Timothy Dwight Gibb

Forest Stewardship Management Plan 2017-2027

Property Address: **143 S. Perry St**

12724 N. Saint Vrain Hwy **Denver, CO 80219**

Boulder County, Colorado

Mailing Address:

303-888-9860/timdgibb@gmail.com

TAX ID # R0514085 (40.09 acres= 40.09 forested acres)

Legal Description:PT W ½ NW ¼ Section 4, Township 3 North, Range 71 West of 6th PM

PREPARED BY: Baer Mountain and Urban Forestry LLC. /PO BOX 976, Lyons, CO 80540/ (303-823-8088)

www.baerforestry.com **email:** brybaer@gmail.com

I have reviewed this plan, which has been prepared at my request to guide my stewardship management activities, and I will voluntarily apply them on my property. I believe the management recommendations in this plan are appropriate to meet my goals and objectives, and will benefit the natural resources on my property. I intend to apply the recommended practices, thus helping me to be a good steward of the forest and associated resources entrusted to me on my property. I agree to follow this plan to ensure the sustainability of my management. I understand that this is an agreement as described in the CSFS Forest Ag Program guidelines and intend to implement the recommendations of this plan according to CRS 39-1-102.

LANDOWNER SIGNATURE_____DATE_____

DISTRICT FORESTER (CSFS) SIGNATURE:_____DATE:_____

Table of Contents

Section 6: *Maps*

Section 7: *Additional Information*

Section 8: *Soils Appendix*

Section 9: *Bibliography*

Section 10: *Glossary*

Section 11: *Inventory Appendix*

Section 1: Introduction

The purpose of this plan is to help direct the landowner in how to manage the current forest resources to meet the associated goals and objectives (identified in the "Goals and Objectives" section of this plan). The other purpose of this plan is to qualify the land as Forest Agriculture land, and providing the landowner with benefits, such as a comprehensive land management plan detailing 10 years of forest stewardship activities, and tax incentives.

Forest Ag Tax

A Forest Ag plan is a long term land management strategy that clearly communicates how landowner objectives are to be met. A minimum of a ten (10) year implementation schedule is required, detailing practices to meet these objectives and with proposed methods for accomplishment. Deviations due to unforeseen circumstances must be communicated and documented. It should be reviewed regularly and amended as necessary (no longer than ten years) to accommodate changes in landowner objectives, wood product markets, and forest conditions.

Section 2: Goals and Objectives

Goal: Improve Overall Forest Health

- Objective: Minimize the impacts associated with insect and disease activity by selecting trees with current infestations/populations for removal through stewardship work.
- Objective: Achieving historical Basal Areas (BA) throughout the property, by removing suppressed and outcompeted trees, as well as increasing the spacing between residual trees.
- Objective: Enhance species diversity throughout the property
- Objective: Improve the vigor and health of the existing aspen (*Populus tremuloides*) and aspen groves.
- Objective: Reduce populations of noxious weeds through means of hand pulling and mechanical removal techniques.
- Objective: Allow forest thinning projects to promote ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*)

Goal: Minimize the threats associated with wildfire activity

- Objective: Improve the crown spacing between the residual trees to decrease the possibility of crown fire activity.
- Objective: Reduce ladder fuels by limbing of residual trees and removal of suppressed trees.
- Objective: Reduce overall fuel loading on the forest floor through proper slash management techniques.

Goal: Improve/retain property aesthetics

- Objective: Remove dead-standing trees (snags), with the exception of leaving a few wildlife habitat trees on a per-acre basis.
- Objective: Open visual and travel corridors through the forest understory for wildlife/scenic viewing experiences.
- Objective: Create additional access throughout the property that will encourage future forest management activities without compromising the visual aesthetics of the property

Goal: Meet the requirements of the Forest Ag Tax Program to produce and market tangible wood products consistent with the land's productivity, and for the purpose of obtaining a monetary profit.

- Objective: Have a CSFS approved Forest Management Plan prepared that covers the

guidelines set forth in the "Colorado Forest Agriculture Program: *Management Plan Guidelines and Checklist*"

Section 3: General Descriptions

Property Description

Legal: PT W1/2 NW1/4 of Section 4, Township 3 North, Range 71 West of 6th PM.

The 40 acre Gibb property is located approximately 8 miles northwest of the town of Lyons, with Pinewood Springs directly to the north, in Boulder County, CO. The property can be reached most directly by traveling northwest on US Highway 36 from Lyons, and heading south at the JR Gordon Ranch access road, just as you crest the hill before dropping into the Pinewood Springs community. As you travel on the JR Gordon Ranch access road, there is a recently excavated access road that leads you onto the Gibb property, that enters into the property near the center of the eastern boundary and leads primarily to the south. That is the only current vehicular access onto the property. The norther boundary of the Gibb Property is also apart of the Boulder/Larimer County boundary, with the Pinewood Springs community beyond to the north. The JR Gordon Ranch boarders the Gibb property to the east, while USDA Forest Service land occupy the southern and western boundaries.

The Gibb property is located at approximately 6,800 feet in elevation, and has steep slopes, drainages, rocky outcroppings, meadows, and forested areas. Elevation ranges from approximately 6,600 feet in the lower drainages to just over 7,200 feet at the highest hill top. The property has an eastern aspect throughout the norther ¾ of the property, but converts to a northern aspect in the southern ¼.

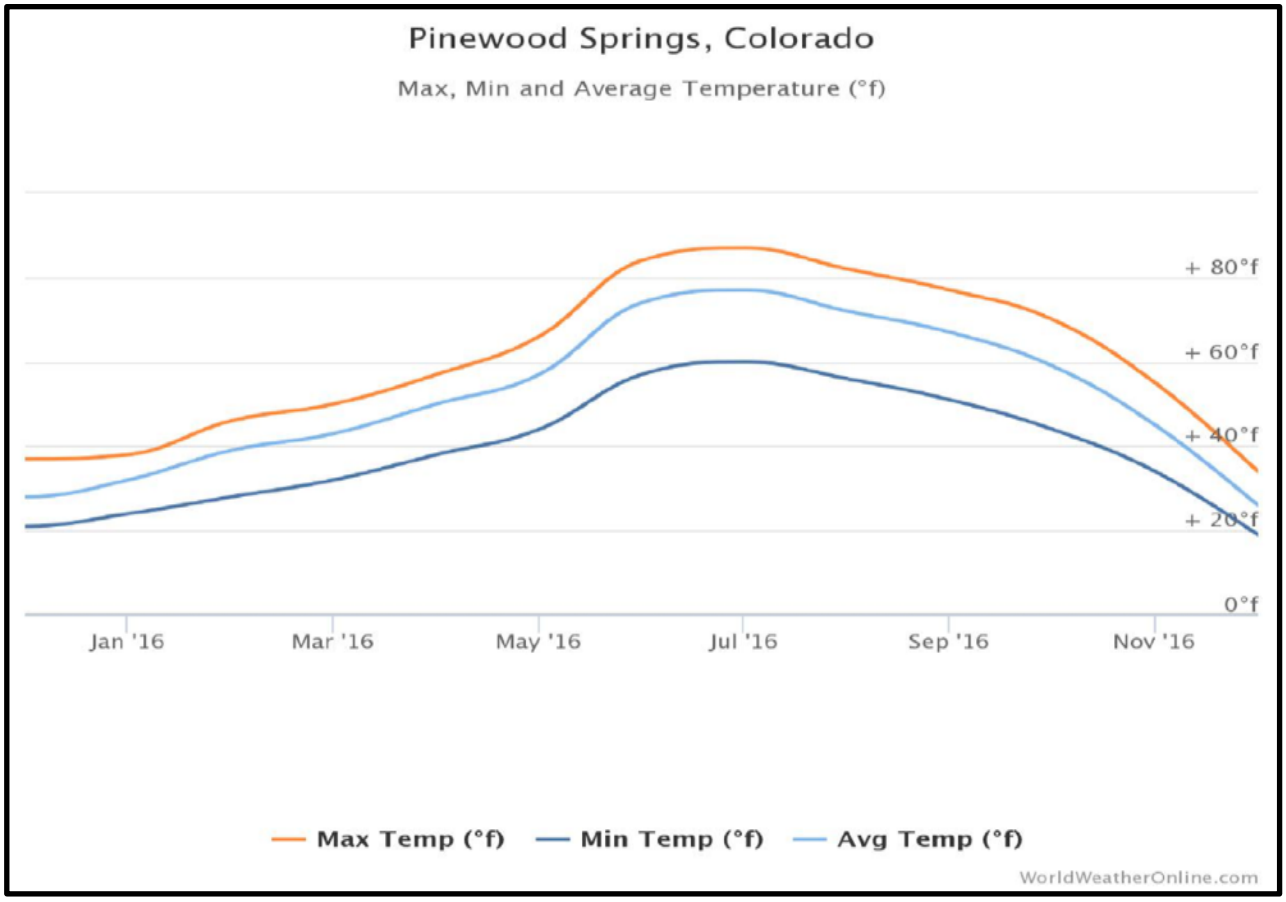
Climate

Using climate data related to Pinewood Springs, CO, generated from World Weather Online (https://www.worldweatheronline.com/lang/en-us/pinewood-springs-weather/colorado/us.aspx), the table and charts below show some of the basic weather trends at and around the Gibb property.

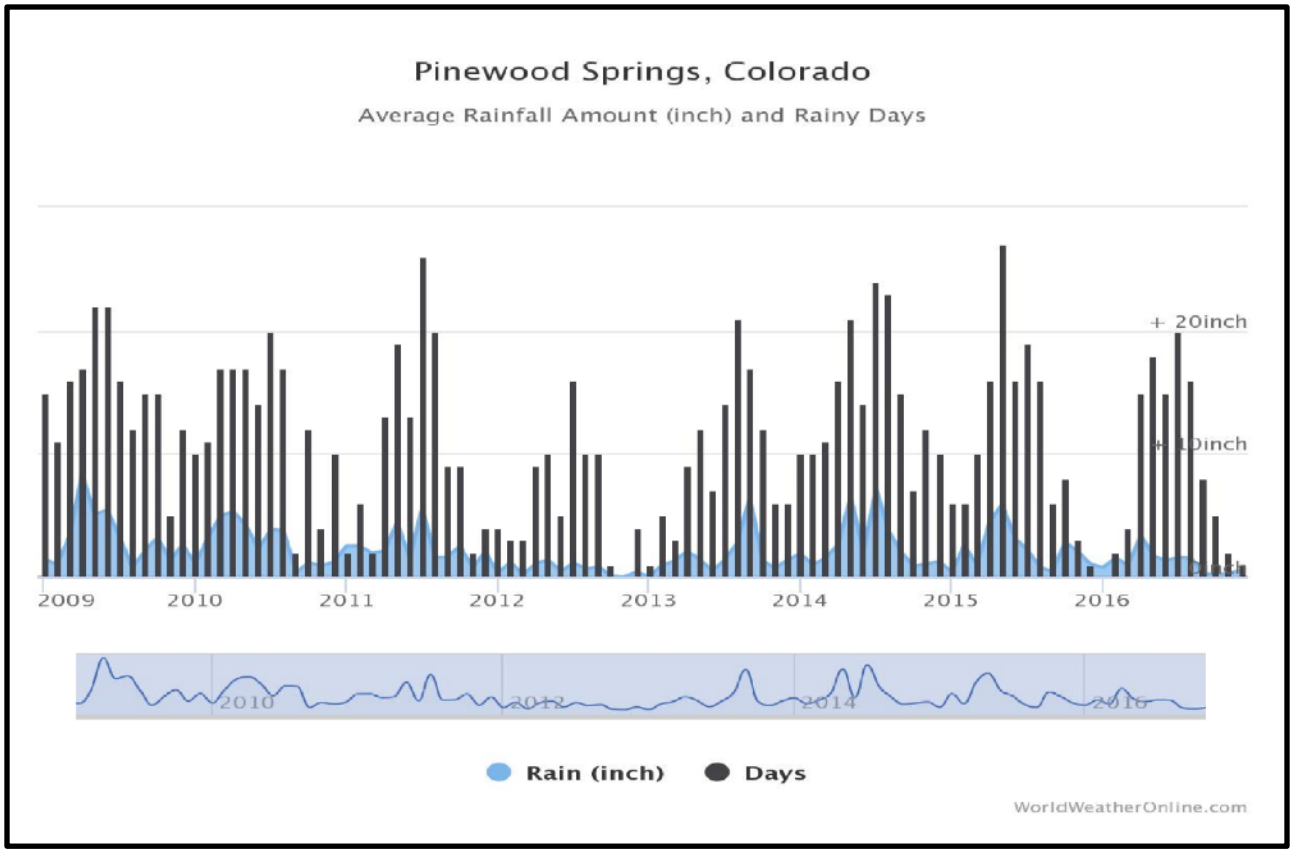
Maximum Average High Temperature-month (degrees °F)	**Minimum Average Low Temperature – month (degrees °F)**	**Average Precipitation (Highest Precip Month (inches")**	**Average Precipitation (Lowest precip Month (inches")**

79° -July	18° -Dec/Jan	2.2” -July	0.3” -January

(Table 1: Weather Generalizations)



(Diagram 1: Average Temperatures)



(Diagram 2: Average Precipitation)

Current/Historical Land Uses and Past Management Practices

Western European historical land uses for the Gibb property have been limited to the occasional passing pioneer or fur trapper/trader, as well as the cattle farmer. Before Pinewood Springs became of age, cattle farmers were known to bring their cattle down from Estes Park to graze in the Big Elk and Little Elk (Pinewood) valleys.

Impacts to Neighbors and Surrounding Communities

Forestry activities should not adversely affect neighbors and surrounding communities. Forest management practices will be carried out with the objective of improving overall forest health, improving the visual aesthetics, and reducing the hazardous/available fuel for wildfire. Therefore, over the course of this management plan, achieving these objectives will positively affect surrounding neighbors and communities. Insect and disease activity will be reduced, and therefore contribute less to current localized infestations and population numbers. Future wildfires that approach the property, in theory, will see a reduction in activity and intensity due to the reduced fuel loading, and therefore decrease the catastrophic risks associated to adjacent properties as wildfires move onto those properties from the Gibb property.

Social, Economic, and Market Conditions

At this time, current wood fiber markets in Boulder County, as well as surrounding areas of Colorado, are not thriving. Mills are scattered few and far between, and fuel costs are high. There is not a high value for the forest resources in this area, and much of the access is limited. Therefore, resource utilization is scarce, and much of it is converted to firewood.

The current economic times can also impact forest management activities. As stated above, with fuel costs high, wood markets down, and access limited, private landowners are having a hard time affording the costs that contractors are charging to keep the business profitable. Therefore, smaller annual fuels reduction/forest stewardship projects are being implemented on the whole, in terms of acres treated.

General public awareness and education level of current forest conditions and subsequent management practices has been improving over the years. The average Colorado Front Range mountain resident can easily understand the underlining principles of forest stewardship, and many are in support of the activities associated. Therefore, the public support for current forest stewardship activities is high, as well as improving. Poor wood markets and increased contractor costs add limitations to performing forest stewardship, but can be overcome as these conditions improve over time. Adversely, these limitations can also become greater if the conditions within the wood market worsen.

Wildfire Risk

Recent wildfires on nearby lands remind landowners of the necessity of forest stewardship, and the importance of disturbance on the landscape. Since the early 1900's, the national approach to wildfire was suppression. Through a century of fire suppression, many forests across Colorado have seen a tremendous amount of influx of vegetation, and much of the landscape has a tree per acre (TPA) count and basal area (BA) numbers that outweigh what these ecosystems can support in a sustainable and healthy nature. Allowing fire to function on the landscape is essential in keeping these ecosystems healthy, as they would traditionally eliminate smaller diameter vegetation and make nutrients, moisture, and solar resources in higher availability for the residual trees and vegetation. Due to current high fuel loading as a result of a century of fire suppression, wildfires often burn at a much higher intensity than these ecosystems are used to supporting, and are often times crown-replacing events.

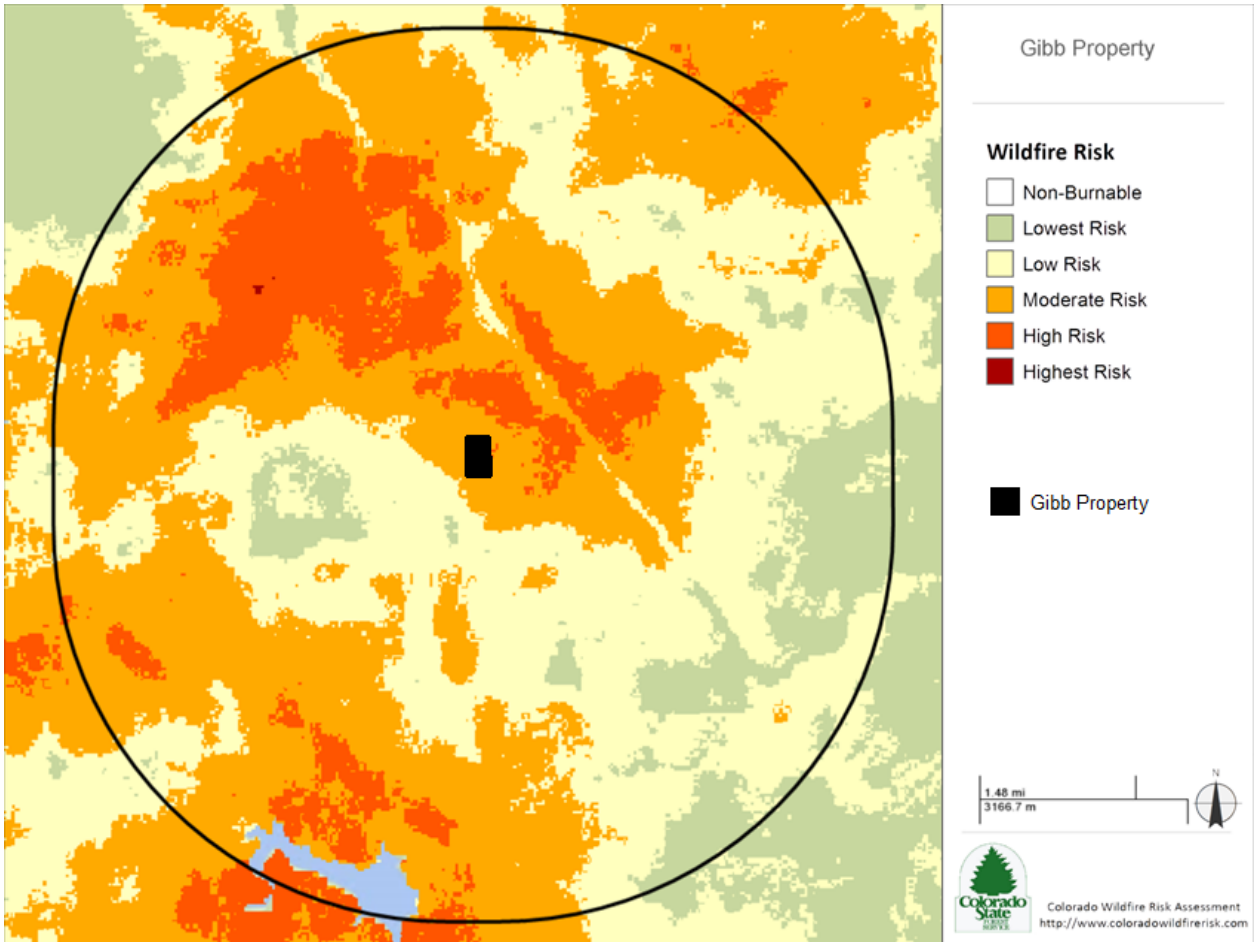
Wildfire Risk represents the possibility of loss or harm occurring from a wildfire**.** It is the primary output of the Colorado Wildfire Risk Assessment (Colorado WRA). Risk is derived by combining the Wildfire Threat and the Fire Effects assessment outputs. It identifies areas with the greatest potential impacts from a wildfire – i.e. those areas most at risk - considering all values and assets combined together.

Wildfire Risk combines the likelihood of a fire occurring (threat), with those areas of most concern that are adversely impacted by fire (fire effects), to derive a single overall measure of wildfire risk.

Since all areas in Colorado have risk calculated consistently, it allows for comparison and ordination of areas across the entire state.

Fire Effects are a key component of Wildfire Risk. Fire Effects are comprised of several inputs focusing on values and assets at risk. The purpose of Fire Effects is to identify those areas that have important values or assets that would be adversely impacted by a wildfire. Fire Effects inputs include Wildland Urban Interface, Forest Assets, Riparian Assets and Drinking Water Importance Areas (watersheds). Refer to the Values Impacted Rating for more information about Fire Effects.

To aid in the use of Wildfire Risk for planning activities, the output values are categorized into five (5) classes. See the below map for the wildfire risks around the Gibb property, and for the full report generated using the Colorado Wildfire Risk Assessment Portal (CO WRAP), see *Appendix 7: Additional Information*.


Gibb Property
Wildfire Risk
Non-Burnable
Lowest Risk
Low Risk
Moderate Risk
High Risk
Highest Risk
Gibb Property
1.48 mi
3166.7 m
N
Colorado State
Colorado Wildfire Risk Assessment
http://www.coloradowildfirerisk.com

Section 4: Inventory and Resource Description

The Gibb property is located in a low elevation ponderosa pine woodland and savanna ecosystem. Ponderosa pine woodland savannas occur primarily on dry, fire prone south facing slopes that have grassy understories with few shrubs. Woodlands typically occur on rockier sites less prone to fire and have dense shrub understories (Native Plant Revegetation Guide for Colorado, 1998). Doulas-fir (*Pseudotsuga menziesii*), along with pockets of aspen (*Populus tremuloides*) can commonly be found throughout the property. These ecosystems do not allow for a large amount of species diversity, as conditions are drier, in comparison to other surrounding areas (non-southern apect). Although ponderosa pine is found in abundant numbers across the property, areas containing a small amount of limber pine (*Pinus flexilis*) can be found on the property as well.

SOILS:

There are three (3) basic soil compositions that are found on the Gibb property. Typic Haplustolls-cathedral family-Rock outcrop complex (2704D) is the most abundant soil type found on the site (85%). This soil is found in the northern reach of the property, and extends all the way down into the drainage. These soils are excessively drained and are very unproductive. Moisture availability is very low, and therefore not very good for tree establishment and growth.

Another soil found on the Gibb property is the Bulllwark-Catamount family-Rock outcrop complex (2703D). These soils can be found in the southern most reach of the property, and are mainly on north facing slopes. These area also very unproductive and quickly draining soils, but are closer to the water table, and therefore able to sustain species like Douglas-fir.

Along the drainage corridor, Pachic Argiustolls-Aquic Argiudolls complex (5101A) can be found. These soils are more productive due to their proximity to the water table and frequent moisture events when the water table raises. Vegetation here can be supported in greater variety, as aspen is found most frequently in these soils.

More information about soils can be found in *Section 8: Soils Appendix*

FLORA and FAUNA:

The Gibb property is home to many populations of flora (plants/vegetation) and fauna (animals/ invertebrates). Common graminoids (grass-like vegetation) found across the property are pine dropseed (*Blepharoneuron tricholepis*), blue grama (*Bouteloua gracilis*), and Arizona fescue (*Festuca arizonica*). Common forbs found across the property are fringe sagewort (*Artemisia frigida*) and white sagebrush (*Artemisia ludoviciana*), as well as many others (see *Section 7: Additional Information*).

Noxious weeds are a large concern on the Gibb property, as well as throughout Boulder and Larimer County. Common mullein (*Verbascum thapsus*) and Canada thistle (*Cirsium arvense*) are two most commonly found noxious weeds on the property, and a comprehensive list of all noxious weeds in Colorado (List A, B, C and Watch List) can be found in *Section 7: Additional Information*.

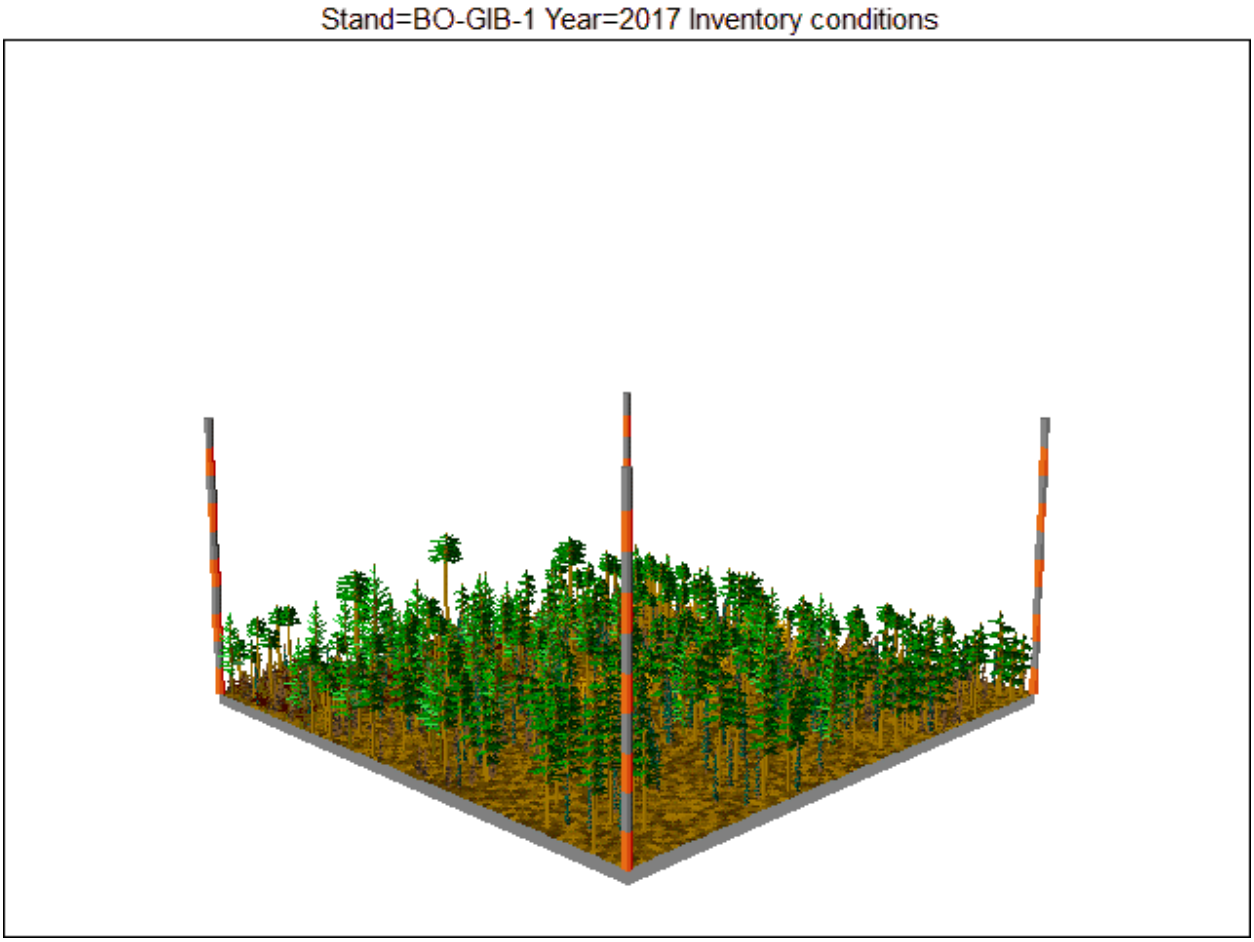
The Gibb property, along with the area surrounding, is home to many animal populations. It is not uncommon to see signs of black bear, mountain lion, wild turkey, fox, deer, and various birds of prey and song birds, to name just a few. Forest management activities will be done in a manner that helps to preserve and protect the populations, as well as to improve habitat conditions. A list of threatened and endangered species in Colorado can be found in *Section 7: Additional Information.*

INVENTORY

A timber cruise was conducted on the Gibb property during the summer of 2017. The property was split into two (2) major stands, delineated primarily by canopy cover, soil type, and topographical similarities. Plots were inventoried using a basal area factor (BAF) of 10 to achieve the highest level of certainty that the data collected accurately describes the resource and the varying conditions found on the ground. All stand data was analyzed and calculated using the USDA Forest Service's "Forest Vegetation Simulator (FVS)" program.

Detailed maps of each stand can be found in *Section 6: Maps*.

Stand 1:



(Diagram 3: Stand 1 – Pre Harvest)

Stand 1 covers the entire property to the north of the access road, and is approximately 21 acres. Stand 1 is also uphill from the access road, and is composed of ponderosa pine, Douglas-fir, and Rocky Mountain juniper. Slopes are relatively steep, at or about 45 degrees. The northern most boundary of Stand 1 is also the Boulder/Larimer County line. Stand 1 is made up entirely of 2704D soils, and it shows due to the sparse vegetation across the landscape. Basal area in Stand 1 is approximately 62 sqft/acre, and slopes have a predominant southern aspect throughout the stand.

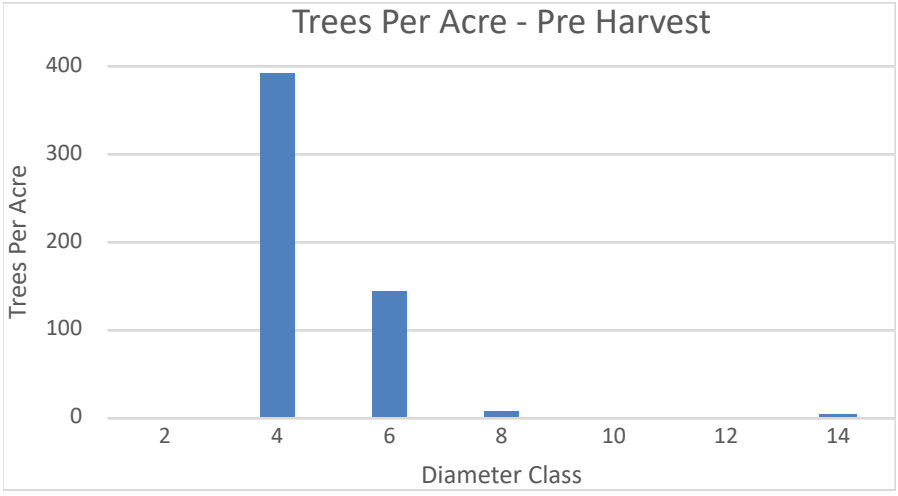
Although there is no current home, structure, or dwelling, Stand 1 would be the ideal location. Over the course of this 10-year plan, a structure may very well appear, and it is important to incorporate practical defensible space thinning into that area. In the event that the Gibb property goes through the Boulder County site review process for new construction, forest thinning in the defensible space area will reflect the standards set forth by Boulder County and the Colorado State Forest Service (CSFS). Stand 1 is best represented using Fuel Model 2 (See Appendix: Additional Information, for Fuel Model explanation and CSFS FIRE 2012-1).

Stand 1 has an average of 549 TPA, and an average BA of 62 ft^2/acre throughout the 2-14 inch size classes across the 21 acres. The table below (Table 2) shows the distribution of the species present,

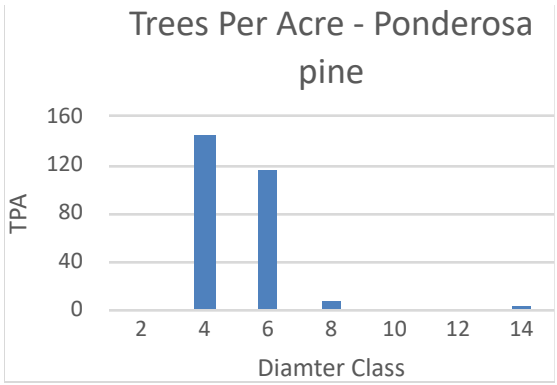
SPECIES	TREES PER ACRE (TPA)	BASAL AREA (BA) ft2/acre
Douglas-fir	66	9.0
Ponderosa pine	274	41.0
Rocky Mountain Juniper	209	12.0
TOTAL	**549**	**62**

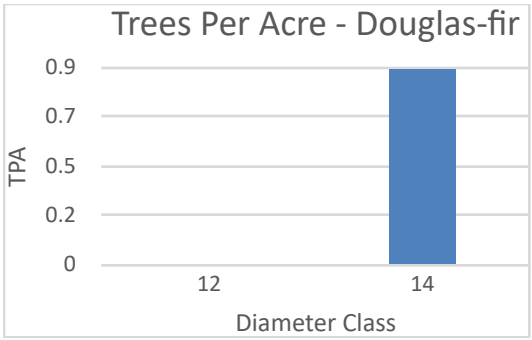
(Table 2: Species distribution per TPA and BA for Stand 1)

It can be determined from the table above that ponderosa pine and rocky mountain juniper make up the majority of the composition of the tree species present in Stand 1. Many of the juniper found on the landscape are very mature, as they are established firmly in girth and height. Ponderosa pine is also present on the landscape in random clumps as well as isolated growth.



(Diagram 3: Trees per acre – Stand 1)





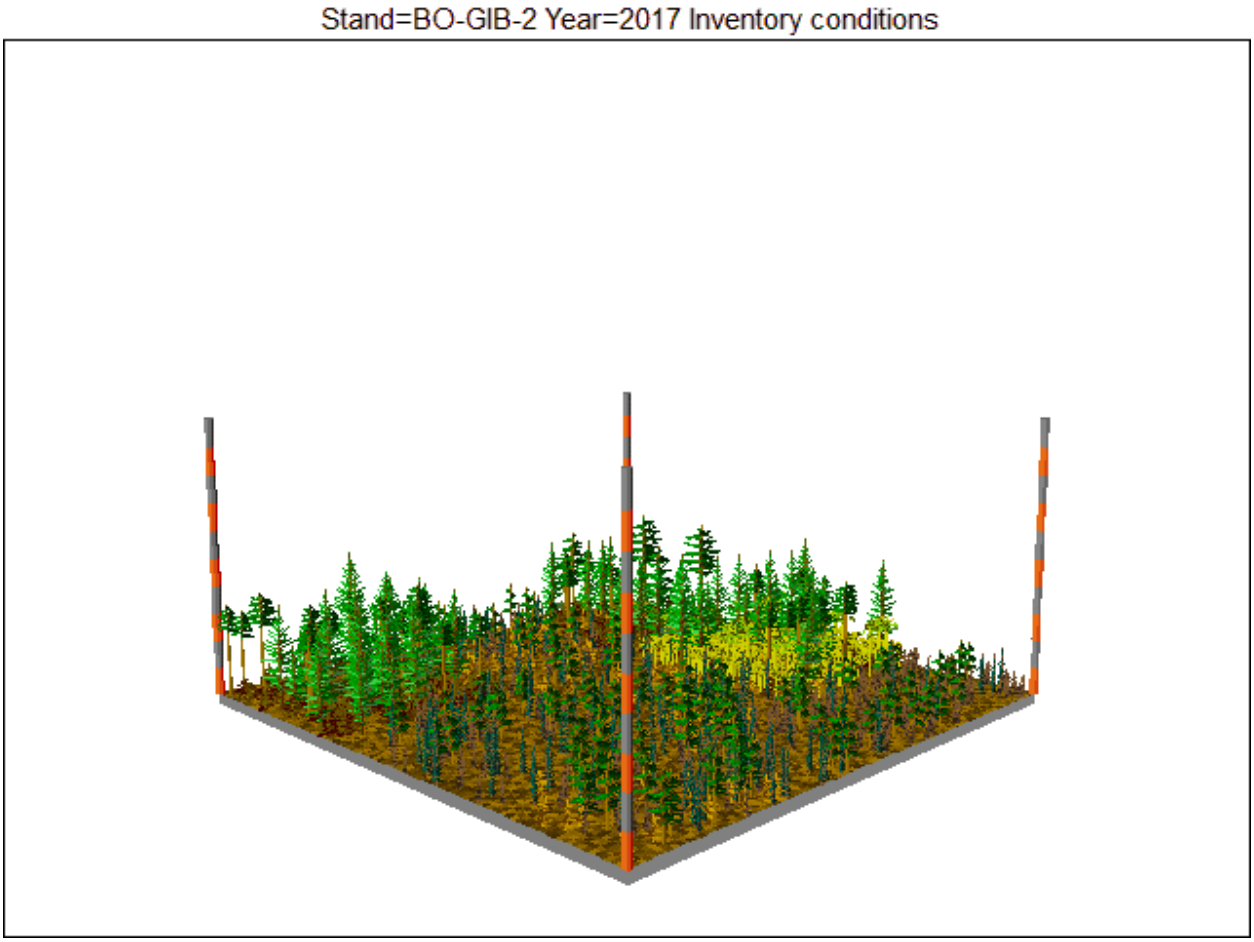
(Diagram 4: Trees per acre – Ponderosa pine) (Diagram 5: Trees per acre – Douglas-fir)

Insect and disease activity was not recorded in Stand 1, but was noted on the visual cruise. Mountain pine beetle (*Dendroctonus ponderosae*), MPB, activity was not noted, but dwarf mistletoe (*Arceuthobium vaginatum subsp. cryptopodum*) was spotted in areas throughout the stand. Using the Hawksworth rating system (see "Chart 1" below), a single trees rating can be determined numerically. These yielded numbers, along with a bit of field exposure to the inventorying individual, can help determine trigger points for management actions. Additional Information pertaining to dwarf mistletoe and common insect and disease activity can be found in *Section7: Additional Information.*

Instructions		**Example**
Step 1	Divide live crown into thirds.	If this third has no visible infections, its rating is (0).
Step 2	Rate each third separately. Each third should be given a rating of 0, 1, or 2 as described below: (0) no visible infections (1) light infection (1/2 or less of total number of branches in the third infected (2) heavy infection (more than 1/2 total number of branches in the third infected).	If this third is lightly infected, its rating is (1). If this third is heavily infected, its rating is (2).
Step 3	Add ratings of thirds to obtain rating for total tree.	The tree in this example gets a rating of: 0 + 1 + 2 = 3.

(Chart 1 : Dwarf Mistletoe “Hawksworth 6-class Rating System” (1977))

Stand 2:



(Diagram 4: Stand 2 – Pre Harvest)

Stand 2 covers the entire property south of the access road, and is approximately 19 acres. Stand 2 is downhill from the access road, and is composed of ponderosa pine, Douglas-fir, aspen, and Rocky Mountain juniper. Slopes are relatively steep, at or about 45 degrees in many areas. The southern boundary of Stand 2 adjoins with USDA Forest Service land, as does the entire western boarder of the stand (and property). Stand 2 is made up of primarily 2704D soils, but is also made up of 5010A in the drainage, and 2703A on the south side of the drainage. The areas south of the drainage have a strong Douglas-fir component in the forest canopy, as the slopes change to a northern aspect. The drainage area and areas to the south

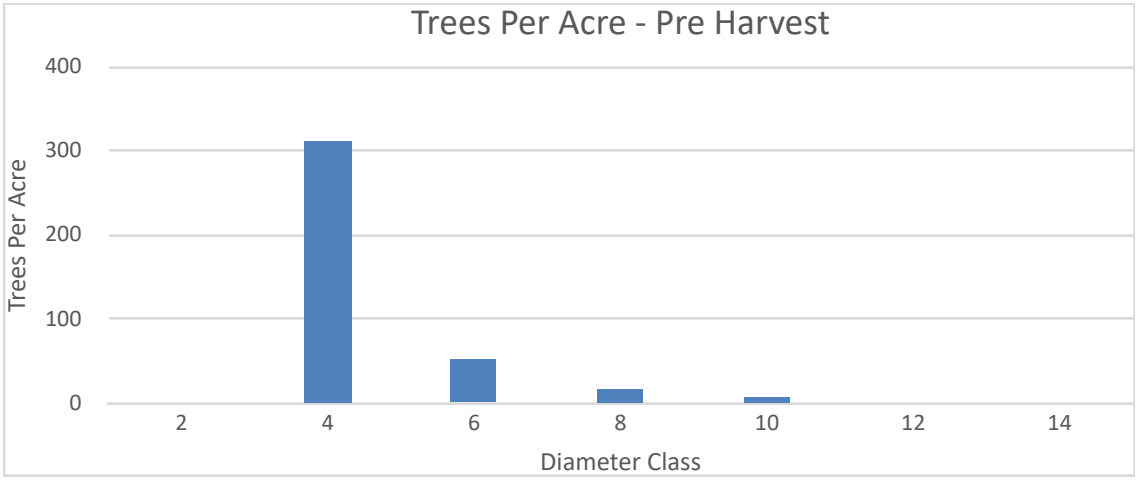
are very hard to access from the property, and therefore do not have any economically feasible management options during the duration of this plan.

Stand 2 has an average of 393 TPA, and an average BA of 45 ft^2/acre throughout the 2-14 inch size classes across the 19 acres. The table below (Table 2) shows the distribution of the species present,

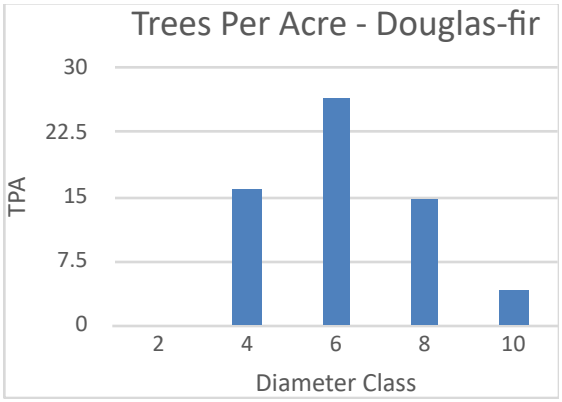
SPECIES	TREES PER ACRE (TPA)	BASAL AREA (BA) ft2/acre
Douglas-fir	61	14
Ponderosa pine	133	17.5
Rocky Mountain juniper	170	11
Aspen	29	2.5
TOTAL	**393**	**45**

(Table 3: Species distribution per TPA and BA for Stand 2)

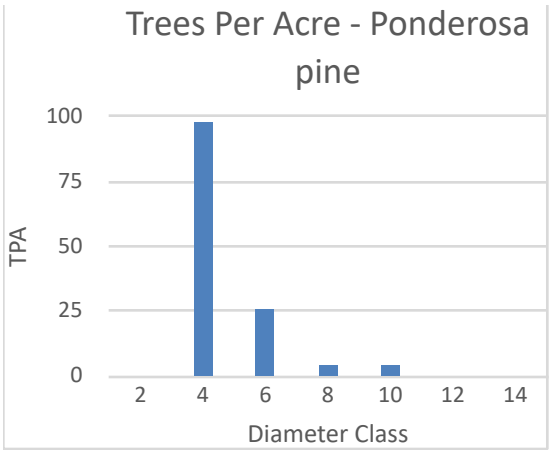
It can be determined from the table above that ponderosa pine and Douglas-fir make up for the majority of the basal area, and Rocky Mountain juniper is very close in dominance on the landscape. Stand 2 has an open feel, compared to Stand 1, as there are more rocky outcroppings that give the stand that open feel.



(Diagram 6: Trees per acre – Stand 2)



(Diagram 7: Trees per acre – Douglas-fir)



(Diagram 8: Trees per acre – Ponderosa pine)

Section 5: Recommended Treatments and Implementation Schedule

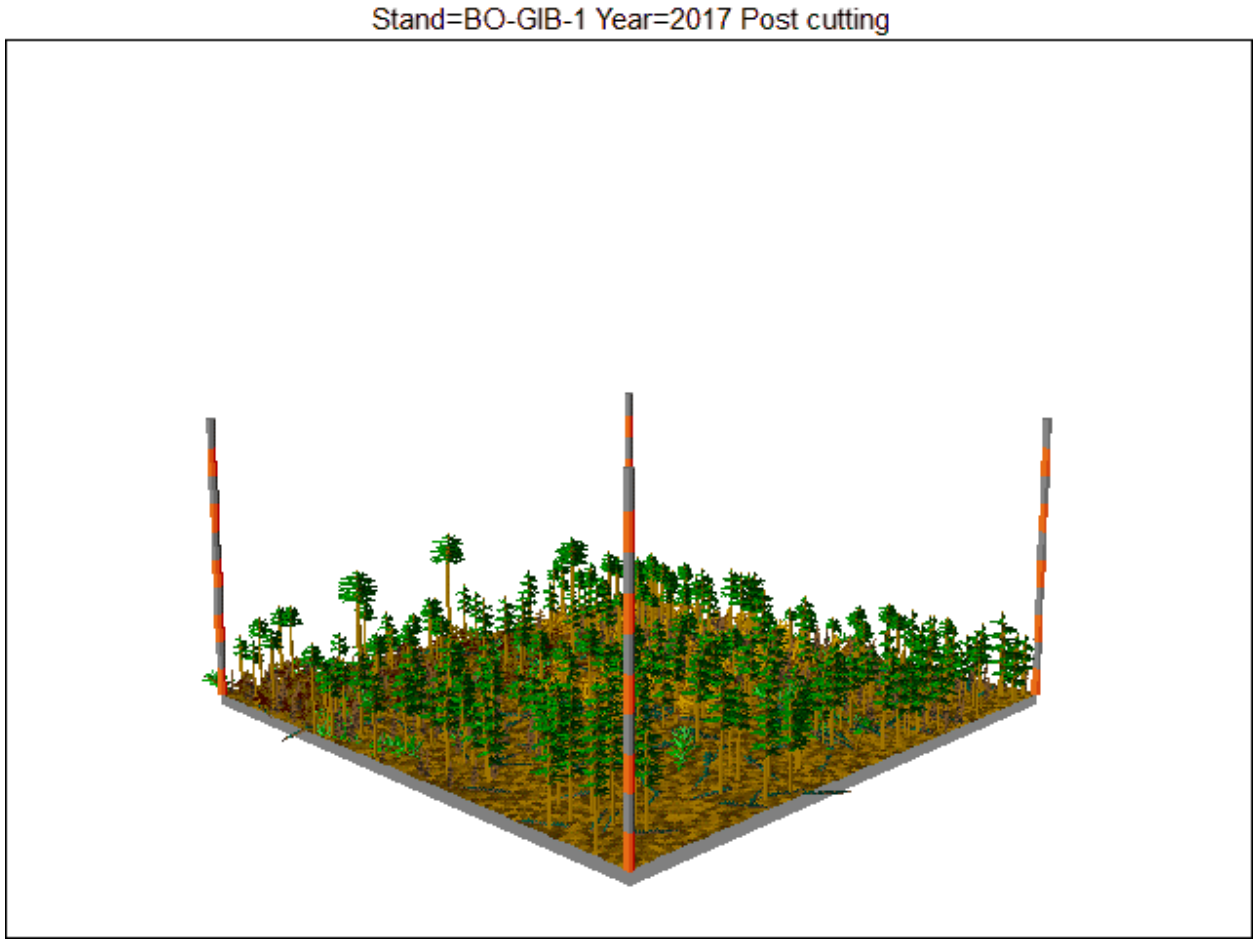
Silvicultural prescriptions (Rx) are defined as a planned series of treatments designed to change current stand structure to one that meets management goals (Helms 1998). The following prescriptions are based on the goals and objectives, described in Section 2 of this plan. To obtain the necessary data to systematically construct prescriptions that are compatible with the forested landscape, cruise plots were created so that the forest could be inventoried. After cruise plot inventory data was collected, it was run through a Forest Vegetation Simulator (FVS) calculation based upon predetermined management criteria. As a result, management prescriptions are developed as the criteria specified meets the planned goals and objectives. FVS calculations are executed via the USDA Forest Service sponsored "Suppose" desktop program. Along with FVS calculations, Suppose was also able to organize the tree inventory data into stand and stock tables. A copy of the FVS calculation numbers, as well as stand and stock tables, can be found in *Section 12: Inventory Appendix*. Two prescriptions were derived via FVS calculations (Stand 1 Rx and Stand 2 Rx), as they are described in detail below.

Stand 1 Rx:

The forest management prescription that best accommodates the goals and objectives for Stand 1 was to use a "Thin from Below with Species Retention" approach. Stand 1 has a target residual basal area decrease to 40ft2/acre. Cutting preference was set to favor ponderosa pine retention. Even though cutting preferences target the majority of Douglas-fir and Rocky Mountain juniper for removal, this prescription allows for species and age-class diversity, and favors regeneration of all present species through canopy openings. Only trees within the 4-14 inch diameter class will be selected for harvesting. The generated prescription targets 16 ponderosa pine within the 4 inch size class, 65 Douglas fir within the 4-6 inch size class, 1 Douglas fir within the 14 inch size class, and another 17 rocky mountain juniper within the 4 inch size class (on a per-acre basis). Creating a mosaic of residual tree clumps, as well as leaving isolated growth, will be most desirable to avoid uniform spacing post harvest.

Stand 1 houses management units 3 (2.5 ac), 4 (2.5ac), 5 (3.0ac), 6 (2.4ac), 7 (2.7ac), 10 (2.4ac), and part of management units 1 (2.5ac) and 2 (3.9ac). Over the course of this management plan, 186 ft2/acre will be removed in each management unit, creating almost 32 cords of firewood. Detailed maps showing Management Units can be found in *Appendix 1: MAPS.*

Stand 1 (Post Harvest)



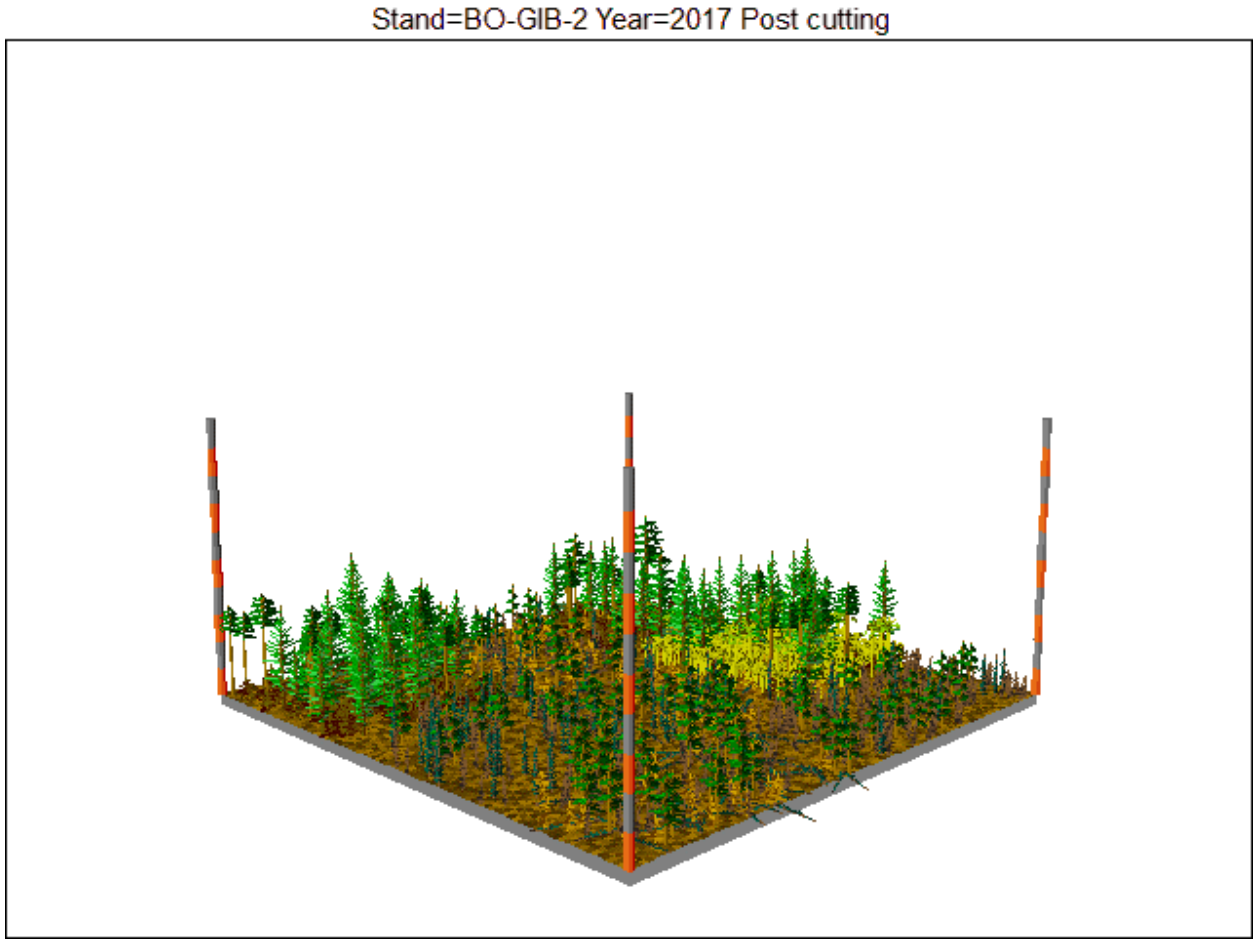
(Diagram 5: Stand 1 – Post Harvest)

Stand 2 Rx

The forest management prescription that best accommodates the goals and objectives for Stand 2 was to use a "Thin from Below with Species Retention" approach. Stand 2 also has a target residual basal area decrease to 40ft3/acre. Cutting preference was set to favor ponderosa pine retention. This prescription will target mainly Rocky Mountain juniper for removal. There is very little access to Stand 2 for harvesting purposes, and therefore requiring a less intensive approach to achieve the desired BA for the managed units. Only ponderosa pine and juniper within the 4-14 inch diameter class will be selected for harvesting, with a heavy emphasis on juniper removal. Stand 2 generated prescription targets rocky mountain juniper within the 4 inch size class. Due to the majority of the 10-year plan focusing on management units within stand 1 (better access, more favorable terrain for harvesting operations), and a high number of juniper stems per acre within stand 2, generated prescriptions will not target ponderosa pine, Douglas fir, or aspen within the 4-14 inch size class. While carrying out this prescription, the marking forester(s) shall use educated reasoning to include ponderosa pine and Douglas fir to the harvest, as they see signs of poor growth/health in trees outside of the prescription parameters. Creating a mosaic of residual tree clumps, as well as leaving isolated growth, will be most desirable to avoid uniform spacing post harvest.

Stand 2 houses management units 8 (1.5 ac) and 9 (1.5ac), as well as the remaining portions of management units 1 and 2. Over the course of this management plan 94 trees per acre will be removed, or approximately 282 trees total. Very little firewood will be extracted due to the heavy preference for Rocky Mountain juniper harvesting, as this species does not produce very much in the way of usable woody material. Only about ¼ cord of firewood will be extracted per an acre, yielding roughly a cord of firewood over the course of this plan.

Stand 2 (Post Harvest)



(Diagram 6: Stand 2 –Post Harvest)

Slash Treatments

It is recommended that all slash generated from project work be hauled off site. Slash hauling would provide for the best ecological and sociological means of slash deposition, but may prove costly. Slash may also be piled for burning the year following treatment, but it is recommended that it be carried out by an experienced, educated, and insured professional.

Chipping of slash is another acceptable form of slash treatment, but is costly. Also, chipping slash does very little in terms of reducing the amount of slash, but rather alters the state the slash is presently in. Therefore, chipping does not achieve the effects of hazardous fuels reduction the way burning and hauling of slash do. If hauling of slash is considered a non-option for annual stewardship work, chipping of slash can be practiced (with a recommended new chip depth not to exceed 3 inches).

Monitoring for Insect and Disease Activity, and Noxious Weeds

Although insect and disease activity was not present in the data inventory, the presence of these agents was noted visually, and the entire property will need to be monitored for such activity. Stands 1 and 2 need to be monitored especially for dwarf mistletoe, as that was visually noted as "highly noticeable/established" in several areas throughout those stands.

If any new mountain pine beetle or ips beetle activity is discovered, it will need to be dealt with accordingly. Any dwarf mistletoe discovered will need to be dealt with so that spread can be drastically slowed or halted all together. Information pertaining to mountain pine beetle, Ips beetle, and dwarf mistletoe can be found in *Section 7: Additional Information*.

The entire property will need to be monitored and treated for noxious weeds at least once annually.

Implementation Schedule

YEAR	TREATMENT/ACTIVITY	UNIT
2017	-Have Stewardship Plan Written	N/A
2018	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 1 2.5 acres
2019	-Monitor entire property for noxious weeds. Remove as necessary -Monitor entire property for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 2 3.9 acres
2020	-Monitor entire property for noxious weeds. Remove as necessary -Monitor entire property for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 3 2.5 acres
2021	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 4 2.5 acres
2022	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 5 3.0 acres

2023	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 6 2.4 acres
2024	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 7 2.7 acres
2025	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper for removal *Target BASAL ARE = 40ft2/acre*	UNIT 8 1.5 acres
2026	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper for removal *Target BASAL ARE = 40ft2/acre*	UNIT 9 1.5 acres
2027	-Monitor for noxious weeds. Remove as necessary -Monitor for insect and disease activity	Entire Property
	Thin from Below –Ponderosa Pine Preference: Favor Ponderosa Pine retention; Target rocky mountain juniper and douglas fir for removal *Target BASAL ARE = 40ft2/acre*	UNIT 10 2.4 acres

*Slash should be hauled/chipped the year it was created.

**Slash can be piled for burning, and piles burned the year after treatment.

- 25 Acres Treated by 2027.

- Approximately 33 Cords of firewood extracted by 2027.

Section 6: Maps

Section 7: Additional Information

Section 8: Soils Appendix

Section 9: Bibliography

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Section 10: Glossary

acre: one square acre is approximately 209 feet by 209 feet or 43,560 square feet.

Aspect: the compass direction of slope of the land.

basal area: the cross-sectional area of a single stem, including the bark, measured at breast height (4.5 feet).

blowdown: trees felled or broken off by wind.

board foot: the amount of wood contained in board 1" thick, and 12" wide and 12" long.

Bole: the trunk of a tree.

co-dominant trees: trees with crowns forming the general level of cover and receiving full light from above and very little from the sides.

cord: a unit of measure commonly used for firewood. A cord equals 128 cubic feet (a pile of wood measuring 4'x4'x8'). A cord contains 85 cubic feet of solid wood and 43 cubic feet of air space.

defensible space: an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure.

diameter at breast height (DBH): the diameter of a stem of a tree at 4 ½ feet above the ground.

dominant trees: trees with crowns extending above the general level of cover and receiving full light from above and partly from the sides.

fuel loading: the oven-dry weight of fuel per unit area.

intermediate trees: trees shorter than co-dominant and dominant trees, which receive little direct light from the top and none from the sides.

ladder fuels: vegetative materials with vertical continuity that allows fire to burn for the ground level up to the branches and crowns of trees (Dennis 1999).

litter: the surface layer of a forest floor that is not in an advanced stage of decomposition, usually consisting of freshly fallen leaves, needles, twigs, stems, bark, and fruits.

noxious weed: a plant specified by law as being especially undesirable, troublesome, and difficult to control.

overtopped or suppressed trees: trees with crowns entirely below the general level of the crown cover, and receiving no direct light from above or from the sides.

patch: a small part of a stand or forest.

prism: a forestry tool used to visually capture trees at certain distances based on their diameter.

riparian area: related to, living, or located in conjunction with a wetland, on the bank of a river or stream but also at the edge of a lake or tidewater.

skid road: a road on which logs are hauled.

snag: a standing, generally un-merchantable dead tree from which the leaves and most of the branches have fallen.

stand: a contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

stand age: the average age of the trees in the predominant stand-size class of the stand. Generally, stand age is estimated from tree cores from a few selected trees of each species and size class.

thinning: a cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality.

uneven-aged stand: a stand composed of multiple age classes.

windfirm: trees able to withstand strong winds and resist windthrow, open grown trees tend to grow slower and develop deep root systems whereas some species grow within a stand which acts as a buffer, thinning in this second type needs to be completed in stages to allow remaining trees to increase their windfirmness.

Section 11: Inventory Appendix