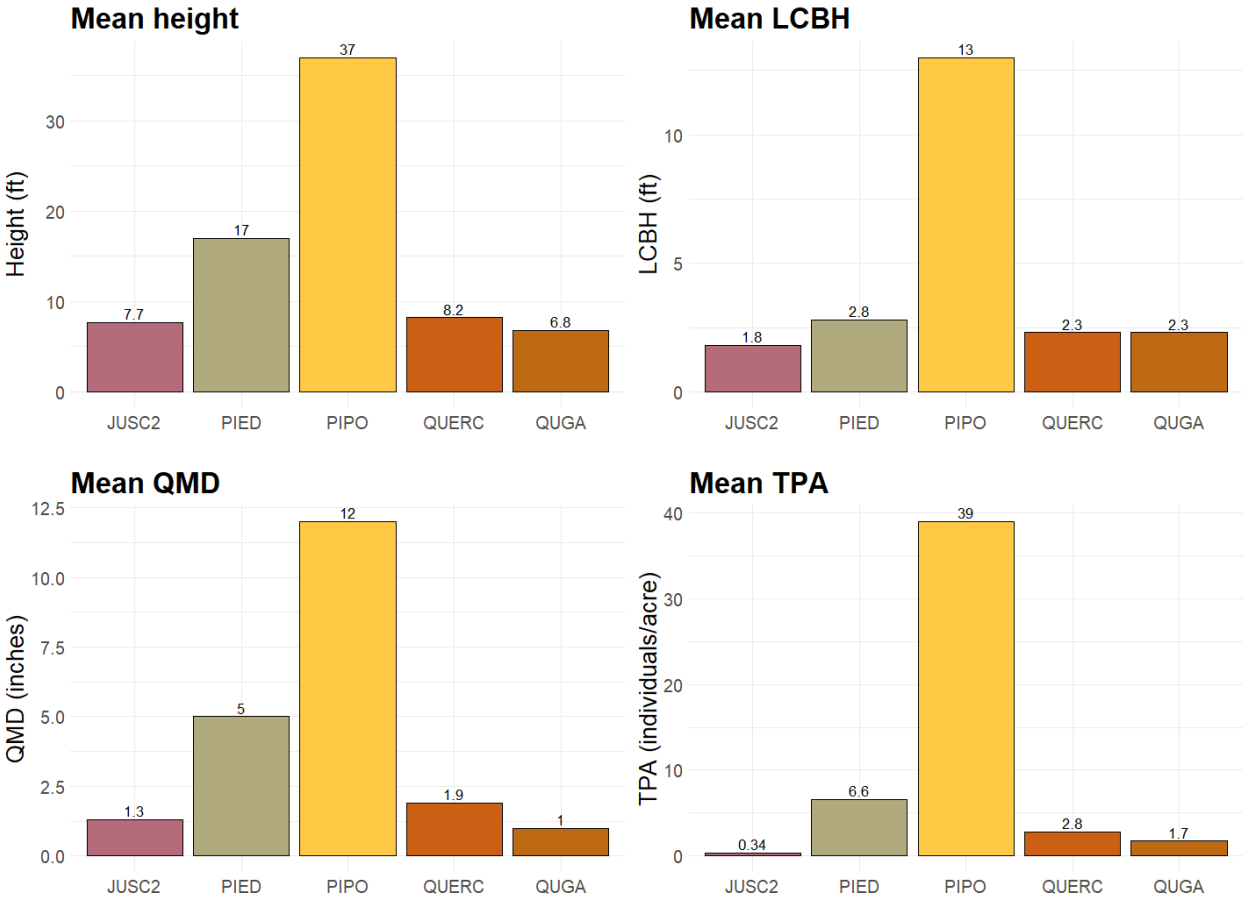
29.07 Ocate B

Post-treatment 10yr: growing stock metrics by species



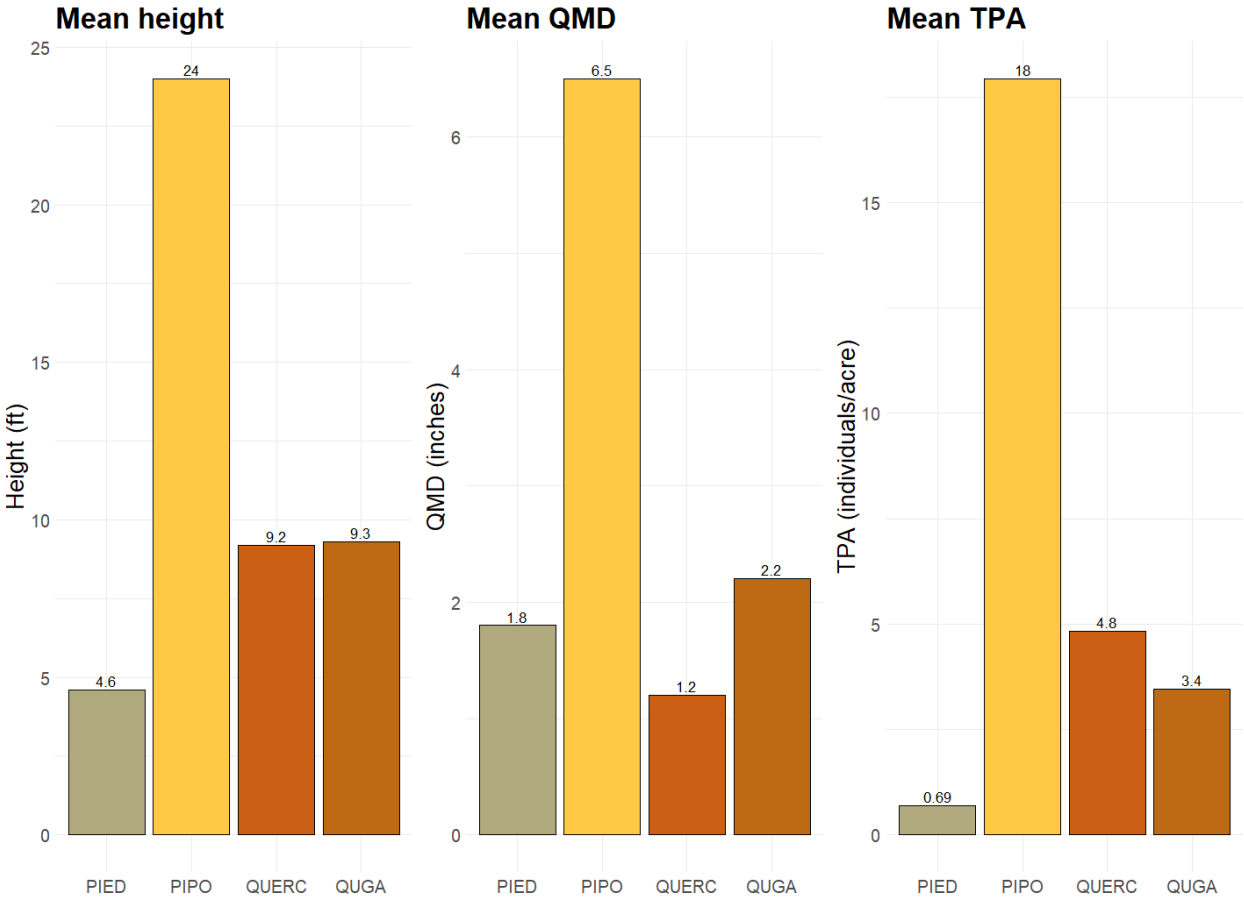
29.07 Ocate B

Post-fire immediate: growing stock metrics by species



29.07 Ocate B

Pre-treatment: snag metrics by species



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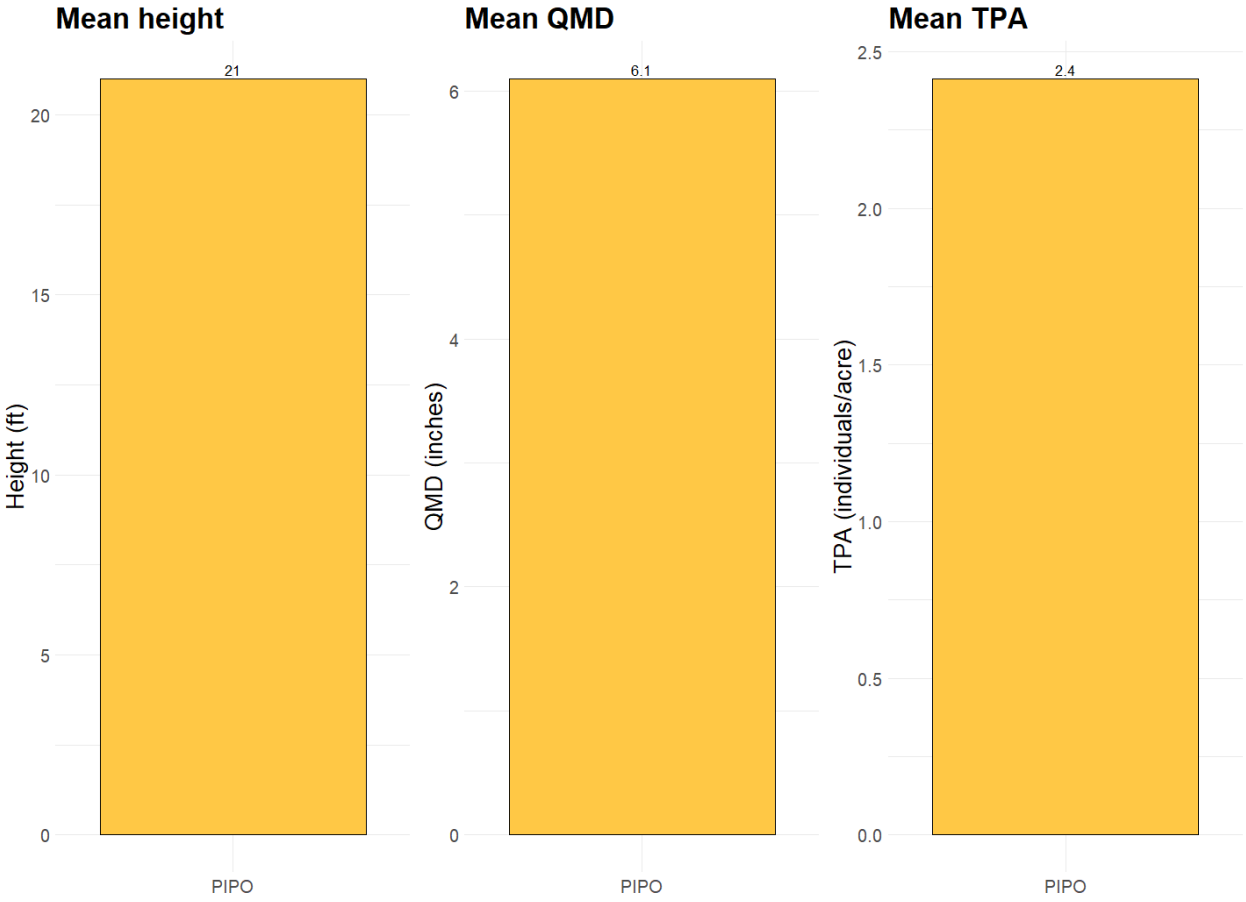
Post-treatment immediate: snag metrics by species



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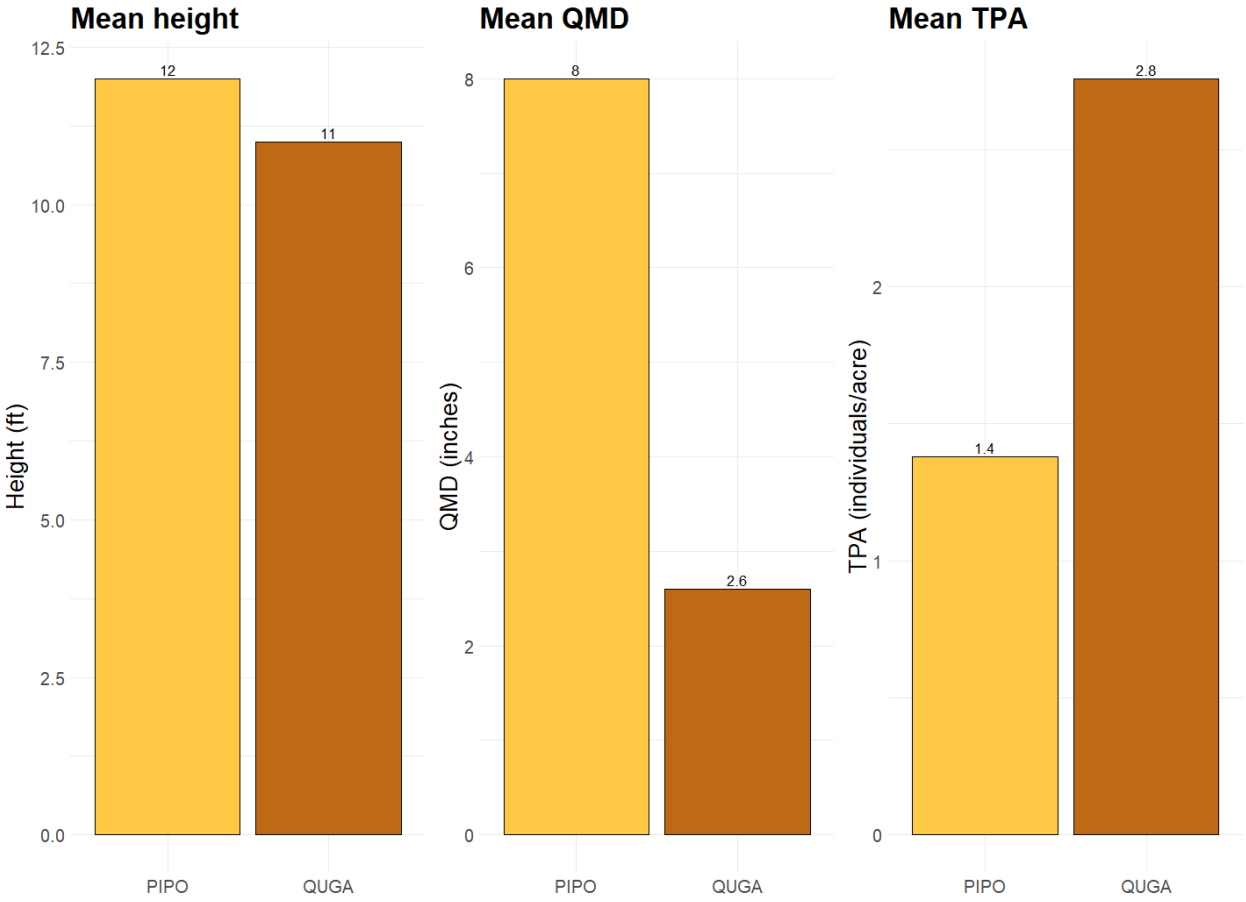
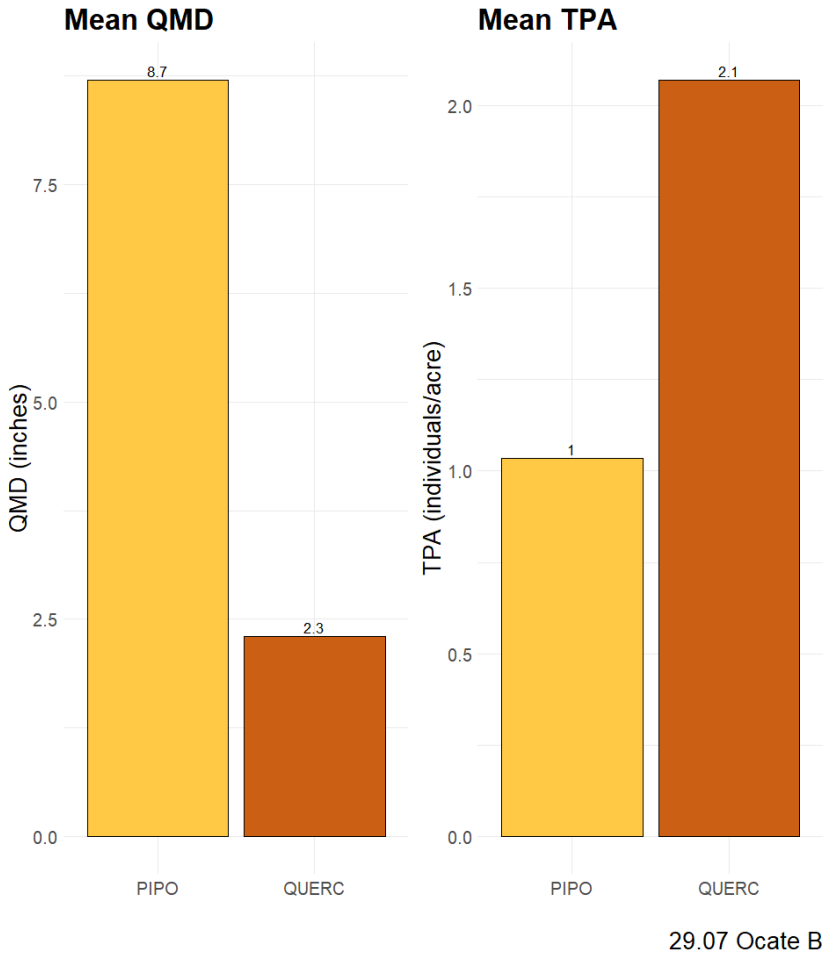
Post-treatment 5yrs: snag metrics by species



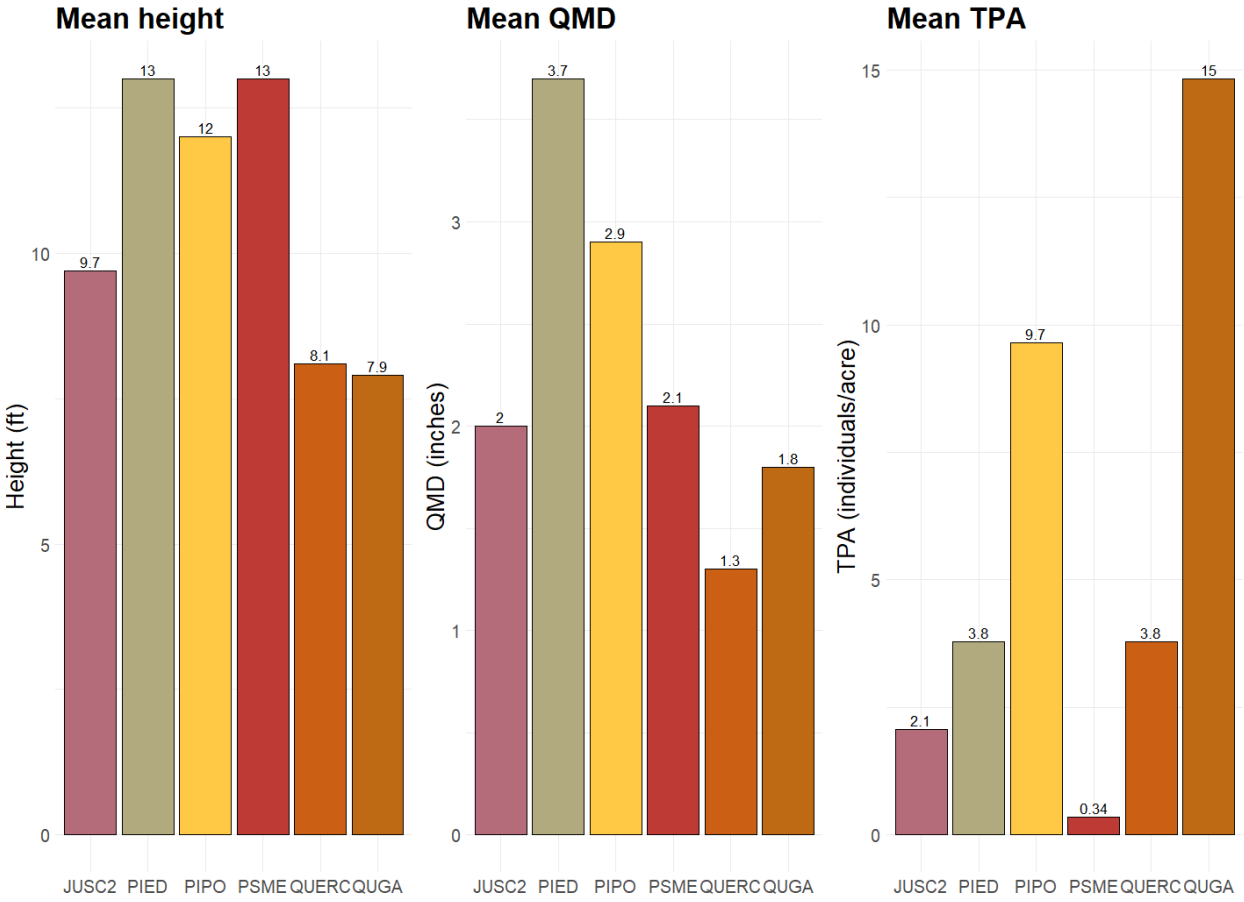
29.07 Ocate B

Post-treatment 10yr: snag metrics by species



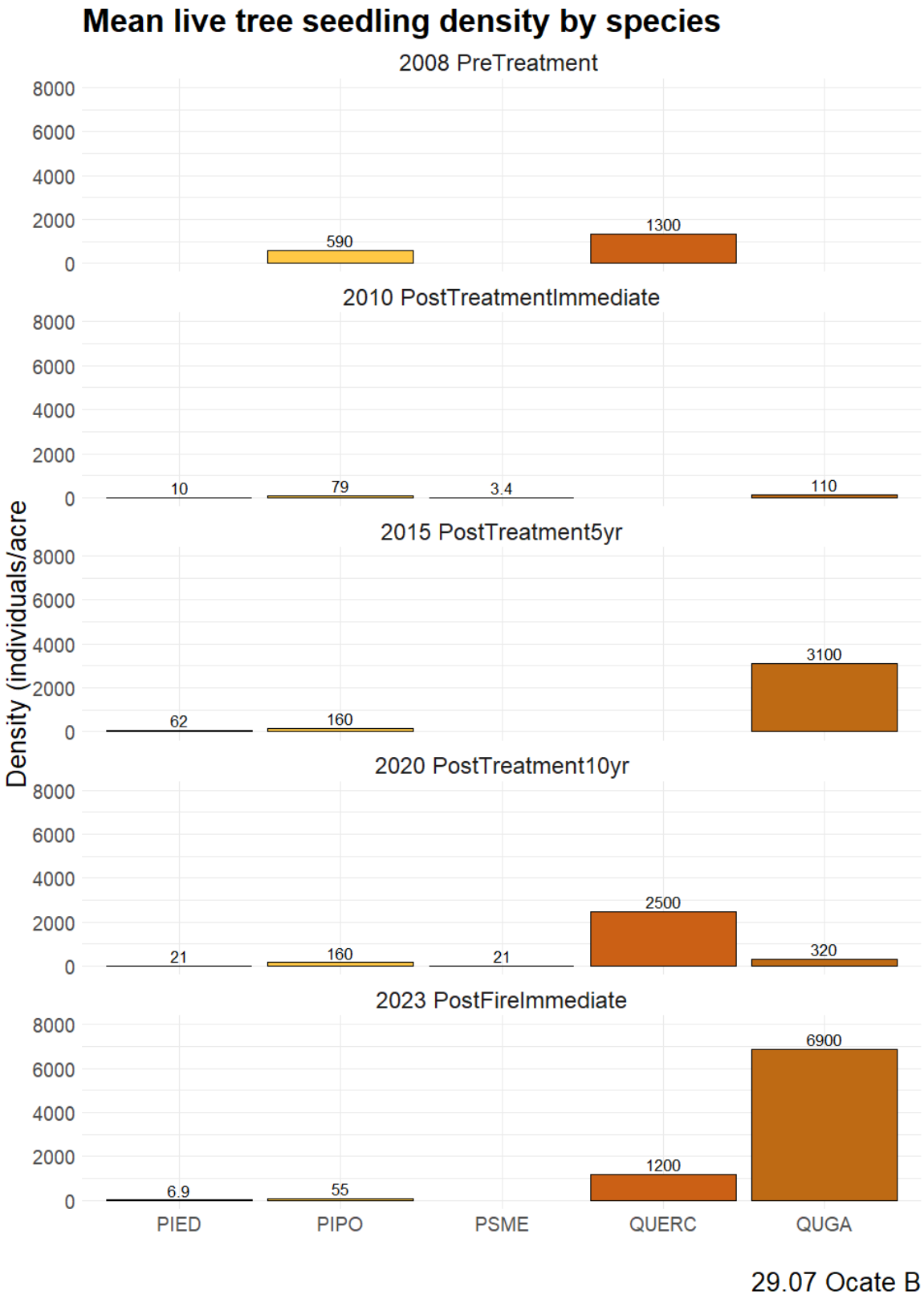
29.07 Ocate B

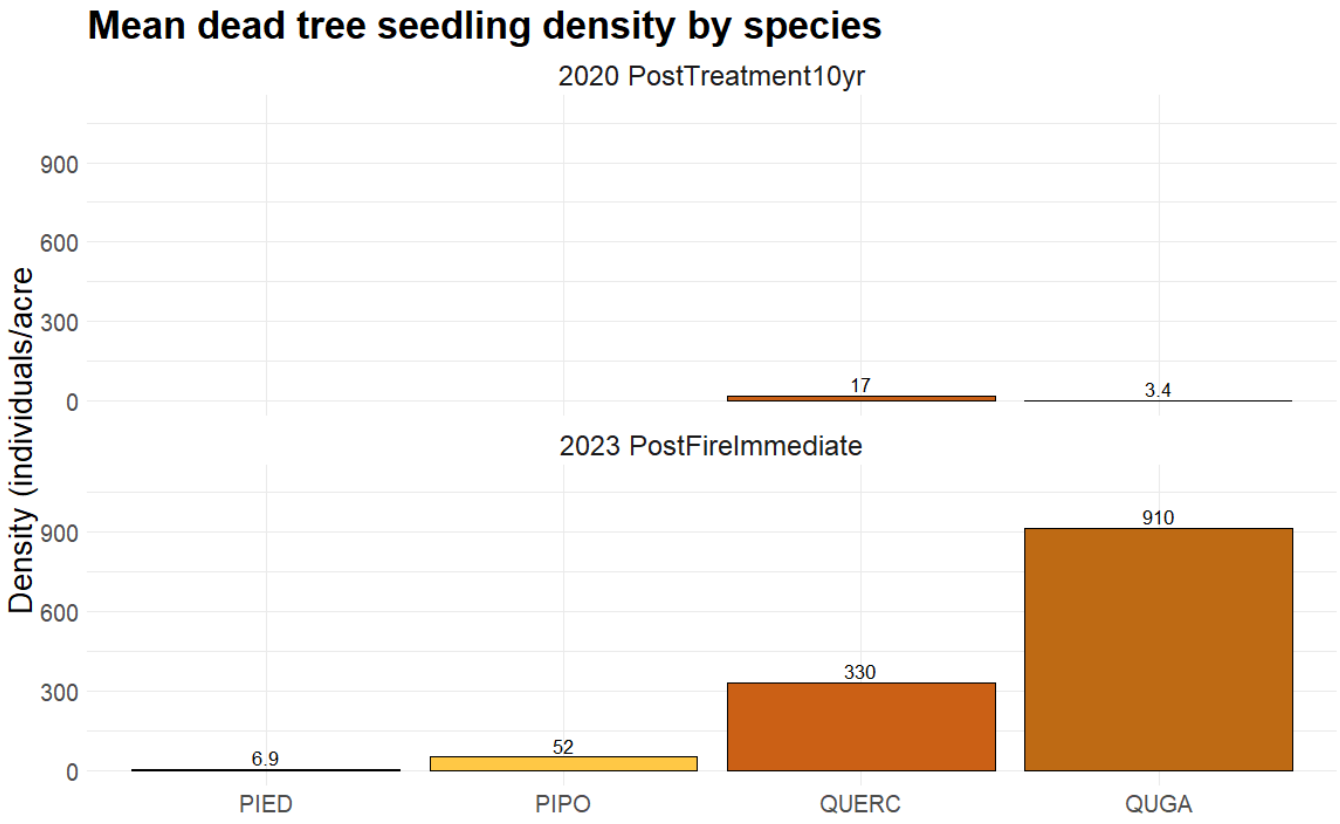
Post-fire immediate: snag metrics by species



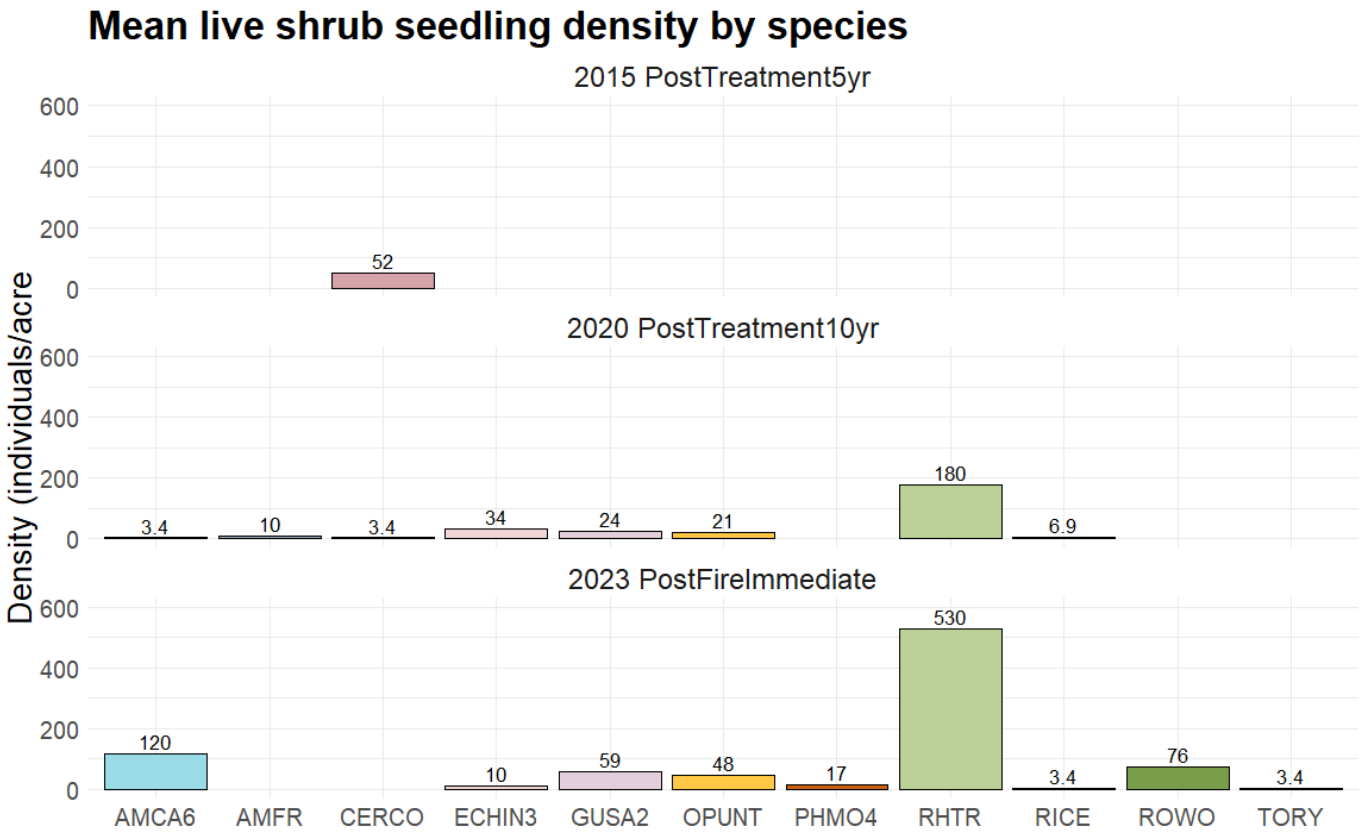
29.07 Ocate B

Figure 21. *The following figures show seedling and sapling densities by status and measurement period*

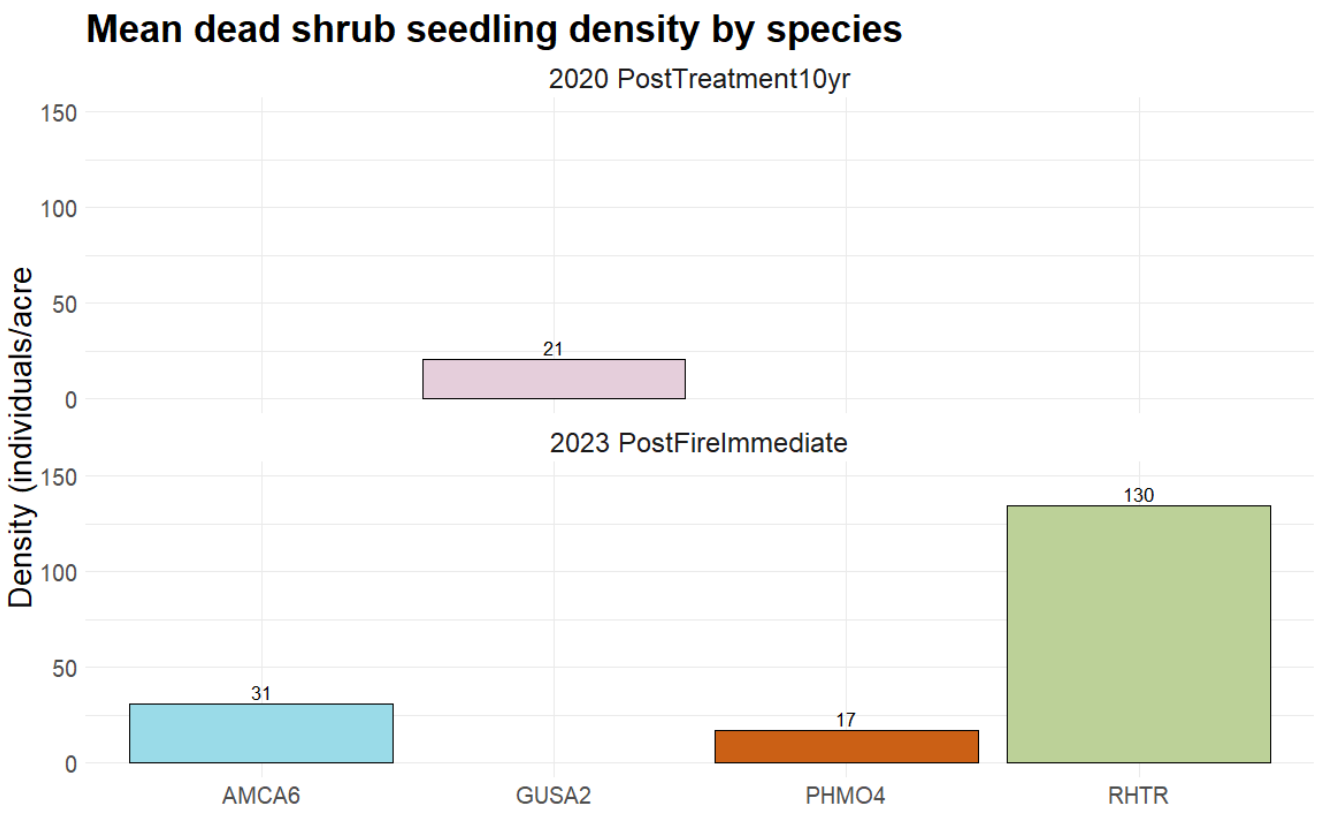



Mean dead tree seedling density by species
2020 PostTreatment10yr
2023 PostFireImmediate
Density (individuals/acre
900
600
300
0
17
3.4
910
330
52
6.9
PIED
PIPO
QUERC
QUGA

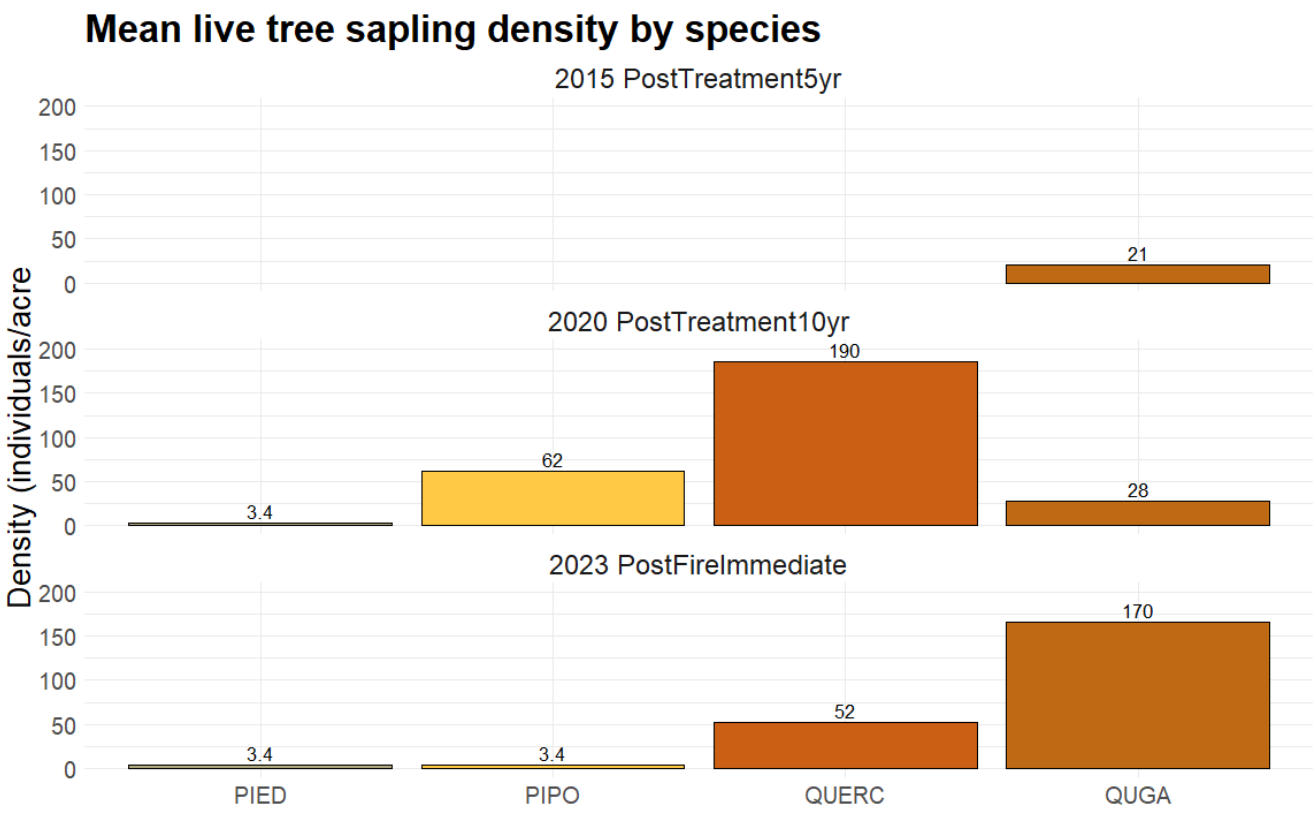
29.07 Ocate B


Mean live shrub seedling density by species
2015 PostTreatment5yr
2020 PostTreatment10yr
2023 PostFireImmediate
Density (individuals/acre
600
400
200
0
52
3.4
10
3.4
34
24
21
180
6.9
120
10
59
48
17
530
3.4
76
3.4
AMCA6
AMFR
CERCO
ECHIN3
GUSA2
OPUNT
PHMO4
RHTR
RICE
ROWO
TORY

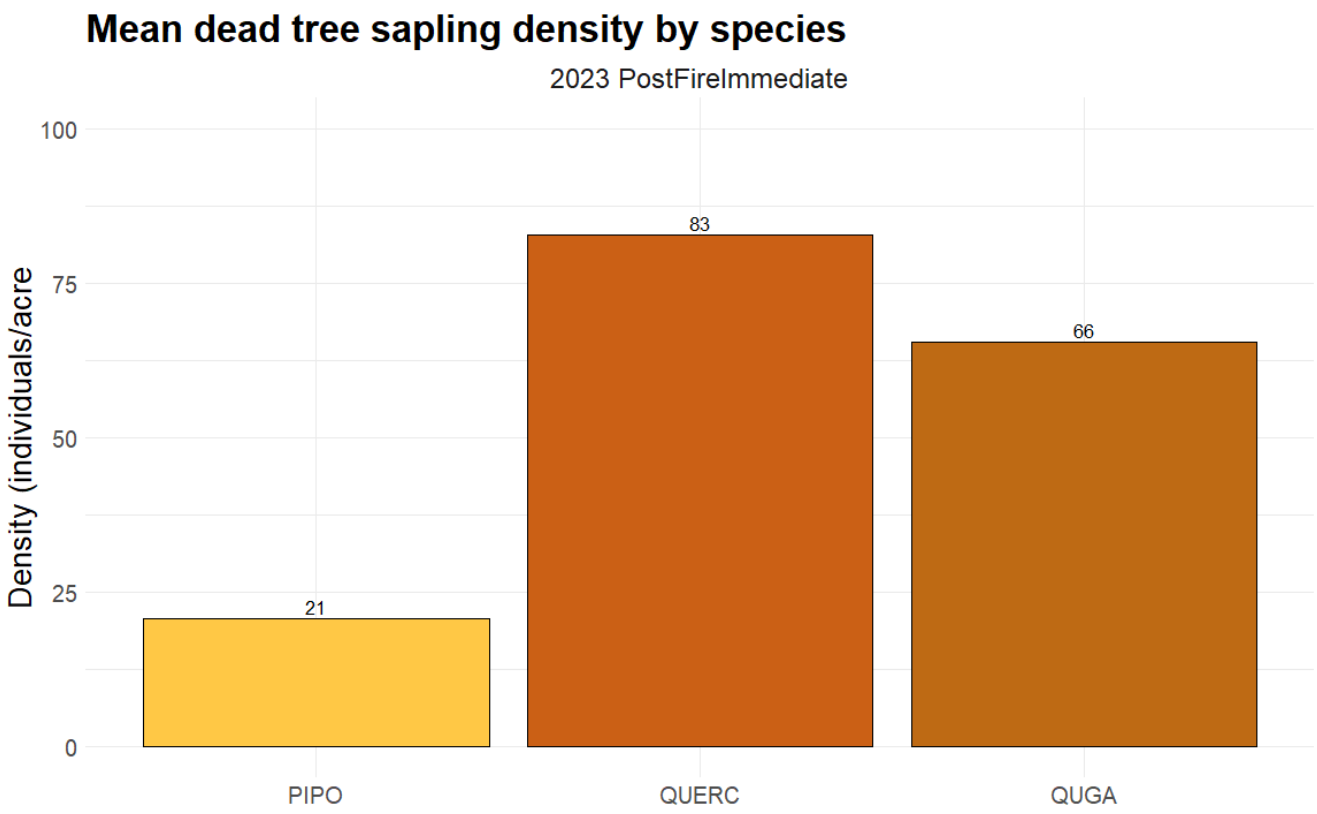
29.07 Ocate B


Mean dead shrub seedling density by species
2020 PostTreatment10yr
2023 PostFireImmediate
Density (individuals/acre
150
100
50
0
21
31
17
130
AMCA6
GUSA2
PHMO4
RHTR

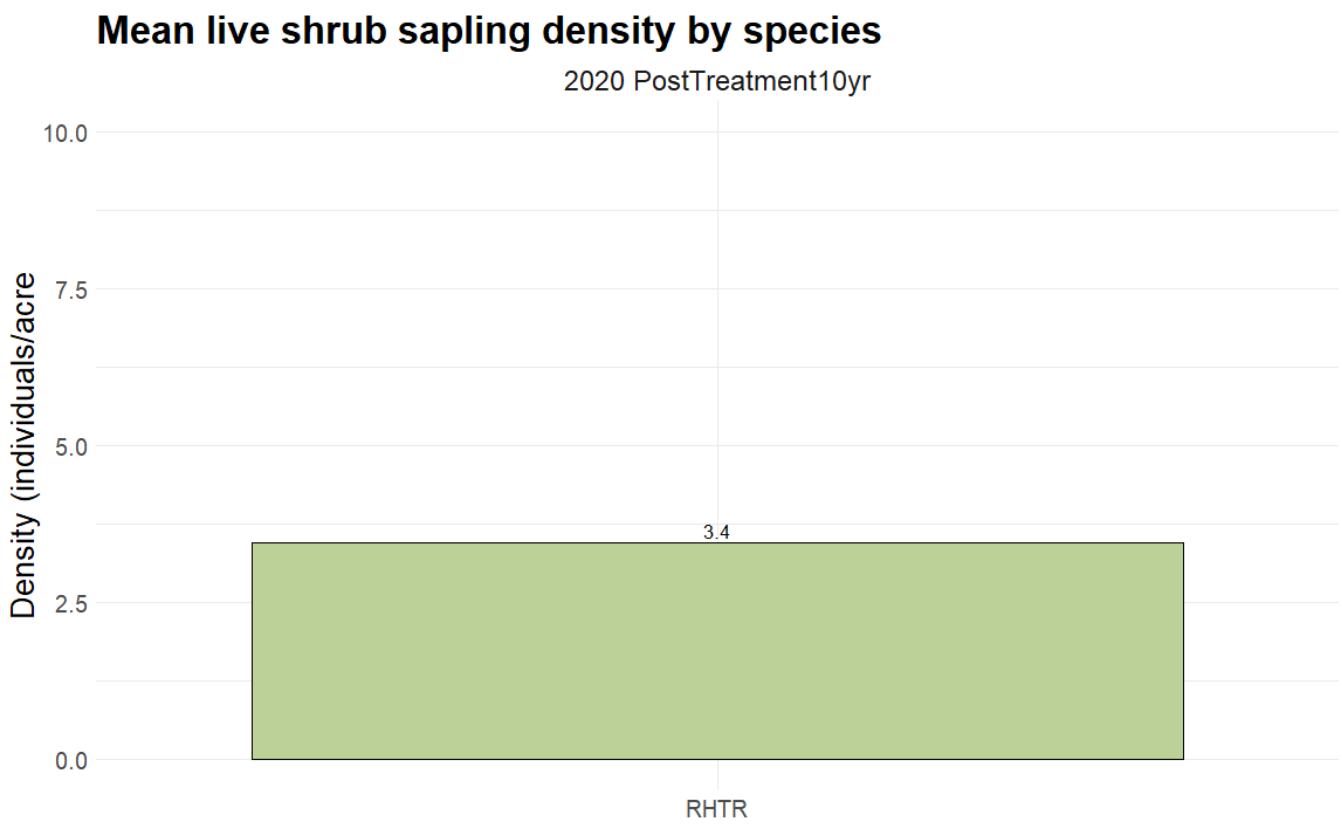
29.07 Ocate B


Mean live tree sapling density by species
2015 PostTreatment5yr
2020 PostTreatment10yr
2023 PostFireImmediate
Density (individuals/acre
200
150
100
50
0
21
190
62
28
3.4
170
52
3.4
3.4
PIED
PIPO
QUERC
QUGA

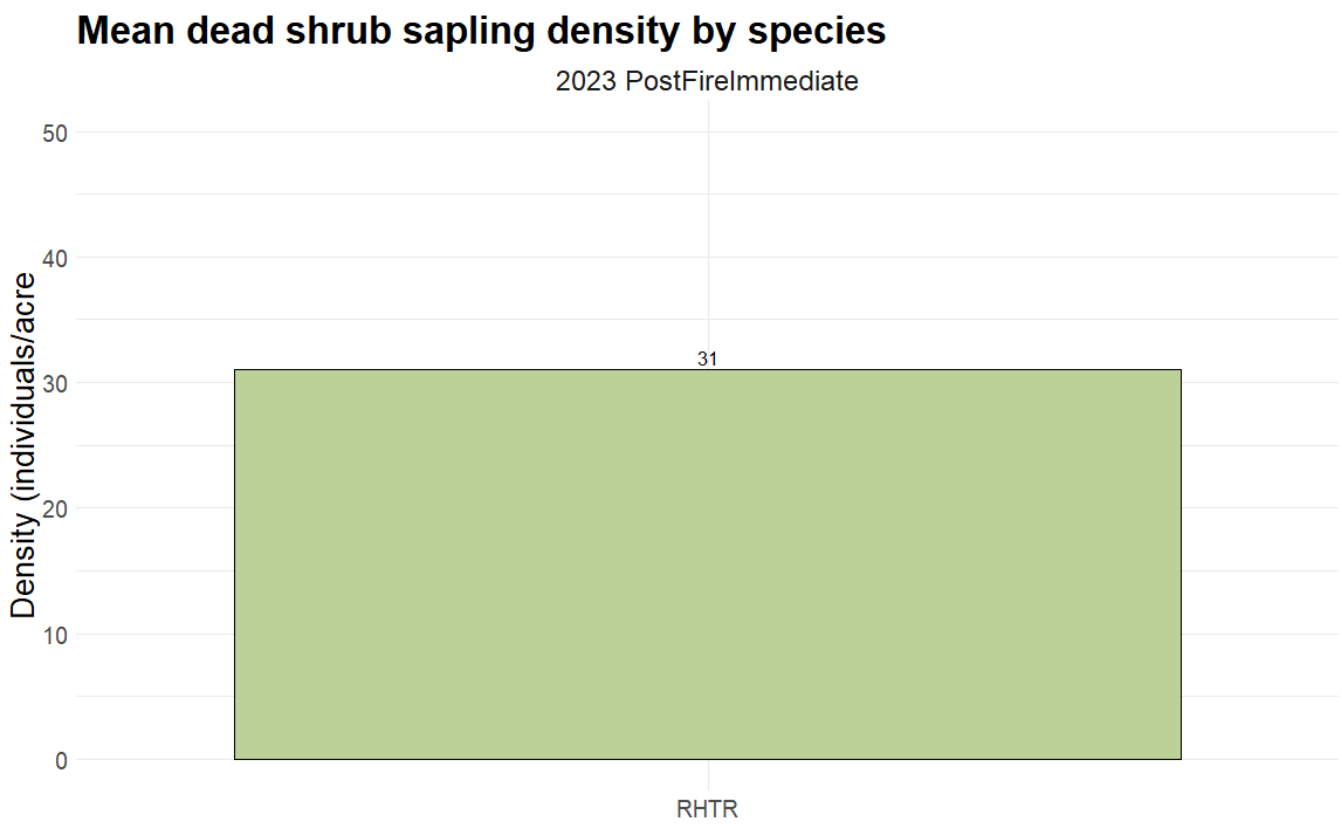
29.07 Ocate B


Mean dead tree sapling density by species
2023 PostFireImmediate
Density (individuals/acre
100
75
50
25
0
21
83
66
PIPO
QUERC
QUGA

29.07 Ocate B


Mean live shrub sapling density by species
2020 PostTreatment10yr
Density (individuals/acre
10.0
7.5
5.0
2.5
0.0
3.4
RHTR

29.07 Ocate B


Mean dead shrub sapling density by species
2023 PostFireImmediate
Density (individuals/acre
50
40
30
20
10
0
31
RHTR

29.07 Ocate B