

# Detailed Stand Information and Treatment Specifications

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for the Trout-West Final Environmental Impact Statement

Maps depicting stands discussed in this appendix are on file at the Pikes Peak Ranger District office.

## Long John Treatment Unit

The vegetation in the Long John treatment unit is dominated by stands of ponderosa pine (*Pinus ponderosa*) of varying size and density, along with small stands and occasional pockets or stringers where Douglas-fir (*Pseudotsuga menziesii*) is the dominant species. The Long John conifer stands are broken into five vegetation categories. These categories are based on size, canopy cover, and species. A description of each category follows:

1. **Mature/10-40/pine.** Stands 0, 15, and 33 are sparsely stocked (less than 15% crown cover), have steep slopes (greater than 35%), and have basal areas under 30 square feet/acre. These steep, south facing slopes have created a harsh environment for conifer growth, and thus trees have a more stunted appearance. Individual trees or small clumps of trees are widely spaced. There are no silvicultural opportunities in these stands that would move them closer to a fire resilient condition.

Stands 10, 12, 13, 17, 18, 19, and 26 have somewhat heavier stocking (15 –30% canopy cover), flat to moderate slopes (0-20%), and basal areas 20-100+ square feet/acre. Generally, the denser areas are stringers surrounded by more open pine stands. Most of the stands are south facing, but have gentler slopes than those mentioned above. As a result, the environment is a better site for conifer growth. Dwarf mistletoe is present in some stands. Modest silvicultural opportunities are present in the form of light thinnings.

2. **Mature/40-70/pine.** Stands 1, 2, 4, 5, 6, 7, 8, 11, 21, 22, 24, 27, 28, and 30 are characterized by canopy covers ranging from 40-50+% with interlocking crowns. Slopes are generally gentle (under 15%), but can exceed 35%. Basal areas range from 20-100+ square feet/acre. The stands are frequently two storied, with an overstory of platy-barked pine of varying density, typically 14-20 inches diameter at breast height (dbh), 50–60 feet tall, and 125-150 years old. The understory consists of pine less than 14 inches dbh, generally under 50 feet in height, and less than 100 years old. Douglas-fir, if present, comprises less than five percent of the stand. Dwarf mistletoe is present in some stands. Silvicultural treatment opportunities such as commercial and pre-commercial thinning are abundant and would help move these stands toward the desired structural condition and fire resiliency.

3. **Sapling/<10/pine.** Stands 25 and 31 fit this category and both are plantations. Both stands are well stocked (300+ trees per acre), and the trees average less than six feet in height. A number of mature pine/fir stringers are also present in the plantations, but are a minor component. Thinning would be appropriate in these stringers for silvicultural reasons but is not essential in terms of the goals and objectives of this project. These stands offer no other silvicultural opportunities at this time.

4. **Mature/40-70/fir.** Stands 9, 16, 20 23, and 32 have dense canopy cover (excess of 40%) with interlocking crowns, steep slopes (generally over 35%), and basal areas in excess of 100 square feet/acre. The stands are multi-storied, with the overstory generally dominated by Douglas-fir with minor components of ponderosa pine and Engelmann spruce (*Picea engelmannii*). The understory is dominated by young Douglas-fir, spruce, and varying amounts of quaking aspen (*Populus tremuloides*). The quaking aspen was historically more abundant on these slopes but is gradually being shaded out by conifers; as a result, aspen mortality is common. Silvicultural activities such as commercial and pre-commercial thinning are abundant and would help move these stands toward the historical stand structure and a fire resilient condition.

5. **Pure Aspen.** Stand 3 is the only stand that fits this description. Prior to the late-1980s, this was a ponderosa pine stand with an aspen understory. In the late 1980s, a vegetation management project was implemented to improve aspen habitat. All conifers were removed, allowing the aspen understory to thrive. Today, a vigorous stand of aspen occupies the area. This is an example of what could happen when the conifer component of stands (such as stands 1 and 2) are reduced. There are no silvicultural opportunities that would improve the fire resiliency of this stand.

### **Dwarf Mistletoe**

Dwarf mistletoe (*Arceuthobium vaginatum*) has infected ponderosa pine in several Long John stands. Mistletoe ratings of 4, 5, or 6, using the Hawksworth Dwarf Mistletoe Rating System, are common in stands 1, 5, 13, 14, 15, 17, 18, 19, 21, 22, and 27; 60-100% of the ponderosa pine are infected. At this level of infection, the majority of nutrients and carbohydrates produced by the tree are diverted by the parasite for its use. Thus, tree growth is virtually non-existent and tree vigor is slowly declining. Most of these heavily infected trees are likely to die in the next 10 to 20 years. Also in that period, the remainder of the overstory and any understory that is not currently infected will likely become infected.

The ponderosa pines in stands 28, 30 and 32 are lightly infected (Hawksworth Dwarf Mistletoe Ratings of 0-3), if infected at all. The trees in these stands are relatively healthy and will likely stay that way for 10-20 years or more, after which those that have ratings of 1-3 will slowly decline.

## **Tussock Moth**

Douglas-fir tussock moth (*Orgyia pseudotsugata*) activity was not detected in the Long John area during field reviews in the summer of 2001. However, approximately 914 acres of the approximately 1,861 acres of conifer forest in Long John are currently susceptible to tussock moth outbreaks. Approximately 760 acres of pine stands (stands 1, 5, 8, 11, 15, 21, 22, 24, 26, and 27) have Douglas-fir encroaching upon them, and 154 acres of Douglas-fir stands (stands 9, 14, 16, 20, 23, and 32) have increased in density. The above conditions increase the likelihood of a tussock moth outbreak in the near future.

## **Phantom Treatment Unit**

The vegetation in the Phantom treatment unit is highly varied, especially when compared to the other project areas. The north end of Phantom has the lowest elevations, at 8300 feet, and these stands are generally dominated by pine. Moving south the elevations increase and the shade tolerant species (i.e., Douglas-fir, spruce, and aspen) are common on the north slopes. At the south end, elevations increase to 9000 feet and the forest cover type is Douglas-fir with spruce, aspen, and pine mixed in to varying degrees. The Phantom conifer stands are broken into six vegetation categories. These categories are based on size, canopy cover, and species. A description of each category follows:

1. **Mature/10-40/pine.** Stand 33 is sparsely stocked (less than 15% crown cover), has steep slopes (greater than 35%), and the basal area is under 30 square feet/acre. These steep, south facing slopes have created a harsh environment for conifer growth, and thus trees have a more stunted appearance. Individual trees or small clumps of trees are widely spaced. Stands 40 and 45 have recently been harvested, so they have similar densities to stand 33 but are on gentler, more productive slopes. There are few silvicultural opportunities in these stands that would move them closer to a fire resilient condition.

Stands 16, 28, 44, 46, and 49 have moderate to heavier stocking (15 –30% canopy cover), flat to moderate slopes (0-40%) and basal areas 20-100+ square feet/acre. Generally, the denser areas are stringers or pockets surrounded by more open pine stands. Most of the stands are south facing, but have gentler slopes than those mentioned above. As a result, the environment is a better site for conifer growth. Modest silvicultural opportunities are present in the form of light thinnings.

2. **Mature/40-70/pine.** Stands 15 and 17 are characterized by canopy covers ranging from 40-50+% with interlocking crowns. Slopes are generally gentle (under 20%), and basal areas range from 50-100+ square feet/acre. The stands are frequently two storied, with an overstory of platy-barked pine of varying density, typically 14-20 inches dbh, 50–60 feet tall, and 125-150 years old. The understory consists of pine less than 14 inches dbh, generally under 50 feet in height, and less than 100 years old. Douglas-fir, if present, would comprise less than five percent of the stand.

Silvicultural treatment opportunities, such as commercial and pre-commercial thinning, are abundant and would help move these stands toward the historic stand structure and a fire resilient condition.

3. **Sapling/<10/pine.** Stands 19, 20, 21, 24, 25, 27, and 29 are plantations. These stands are well stocked (300+ trees per acre), and the trees are generally less than six feet in height. Most of the stands have aspen regenerating with the pine. These stands offer no silvicultural opportunities at this time.

4. **Mature/40-70/fir.** Stands 4, 5, 12, 23, and 43 have dense canopy cover (excess of 40%) with interlocking crowns. Slopes are gentle to relatively steep (0-40%), and basal areas in excess of 100 square feet/acre are the rule in these stands. The stands are multi-storied, with the overstory generally dominated by Douglas-fir and a minor component of ponderosa pine and Engelmann spruce. The understory is dominated by young Douglas-fir, spruce, and varying amounts of quaking aspen. Quaking aspen was historically more abundant on these slopes but is gradually being shaded out by conifers, and as a result aspen mortality is common. Silvicultural treatment opportunities such as commercial and pre-commercial thinning are abundant in these stands and would help move them toward the desired condition and fire resiliency.

5. **Mature/40-70/mixed fir and pine.** Stands 2, 8, 11, 13, 18, 20, 34, 47, 51, 52, 53, and 56 are similar to the mature/40-70 pine and mature/40-70 fir described above. The terrain is rolling and the vegetation types constantly change as the aspects change. Douglas-fir dominates the north slopes, with minor components of pine, spruce and aspen. Pine or a pine/fir mix dominates the other aspects.

6. **Aspen.** Stand 1, 6, 9, and 10 fall into this vegetation type. Recent harvest activities have removed the conifer overstory, allowing the aspen understory to thrive. There are no silvicultural opportunities that would improve the fire resiliency of these stands.

### **Dwarf Mistletoe**

Dwarf mistletoe has infected ponderosa pine in several Phantom stands. Mistletoe ratings of 4, 5, or 6, using the Hawksworth Dwarf Mistletoe Rating System, are common in stands 47 and 52 where a large percentage of the ponderosa pine is infected. At this level of infection, the majority of nutrients and carbohydrates produced by the tree are diverted by the parasite for its use. Thus, tree growth is virtually non-existent and tree vigor is slowly declining. Most of these heavily infected trees are likely to die in the next 10 to 20 years. Also in that period, the remainder of the overstory and any understory that is not currently infected will likely become infected.

## **Tussock Moth**

During field reviews of the Phantom treatment unit in the summer of 2001, no evidence of current or recent tussock moth activity was discovered. However, approximately 13,800 acres of the approximately 15,300 acres of conifer forest in the Phantom treatment unit are currently susceptible to tussock moth outbreaks. Approximately 6,434 acres of pine stands (stands 14, 15, 16, 17, 28, 44, 45, and 49) have Douglas-fir encroaching, 866 acres of Douglas-fir stands (stands 4, 5, 8, 12, 23, and 43) have a canopy cover exceeding 30%, and 6,445 acres of mixed pine/Douglas-fir stands (stands 2, 11, 13, 18, 34, 47, 50, 51, 52, 53, and 56) have Douglas-fir increasing in density on north slopes and encroaching on other aspects originally dominated by pine. All of the above conditions increase the likelihood of a tussock moth outbreak in the near future.

## **Ridgewood Treatment Unit**

Ponderosa pine, of varying size and density, is the predominate cover type in the lower elevation ranges of the Ridgewood treatment unit. As the elevation increases to the east, the ponderosa pine is gradually replaced, and the stands are ultimately dominated by Douglas-fir. The Ridgewood conifer stands are broken into four different categories. These categories are based on species composition, size, and aspect. A description of each category follows:

1. **Mature/10-40/pine.** Stands 3, 11, 18, 28, 38, 41, 40, and 43 are sparsely stocked (less than 15% crown cover), have steep slopes (greater than 35%), and have basal areas under 30 square feet/acre. The steep, south facing slopes have created a harsh environment for conifer growth, and thus trees have a more stunted appearance. Individual trees or individual clumps of trees are widely spaced. Dwarf mistletoe is present in some stands. There are few silvicultural opportunities in these stands that would move them closer to a fire resilient condition.

Stands 2, 20, 24, 39, 46, and 48 have somewhat heavier stocking (15 – 30% canopy cover), flat to moderate slopes (0-20%), and basal areas 20-100+ square feet/acre. Generally, the denser areas are stringers or pockets surrounded by more open pine stands. Most of the stands are south facing, but have gentler slopes than those mentioned above. As a result, the environment is a better site for conifer growth. Modest silvicultural opportunities are present in the form of light thinnings.

2. **Mature/40-70/pine.** Stands 4, 6, 8, 14, 16, 21, 22, 27, 36 and 49 are characterized by canopy covers ranging from 40-50+% with interlocking crowns. Slopes are generally gentle (under 15%) but can exceed 35%. Basal areas range from 20-100+ square feet/acre. These stands are frequently two storied, with an overstory of platy-barked pine of varying density, typically 14-20 inches dbh, 50–60 feet tall, and 125-150 years old. The understory consists of pine less than 14 inches dbh, generally under 50 feet in height, and less than 100 years old. Douglas-fir, if present, comprises less than five percent of the stand. Dwarf mistletoe is present in some stands.

Silvicultural treatment opportunities, such as commercial and pre-commercial thinning, are abundant and would help move these stands toward the historic stand structure and a resilient fire condition.

3. **Sapling/<10/pine.** Stand 5, a plantation, is the only stand in this category. The stand is well stocked (300+ trees per acre), and the trees are less than six feet in height. This stand offers no silvicultural opportunities at this time.

4. **Mature/40-70/fir.** Stands 1, 10, 12, 15, 30, 31, 32, 33, 34, and 44 have dense canopy cover (excess of 40%) with interlocking crowns, steep slopes (generally over 35%), and basal areas in excess of 100 square feet/acre. The stands are two storied; the overstory is generally dominated by Douglas-fir, with minor components of ponderosa pine and Engelmann spruce. The understory is dominated by young Douglas-fir, spruce, and varying amounts of quaking aspen. Quaking aspen was historically more abundant on these slopes, but is gradually being shaded out by conifers. As a result, aspen mortality is common. Silvicultural treatment opportunities, such as commercial and pre-commercial thinning, are abundant and would help move these stands toward the historic stand structure and a fire resilient condition.

### **Dwarf Mistletoe**

Dwarf mistletoe has infected ponderosa pine in several Ridgewood stands. Mistletoe ratings of 4, 5, or 6, using the Hawksworth Dwarf Mistletoe Rating System, are common in stands 2 and 3, where 10-50% of the ponderosa pine is infected. At this level of infection, the majority of nutrients and carbohydrates produced by the tree are diverted by the parasite for its use. Thus, tree growth is virtually non-existent and tree vigor is slowly declining. Most of these heavily infected trees are likely to die in the next 10 to 20 years. Also in that period, the remainder of the overstory and any understory that is not currently infected will likely become infected.

The ponderosa pines in stands 6, 11, 14, 20, 21, 27, 44, and 49 have light to heavy infections (Hawksworth dwarf mistletoe ratings of 0-6). Those trees that have ratings of 4-6 are affected similarly to stands 2 and 3. Those trees that have ratings of 1-3 are relatively healthy and will stay that way for 10-20 years or longer, after which they will slowly decline.

### **Tussock Moth**

During field reviews of the Ridgewood treatment unit in the summer of 2001, no evidence of current or recent tussock moth activity was discovered. However, approximately 2,440 acres of the approximately 3,300 acres of conifer forest in the Ridgewood treatment unit are currently susceptible to tussock moth outbreaks.

Approximately 489 acres of pine stands (stands 2, 6, 16, 22, 27, and 36) have Douglas-fir encroaching on them, and 1,951 acres of Douglas-fir stands (stands 1, 10, 12, 15, 30, 31, 32, 33, 34, and 44) have canopy cover exceeding 30%. The above conditions increase the likelihood of a tussock moth outbreak in the near future.

## **Ryan Quinlan Treatment Unit**

1. **Mature/10-40/pine.** Stands 18, 33, 35, 58, 60, 64, 68, 70, 71, 72, 74, 76, 78, and 80 have moderate to heavier stocking (20–40% canopy cover) with interlocking crowns, flat to steep slopes (0-50%), and basal areas 50-100+ square feet/acre. The stands are frequently two storied, with an overstory of platy-barked pine of varying density, typically 14-20 inches dbh, 50–60 feet tall, and 125-150 years old. The understory consists of pine less than 14 inches dbh, generally under 50 feet in height, and less than 100 years old. Douglas-fir, if present, would comprise less than five percent of the stand. Silvicultural treatment opportunities, such as commercial and pre-commercial thinning, are abundant and would help move these stands toward the historic stand structure and a fire resilient condition.

2. **Mature/40-70/pine.** Stands 1, 5, 7, 8, 9, 11, 14, 16, 19, 21, 22, 23, 24, 27, 29, 32, 36, 38, 43, 46, 47, and 49 are characterized by canopy covers ranging from 40-50+% with interlocking crowns. Slopes are generally gentle to steep (20-50%), and basal areas range from 50-100+ square feet/acre. The stand is multi-storied, with an overstory of platy-barked pine of varying density, typically 14-20 inches dbh, 50–60 feet tall, and 125-150 years old. The understory consists of pine less than 14 inches dbh, generally under 50 feet in height, and less than 100 years old. Douglas-fir, if present, would comprise less than five percent of the stand. Silvicultural treatment opportunities, such as commercial and pre-commercial thinning, are abundant and would help move these stands toward the fire resilient desired condition.

3. **Sapling/<10/pine.** Stands 2, 3, 4, 37, 42, and 44 are plantations. The stands are well stocked (300+ trees per acre), and the trees are generally less than six feet in height. These stands offer no silvicultural opportunities at this time.

4. **Mature/40-70/fir.** Stands 6, 15, 17, 20, 30, 31, 41, 59, 61, 63, 66, 69, 73, 75, 77, 79, and 81 have dense canopy cover (excess of 40%) with interlocking crowns. Slopes are gentle to relatively steep (0-50%), and basal areas in excess of 100 square feet/acre are the rule in these stands. The stands are multi-storied, with the overstory generally dominated by Douglas-fir with a minor component of ponderosa pine and Engelmann spruce. The understory is dominated by young Douglas-fir, spruce, and varying amounts of quaking aspen. Quaking aspen was historically more abundant on these slopes but is gradually being shaded out by conifers; as a result, aspen mortality is common. Silvicultural treatment opportunities such as commercial and pre-commercial thinning are abundant in these stands and would help move them toward the historic stand structure and fire resiliency.

## **Dwarf Mistletoe**

Dwarf mistletoe has infected ponderosa pine in several Ryan Quinlan stands. Mistletoe ratings of 4, 5, or 6, using the Hawksworth Dwarf Mistletoe Rating System, are common in stands 1, 4, and 16, where a large percentage of the ponderosa pine is infected. At this level of infection, the majority of nutrients and carbohydrates produced by the tree are diverted by the parasite for its use. Thus, tree growth is virtually non-existent and tree vigor is slowly declining. Most of these heavily infected trees are likely to die in the next 10 to 20 years. Also in that period, the remainder of the overstory and any understory that is not currently infected will likely become infected.

The ponderosa pines in stands 11 and 15 have light to heavy infections (Hawksworth dwarf mistletoe ratings of 0-6). Those trees that have ratings of 4-6 are affected similarly to stands 1, 4, and 16 above. Those trees that have ratings of 1-3 are relatively healthy and will stay that way for 10-20 years or longer, after which they will slowly decline.

The ponderosa pines in stands 5 and 9 are lightly infected (Hawksworth dwarf mistletoe ratings of 0-3), if infected at all. The trees in these stands are relatively healthy and will stay that way for 10-20 years or longer, after which those that are infected will slowly decline.

## **Tussock Moth**

During field reviews of the Ryan Quinlan treatment unit in the summer of 2001, recent Douglas-fir mortality was observed in stands 17 and 20. Though the cause of mortality is not verifiable at this time, a small tussock moth outbreak is likely the culprit. In addition, of the approximately 4,162 acres of conifers in the Ryan Quinlan treatment unit, 1,935 acres of pine stands (stands 7, 11, 14, 15, 16, 19, 22, 24, 27, 29, 32, 46, 49, 64, 68, 71, 74, 78, and 80) have Douglas-fir encroaching and 1,175 acres of Douglas-fir forest have high densities (stands 6, 17, 20, 30, 31, 41, 59, 61, 63, 66, 69, 73, 75, 77, 79, 81, and 91).

## **Skelton Treatment Unit**

Ponderosa pine and Douglas-fir alternate as the dominant cover type in Skelton. Ponderosa pine dominates the east, west, and south slopes and the ridge tops, while Douglas-fir dominates the north slopes. The Skelton conifer stands are broken into three vegetation categories. These categories are based on size, canopy cover, and species. A description of each category follows:

1. **Mature/10-40/pine.** Stand 64 is sparsely stocked (less than 15% crown cover), has steep slopes (greater than 35%), and has basal areas under 30 square feet/acre. These steep, south facing slopes have created a harsh environment for conifer growth, and thus trees have a more stunted appearance. Individual trees or small clumps of trees are widely spaced.

Stands 40 and 45 have recently been harvested, so they have similar densities to stands 33 and 36 but are on gentler, more productive slopes. There are few silvicultural opportunities in these stands that would move them closer to a fire resilient condition.

2. **Mature/40-70/pine.** Stands 2, 9, 12, 18, 21, 23, 24, 26, 28, 29, 31, 32, 33, 34, 35, 37, 39, 40, 41, 44, 45, 46, 47, 48, 49, 50, 51, 53, 57, 58, 60, 62, 65, 66, 68, and 69 are characterized by canopy covers ranging from 35-50%, with interlocking crowns. Slopes are generally gentle (under 20%), and basal areas range from 50-100+ square feet/acre. The stands are frequently two storied, with an overstory of platy-barked pine of varying density, typically 14-20 inches dbh, 50–60 feet tall and 125-150 years old. The understory consists of pine less than 14 inches dbh, generally under 50 feet in height, and less than 100 years old. Douglas-fir, if present, would comprise less than five percent of the stand. Silvicultural treatment opportunities, such as commercial and pre-commercial thinning, are abundant and would help move these stands toward the historic stand structure and a fire resilient condition.

3. **Mature/40-70/fir.** Stands 1, 3, 5, 10, 11, 14, 16, 17, 22, 25, 30, 42, 52, 54, 55, 56, 59, 61, 63, and 67 have dense canopy cover (excess of 40%) with interlocking crowns. Slopes are gentle to relatively steep (0-40%), and basal areas in excess of 100 square feet/acre are the rule in these stands. The stands are multi-storied, with the overstory generally dominated by Douglas-fir and a minor component of ponderosa pine and Engelmann spruce. The understory is dominated by young Douglas-fir and varying amounts of quaking aspen. Quaking aspen was historically more abundant on the north slopes but is gradually being shaded out by Douglas-fir; as a result, aspen mortality is common. Silvicultural treatment opportunities such as commercial and pre-commercial thinning are abundant in these stands and would help move them toward the historic stand structure and a fire resilient condition.

### **Dwarf Mistletoe**

No dwarf mistletoe was detected in this treatment unit.

### **Tussock Moth**

During field reviews of the Skelton treatment unit in the summer of 2001, no evidence of current or recent tussock moth activity was discovered. However, approximately 910 acres of the approximately 1,390 acres of conifer forest in the Skelton treatment unit are currently susceptible to tussock moth outbreaks. Approximately 510 acres of pine stands (stands 26, 29, 32, 33, 34, 35, 37, 40, 41, 42, 45, 46, 47, 48, 49, 58, and 66) have Douglas-fir encroaching on them, and 400 acres of Douglas-fir stands (stands 1, 3, 5, 10, 11, 14, 16, 17, 22, 25, 30, 52, 54, 55, 56, 59, 61, 63, and 67) have a canopy cover exceeding 30%. The above conditions increase the likelihood of a tussock moth outbreak in the near future.

Tables 1 – 6 on the following pages describe the existing stand conditions in each of the treatment units and treatment prescriptions proposed for each stand.



**VEGETATION MANAGEMENT TABLES OF STAND CONDITIONS AND PRESCRIPTIONS**

<b>Table 1. Long John Treatment Unit</b>						
<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
10, 12, 13, 17, 18, 19, 26	Mature 10-40 Pine 0-20%	295	Open, clumpy, multi-storied. Canopy covers range from 10-40%.	15-20% cover, one story; clumpy distribution, less mistletoe	Remove understory, and thin overstory. Sanitize mistletoe.	Mistletoe very heavy in stands 13,17,18, and 19. Generally light treatments.
0, 15, 33	Mature 10-40 Pine 20-40%	63	Open clumpy multi-storied. Canopy covers range from 10-30%.	15-20% cover, one storied, clumpy distribution, less mistletoe.	Remove understory, thin overstory and sanitize mistletoe. No treatment needed for stand 33 (20 acres).	Generally light treatments. Mistletoe heavy in stand 15.
1,2,4,8,11, 21,22,24,27, 28,30,36	Mature 40-70 Pine 0-20%	887	Moderate to dense multi-storied stands, may have some DF/Spruce encroachment. Mistletoe is light to heavy in some stands.	15-20% cover, one story, clumpy distribution, no DF or spruce, release aspen if present, less mistletoe.	Thin overstory and understory, favor pine, sanitize mistletoe.	Mistletoe heavy in stands 21, 22, and 27. Light mistletoe in stands 28, and 30.
5, 6, 7	Mature 40-70 Pine 20-40%	160	Moderately dense multi-storied stand, some DF, mistletoe is heavy.	15-20% crown cover, one story clumpy distribution. Little to no DF.	Remove understory and thin overstory, favor pine, clumpy distribution sanitize mistletoe.	Mistletoe is heavy in stand 5.
14, 16, 23, 32	Mature 40-70 Fir 0-20%	78	Dense multi-story stand of DF with some Pine	10-20% cover one story, clumpy distribution, 50:50 mix of fir and pine	Remove understory and thin overstory,	Mistletoe heavy in stands 14, and 32.

**Table 1. Long John Treatment Unit**

<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
20	Mature 40-70 Fir 20 – 40%	26	Dense multi-story stand of DF with pine.	10-20% cover, one story, clumpy distribution, 50:50 mix of fir and pine.	Remove understory and thin overstory.	
9	Mature 40-70 Fir 40-50%	50	Dense multi-story stand of DF with pine.	10-20% cover, one story, clumpy distribution, 50:50 mix of fir and pine.	Remove understory and thin overstory.	
25, 31	Sapling <10 Pine 0-20%	309	Evenly spaced plantation, trees 3-6 feet in height. Canopy covers range from 0-15%. Dense stringers of PP and DF.	15-20% crown cover, one story clumpy distribution.	Defer treatment.	Could thin the stringers.
29, 34, 35	Grass <10 0-20%	373		As is.	None	
3	Aspen 40-70 0-20%	29	Dense stand of aspen.	As is.	None	

<b>Table 2. Phantom Treatment Unit</b>						
<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
16, 28, 40, 45, 49, 55	Mature 10-40 Pine 0-20%	3,119	Open to dense, clumpy, multi-storied stands with variable aspects. 15-40% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes.	Stands 45 and 49 (1,105 acres) are sparse and require only a very light thinning.
33, 44, 46	Mature 10-40 Pine 20-40%	1,212	Open to dense, clumpy, multi-storied stands with variable aspects. 15-40% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes.	Stands 33 and 36 (62 acres) are sparse and require only a light thinning.
14, 15, 17	Mature 40-70 Pine 0-20%	2,407	Moderate to dense multi- storied stands may have some DF encroachment.	15-20% cover, one story, clumpy distribution, no DF, release aspen if present.	Thin overstory and understory, favor pine.	
4, 5, 12	Mature 40-70 DF 0-20%	264	Dense multi-storied stands of DF, Spruce, Pine and Aspen.	15-25% cover, one story, clumpy distribution, no DF, release aspen.	Thin overstory and remove understory, remove conifers from selected clumps of aspen.	
23, 43	Mature 40-70 DF 20-40%	110	Dense multi-storied stands of DF, Spruce, Pine and Aspen.	15-25% cover, one story, clumpy distribution, no DF, release aspen.	Thin overstory and remove understory, remove conifers from selected clumps of aspen.	

<b>Table 2. Phantom Treatment Unit</b>						
<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
2, 8, 11, 13, 51, 56	Mature 40-70 Mixed 0-20%	2,437	Dense, multi-storied stands with variable aspects. 40-70% canopy cover. DF and Spruce are present on most aspects. Aspen is being overtopped by conifers.	15-25% cover, one story; clumpy distribution. DF and spruce restricted to north aspects. Release aspen.	Remove understory, and thin overstory clumps. Discriminate against DF and spruce except on north slopes.	
18, 34, 47, 50, 52, 53	Mature 40-70 Mixed 20-40%	4,499	Dense, multi-storied stands with variable aspects. 40-70% canopy cover. DF and Spruce are present on most aspects. Conifers are overtopping aspen.	15-25% cover, one story; clumpy distribution. DF and spruce restricted to north aspects. Release aspen.	Remove understory, and thin overstory clumps. Discriminate against DF and spruce except on north slopes.	Mistletoe is heavy in stands 47 and 52.
19,20,21,24,25, 27,29,	Sapling <10 Pine 0-20%	82	Evenly spaced plantation, trees 3-6 feet in height.	15-20% crown cover, one story clumpy distribution.	Defer treatment.	
1, 6, 9, 10	Aspen 40-70 0-20%	203	Dense stand of aspen.	As is.	None	
3, 7, 26, 42, 48	Grass <10 0-20%	304		As is.	None	

<b>Table 3. Rampart Treatment Unit</b>						
<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
3, 5, 6, 7, 9, 11, 14, 16, 17, 20, 22, 24, 29	Mature 10-40 Pine 0-20%	633	Open to dense, clumpy, multi- storied stands with variable aspects. 15-40% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes.	
1, 2, 13, 18, 21	Mature 40-70 Pine 0-20%	380	Moderate to dense multi-storied stands may have some DF encroachment.	15-20% cover, one story, clumpy distribution, no DF, release aspen if present.	Thin overstory and understory, favor pine.	
4, 8, 10, 12, 15, 19, 23, 25, 27, 30, 31, 63	Mature 40-70 DF 0-20%	918	Dense multi-storied stands of DF, spruce, pine and aspen.	15-25% cover, one story, clumpy distribution, no DF, release aspen.	Thin overstory and remove understory, remove conifers from selected clumps of aspen.	

<b>Table 4. Ridgewood Treatment Unit</b>						
<b>Stand</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
2, 20, 24, 39, 46, 48	Mature 10-40 Pine 0-20%	501	Open, clumpy, multi-storied. 15-25% canopy cover.	15-20% cover, one story; clumpy distribution, less mistletoe.	Remove understory, and thin overstory clumps.	Heavy mistletoe in stand 2 and light to heavy in stand 20.
3, 9, 11, 18, 28, 36, 38, 43, 40, 41	Mature 10-40 Pine 20-40%	174	Open, clumpy, multi-storied. 15-25% canopy cover.	15-20% cover, one story; clumpy distribution, less mistletoe.	Remove understory, and thin overstory clumps.	Stands 38, 40, and 41 (19 acres) require no treatment. Mistletoe is heavy in stand 3 and light to heavy in stand 11.
4, 6, 8, 14, 16, 21, 22, 27, 49	Mature 40-70 Pine 0-20%	686	Moderate to dense multi-storied stands, may have some DF encroachment. Mistletoe is light to heavy in some stands.	15-20% cover, one story, clumpy distribution, no DF, release aspen if present, less mistletoe.	Thin overstory and understory, favor pine, sanitize mistletoe.	Light to heavy mistletoe in stands 6, 14, 21, 27, and 49.
12, 44, 51	Mature 40-70 DF 0-20%	186	Dense multi-story stand of DF with some pine.	10-20% cover, one story, clumpy distribution, 50:50 mix of fir and pine.	Remove understory and thin overstory. Favor pine to reach 50:50 mix.	Light to heavy mistletoe in stands 44.
1, 10, 30, 31, 32, 33	Mature 40-70 DF 20-35%	617	Dense multi-story stand of DF with pine.	10-20% cover one story, clumpy distribution, 50:50 mix of fir and pine.	Remove understory and thin overstory. Remove understory and thin overstory. Favor pine to reach 50:50 mix.	

<b>Table 4. Ridgewood Treatment Unit</b>						
<b>Stand</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
15, 34	Mature 40-70 DF 35-50%	1276	Dense multi-story stand of DF with pine.	10-20% cover one story, clumpy distribution, 50:50 mix of fir and pine.	Remove understory and thin overstory. Remove understory and thin overstory. Favor pine to reach 50:50 mix.	
5	Sapling <10% Pine 0-20%	20	Plantation trees 3-6 feet tall, canopy cover <10%.	15-20% crown cover, one story, clumpy distribution.	Defer treatment.	
7, 13, 19, 23, 25, 26, 29, 35, 37, 42, 45, 47, 50	Grass <10 0-20%	489		As is.	None	

<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
74	Mature 10-40 Pine 0-20%	154	Open to dense, clumpy, multi-storied stands with variable aspects. 15-40% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes.	Light to heavy mistletoe in stand 13.
18, 58, 60, 64, 68 70, 71, 72, 76, 78, 80	Mature 10-40 Pine 20-40%	754	Open to dense, clumpy, multi-storied stands with variable aspects. 15-40% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes.	
33, 35	Mature 10-40 Pine 40-50%	16	Open to dense, clumpy, multi-storied stands with variable aspects. 15-40% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes. On north slopes 50/50 mix of DF and pine.	Stand 35 (9 acres) requires no treatment.
1, 5, 8, 9, 16, 19, 22, 23, 24, 27, 36, 38, 43, 47	Mature 40-70 Pine 0-20%	1,327	Dense, clumpy, multi-storied stands with variable aspects. 40-70% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes. On north slopes 50/50 mix of DF and pine.	Heavy mistletoe in stands 8 and 16. Light mistletoe in stands 1, 5, and 9.
7, 11, 14, 21, 29, 46, 49	Mature 40-70 Pine 20-40%	548	Open to dense, clumpy, multi-storied stands with variable aspects. 40-70% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes. On north slopes 50/50 mix of DF and pine.	Light to heavy mistletoe in stands 11, and 12.

<b>Table 5. Ryan Quinlan Treatment Unit</b>						
<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
32	Mature 40-70 Pine 40-50%	13	Open to dense, clumpy, multi-storied stands with variable aspects. 40-70% canopy cover. DF is present on most aspects.	15-20% cover, one story; clumpy distribution. DF restricted to north aspects.	Remove understory, and thin overstory clumps. Discriminate against DF except on north slopes. On north slopes 50/50 mix of DF and pine.	
15	Mature 40-70 DF 0-20%	61	Dense, multi-storied stands with generally north aspects. 40-70% canopy cover. Mix of DF, pine and spruce. Conifers are overtopping aspen.	15-25% cover, one story; clumpy distribution of DF spruce and pine. Aspen clumps are free of conifer competition.	Remove understory, and thin overstory clumps. Release aspen clumps. On north slopes 50/50 mix of DF and pine.	Heavy mistletoe in stand 15.
6, 17, 20, 30, 61, 63, 66, 69, 73, 75, 77, 79, 81, 91	Mature 40-70 DF 20-40%	973	Dense, multi-storied stands with generally north aspects. 40-70% canopy cover. Mix of DF, pine and spruce. Conifers are overtopping aspen.	15-25% cover, one story; clumpy distribution of DF spruce and pine. Aspen clumps are free of conifer competition.	Remove understory, and thin overstory clumps. Release aspen clumps. On north slopes 50/50 mix of DF and pine.	
31, 41, 59	Mature 40-70 DF 40-50%	202	Dense, multi-storied stands with generally north aspects. 40-70% canopy cover. Mix of DF, pine and spruce. Conifers are overtopping aspen.	15-25% cover, one story; clumpy distribution of DF spruce and pine. Aspen clumps are free of conifer competition.	Remove understory, and thin overstory clumps. Release aspen clumps. On north slopes 50/50 mix of DF and pine.	
2, 3, 4, 37, 42, 44	Sapling <10 0-20%	155	Evenly spaced plantation, trees 3-6 feet in height.	15-20% crown cover, one story clumpy distribution.	Defer treatment.	

<b>Table 5. Ryan Quinlan Treatment Unit</b>						
<b>Stands</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
25, 26, 28, 34, 39, 40, 45, 48, 87, 88,	Grass <10 0-20%	239		As is.	None	

<b>Table 6. Skelton Treatment Unit</b>						
<b>Stand</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
64	Mature 10-40 Pine 20-40%	27	Open clumpy, multi-storied stands, south aspects 15-20%, canopy cover.	15-20% cover, one story; clumpy distribution.	None required.	
2, 18, 21, 23, 24, 29, 31, 32, 33, 35, 37, 40, 41, 45, 46, 47, 49, 68	Mature 40-70 Pine 0-20%	378	Dense, multi-storied stands with generally south aspects. 40-70% canopy cover. DF and aspen occasionally present.	15-20% cover, one story; clumpy distribution. Little to no DF.	Remove understory, and thin overstory clumps. Discriminate against DF.	
9, 12, 26, 28, 34 39, 44, 48, 50, 51, 53, 57, 58, 60, 62, 65, 66, 69	Mature 40-70 Pine 20-40%	556	Dense, multi-storied stands with generally south aspects. 40-70% canopy cover. DF and aspen occasionally present.	15-20% cover, one story; clumpy distribution. Little to no DF	Remove understory, and thin overstory clumps. Discriminate against DF.	
1, 5, 10, 14, 22, 25, 30, 54, 55	Mature 40-70 Fir 0-20%	141	Dense, multi-storied stands with generally north aspects. 40-70% canopy cover. Mix of DF, pine, and spruce. Conifers are overtopping aspen.	15-25% cover, one story; clumpy distribution of DF, spruce, and pine. Aspen clumps are free of conifer competition.	Remove understory, and thin overstory clumps. Release aspen clumps.	

<b>Table 6. Skelton Treatment Unit</b>						
<b>Stand</b>	<b>Vegetation/ Slope Class</b>	<b>Acres</b>	<b>Existing Condition</b>	<b>Desired Condition</b>	<b>Treatment Objective</b>	<b>Comment</b>
3, 11, 16, 17, 42, 52, 56, 59 61, 63, 67, 74	Mature 40-70 Fir 20-40%	290	Dense, multi-storied stands with generally north aspects. 40-70% canopy cover. Mix of DF, pine and spruce. Conifers are overtopping aspen.	15-25% cover, one story; clumpy distribution of DF, spruce, and pine. Aspen clumps are free of conifer competition.	Remove understory, and thin overstory clumps. Release aspen clumps.	
13, 4, 6, 7, 8, 15, 19, 20, 27, 71, 72, 73,	Grass <10% 0-20%	75	Grass and shrub.	Grass and shrub.	None	
36 and 43	Aspen 40-70% 0-20%	15	Aspen	Aspen	None	