

## UNIT 1-2      T.33S., R.9W., section 1

**Stand Description:** Unit 1-2 is an unentered multi-storied stand with an overstory of mature and older Douglas-fir 20-36" dbh mixed with scattered large sugar pine. A middle canopy layer of scattered large madrone 10-16" dbh, canyon live oak 4-6" dbh, and tanoak 4-6" dbh is present. These canopy layers are above a layer of tanoak brush. There is a small amount of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Stand is showing signs of decline. Decay is present in some of the trees. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment. Larger hardwoods are dying out.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of Douglas-fir regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. There would be a scattering of hardwoods between the two canopy layers. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 1-2. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternatives 2 and 4.

**UNIT 11-1 T.33S., R.9W., section 11**

**Stand Description:** Unit 11-1 is very similar to other stands in the area. It is an unentered stand of pole and sawtimber size Douglas fir mixed with chinkapin. There are a very limited number of larger remnant conifers. There are a limited number of sugar pines. The sugar pine poles and hardwoods are falling out of the stand. Many of have died in recent years or will die in the near future. Past snow and/or wind damage is evident in a small percentage of the conifers. The understory is consists or open areas and areas of salal and tanoak brush.

**Analysis:** This area is designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked with conifers and other vegetation. Suppression mortality is occurring in smaller conifers and hardwoods. Ladder fuels are a concern along the ridge.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had a minimum of 60% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. There would be some development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be two-storied. Ladder fuels would be reduced to a degree.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir and sugar pine over limited amounts of brush and ground cover. The stand would contain scattered large hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial Density Management (CDM) is the recommended treatment for unit 11-1. Stocking should be reduced from below with the emphasis on maintaining a minimum canopy cover of 60% across the unit. Upper diameter limit for cutting is 11" dbh to conform with critical habitat definitions. Cable yard. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/burning piles or through underburning as needed to slow development of ladder fuels.

**Silvicultural Options Considered:** None.

## UNIT 12-1 T.33S., R.9W., section 12

**Stand Description:** Unit 12-1 is a two-storied stand. The overstory consists of mature and older Douglas fir generally 20-36" dbh mixed with scattered large sugar pine. The understory consists of patches of Douglas-fir regeneration mixed with brush form chinkapin and small amount of tanoak. Manzanita is present as is madrone, canyon live oak, and bear grass. The stand was entered for timber harvest.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Stand is showing signs of decline. Decay is present in some of the trees. There are numerous snags and spike top trees. There is a sufficient amount of conifer to emphasize its retention during timber harvest. Much of the regeneration would respond to a release treatment. Much of the overstory has been removed in a previous entry(ies).

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately nine large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation, removal of slash from established seedlings, and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through an Overstory Removal (OR) is recommended for unit 12-1. Harvest merchantable conifers greater than six inches dbh. Emphasize retention of existing conifer regeneration. Retain 6 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Evaluate for stocking levels. Space regeneration to a spacing of 14'x14' where clumpy. Handpile slash and burn piles. If necessary for unit to meet stocking standards, plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternative 4.  
CALIFORNIA GULCH

UNIT 22-1 T.33S., R.8W., sections 21, 22

**Stand Description:** Unit 22-1 is predominantly a two-storied stand. There are large scattered sugar pine and ponderosa pine over pole and sawtimber size Douglas fir. The understory is generally open with some light tanoak brush.

**Analysis:** Unit is in a designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Maintaining large pine in the unit is desired. Unit is overstocked. Smaller conifers capable of responding to release are present.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had a minimum of 60% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. The stand would be two-storied. Ladder fuels would be reduced to a degree.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of multiple canopy layers. There would be large Douglas fir and sugar pine over pole and sawtimber size conifers over limited amounts of brush and ground cover. The stand would contain scattered large hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial Density Management (CDM) is the recommended treatment for unit 22-1. Stocking should be reduced from below with the emphasis on maintaining a minimum canopy cover of 60% across the unit. Open up canopy 15' past the drip line around large pine. Upper diameter limit for cutting is 11" dbh to conform to critical habitat definitions. Helicopter yard. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/burning piles or through underburning as needed to slow development of ladder fuels

**Silvicultural Options Considered:** None.

**UNIT 23-1      T.33S., R.8W., section 23**

**Stand Description:** Unit 23-1 is a mixed stand. Within the stand there widely spaced mature and older Douglas fir, ponderosa pine, and sugar pine. These trees are scattered amongst small merchantable size conifers, non-merchantable conifers, tree form chinkapin, and madrone. The understory consists of evergreen huckleberry, limited amounts of manzanita, and salal. There is ceanothus in more open areas.

**Analysis:** Unit is in a designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Unit is overstocked as evidenced by areas of dead manzanita that have been shaded out. Smaller conifers (4-10" dbh range) capable of responding to release are present.

**Desired Future Condition:** The desired future condition resulting from this action would be a stand that had stand densities reduced. Reduction of densities would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. Ladder fuels would be reduced to a degree.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of multiple canopy layers. There would be large Douglas fir and pine over smaller conifers, brush and ground cover. The stand would contain scattered large hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** A non-commercial density management treatment is recommended for unit 23-1. Space non-commercial conifers and hardwoods that are less than 7" dbh on a 16'x16' spacing. Slash brush. Handpile slash and burn piles. No treatment to be done to commercial size conifers. Underburn where feasible in approximately 5 years to reduce ladder fuels. Slash, handpile, and burn piles where underburning would cause unacceptable risk or conifer mortality.

**Silvicultural Options Considered:** None.

UNIT 26-2 T.33S., R.8W., sections 23, 26

**Stand Description:** Unit 26-2 is a two-storied stand. The overstory consists of predominantly pole-size Douglas fir mixed with small sawtimber size conifers and hardwoods. Hardwood species include madrone, chinkapin, and tanoak. The understory consists of tanoak brush, rhododendron, evergreen huckleberry, canyon live oak, and salal.

**Analysis:** Unit is in a designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Unit is overstocked. Conifers capable of responding to release are present. Stand vigor is a concern.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had a minimum of 60% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. The stand would be two-storied. Ladder fuels would be reduced to a degree.

In the long-term, stand vigor would be improved. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain the characteristics of or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of multiple canopy layers. There would be Douglas fir pole and sawtimber size conifers over brush and ground cover. The stand would contain scattered hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial/noncommercial Density Management (CDM/NDM) is the recommended treatment for unit 26-2. Stocking should be reduced from below with the emphasis on maintaining a minimum canopy cover of 60% across the unit. Hardwoods may count for up to one sixth of the desired 60% canopy cover. Emphasize retention of codominants and dominants. Upper diameter limit for cutting is 11" dbh. Tractor yard from existing skid roads. Cable yard remaining areas. Space non-commercial conifers and hardwoods less than 7" dbh on a 16' x 16' spacing. Slash brush. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/burning piles or through underburning as needed to slow development of ladder fuels.

**Silvicultural Options Considered:** None.

## UNIT 26-3 T.33S., R.8W., section 26

**Stand Description:** Unit 26-3 is a stand of pole and sawtimber size Douglas fir. Understory consists of madrone, areas of tanoak brush, limited conifer regeneration, and areas that are relatively open.

**Analysis:** Unit is in a designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Portions of the unit are overstocked. Conifers capable of responding to release are present. Stand vigor is a concern.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had a minimum of 60% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. The stand would be two-storied. There would be some development of a second canopy layer as brush and other vegetation grew near the ground.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) two canopy layers. There would be Douglas fir pole and sawtimber size conifers over brush and ground cover. The stand would contain scattered hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial Density Management (CDM) is the recommended treatment for unit 26-3. Stocking should be reduced from below with the emphasis on maintaining a minimum canopy cover of 60% across the unit. Hardwoods may count for up to one sixth of the desired 60% canopy cover. Emphasize retention of codominants and dominants. Upper diameter limit for cutting is 11" dbh. Cable yard. Space non-commercial conifers and hardwoods less than 7" dbh on a 16'x16' spacing. Slash brush. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/burning piles or through underburning as needed to slow development of ladder fuels.

**Silvicultural Options Considered:** None.

UNITS 27-1A, 27-1B T.33S., R.8W., sections 27,28,34,28-1A,  
28-1B

**Stand Description:** These units have overstories of large sugar pine, ponderosa pine, and Douglas fir over pole and sawtimber size Douglas fir mixed with hardwoods. Some of the sugar pines are quite large. Some have diameters of over 6 feet. Some of the madrone and chinkapin are also large, falling into the 16"-24" dbh range. Understories are open in some areas. Other areas contain thick tanoak brush. There are areas of thick Douglas-fir regeneration.

**Analysis:** Unit is in a designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Maintaining large pine in the unit is desired. Maintaining stand vigor is a concern. Unit is overstocked. Smaller conifers capable of responding to release are present. Area gets a limited amount of recreational use. Ladder fuels and fuels build-up especially along roads are a concern.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had a minimum of 60% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. The stand would be two-storied. Ladder and roadside fuels would be reduced to a degree.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of multiple canopy layers. There would be large Douglas fir and sugar pine over pole and sawtimber size conifers over limited amounts of brush and ground cover. The stand would contain scattered large hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial Density Management (CDM) is the recommended treatment for these units. Stocking should be reduced from below with the emphasis on maintaining a minimum canopy cover of 60% across the unit. Open up canopy 15' past the drip line around large pine. Upper diameter limit for cutting is 11" dbh to conform with critical habitat definitions. Cable yard areas reachable from existing roads. Helicopter yard remaining areas. To address fuels concerns, space non-commercial conifers and hardwoods. Prune limbs along road. Slash brush. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/burning piles or through underburning as needed to slow development of ladder fuels.

**Silvicultural Options Considered:** None.

## MEADOW CREEK

UNITS 7-2A, 7-2B T.33S., R.8W., sections 6, 7, 8

**Stand Description:** Units 7-2A and 7-2B are unentered stands composed of smaller sawtimber, pole and post-size Douglas fir mixed with madrone. There is a limited amount of sugar pine. The sugar pine and hardwoods are falling out of the stand. Many of have died in recent years or will die in the near future. Past snow and/or wind damage is evident in a small percentage of the conifers. The understory is open with areas of salal, rhododendron, and canyon live oak. Bear grass is present. Manzanita is has been shaded out.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Pole and post size conifers are capable of responding to a thinning. Areas of the unit are overstocked with conifers and other vegetation. Suppression mortality is occurring in smaller conifers and hardwoods. With allowance to retain some “damaged” stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. There would be development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over brush and smaller conifers. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thin is the recommended treatment for unit 35-2. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Space non-commercial conifers. Cable yard. Handpile slash and burn piles. Underburn areas where mortality to retained trees would not result.

**Silvicultural Options Considered:** None.

UNIT 8-1 T.33S., R.8W., sections 7, 8

**Stand Description:** Unit 8-1 is a multi-storied stand. The overstory consists of mature and older Douglas 24-40" dbh mixed with sugar pine of the same size and larger. A middle canopy layer consists of areas of tree form chinkapin and tanoak as well as some madrone. Thick canyon live oak and areas of manzanita make up the lowest canopy. There are pockets of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Stand is showing signs of decline. Treetops are starting to thin. There are broken top trees. There are snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 8-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternative 4.

## UNIT 8-2 T.33S., R.8W., section 8

**Stand Description:** Unit 8-2 is a stand of pole and sawtimber size Douglas fir and sugar pine. Sugar pine comprises approximately 20-25% of the stand. Conifer diameters generally range from 12-20" at breast height. Most trees have diameters towards the center of that range. An estimated 20% of the conifers show snow or wind damage. Tree form chinkapin and canyon live oak are present. The understory contains salal and beargrass. There are scattered large remnant sugar pines within the stand. The stand is a multi-storied.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked with conifers and other vegetation. Area has experienced a wind or snow event greater than other stands in the area. With allowance to retain some "damaged" stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. The stand would continue to be multi-storied. Overall, the unit would retain considerable diversity. The upper canopy layer would consist of larger, older pine. Trees within this canopy layer would provide larger structural elements such as snags and coarse woody debris. A middle canopy layer would consist of mature conifers principally Douglas fir. The lowest canopy layer would consist of existing conifer regeneration and brush.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over brush and smaller conifers. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Maintenance of additional stems (and associated canopies) in areas of past snow and/or wind damage will help lessen the chances of unacceptable damage occurring, as the trees will tend to support each other.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thin is the recommended treatment for unit 8-2. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 50% across the unit to allow for potential top breakage from wind or snow. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles.

**Silvicultural Options Considered:** None.

UNIT 18-1      T.33S., R.8W., section 18  
                         **T.33S., R.9W., section 13**

**Stand Description:** Unit 18-1 is an unentered two-storied stand. The overstory consists of mature and older Douglas-fir 20-40" dbh mixed with occasional sugar pines of the same size and larger. This canopy layer is above an understory of thick tanoak and chinkapin brush that is mixed with areas of rhododendron. Areas where the understory is relatively open are present. There is a limited amount of canyon live oak and a limited amount of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 18-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Tractor yard where slopes are less than 35%. Rip skid roads when harvest is complete. Cable yard remainder of unit. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternative 4.

## UNIT 12-2 T.33S., R.9W., section 11

**Stand Description:** Unit 12-2 is very similar to other stands in the area. It is an unentered stand of pole and sawtimber size Douglas fir mixed with chinkapin and madrone. There are a very limited number of larger remnant conifers. There are a limited number of sugar pines. The sugar pine poles and hardwoods are falling out of the stand. Many of have died in recent years or will die in the near future. Past snow and/or wind damage is evident in a small percentage of the conifers. The understory is open with areas of salal and rhododendron. The stand is primarily a single-storied stand.

**Analysis:** This area is designated Late Successional Reserve. Objectives for this land use allocation are focused on late successional stand habitat and the wildlife that it supports. Pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked with conifers and other vegetation. Suppression mortality is occurring in smaller conifers and hardwoods. Ladder fuels are a concern in this ridge unit.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had a minimum of 60% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. There would be some development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be two-storied. Ladder fuels would be reduced to a degree.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir and sugar pine over limited amounts of brush and ground cover. The stand would contain scattered large hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial Density Management (CDM) is the recommended treatment for unit 12-2. Stocking should be reduced from below with the emphasis on maintaining a minimum canopy cover of 60% across the unit. Upper diameter limit for cutting is 11" dbh to conform with critical habitat definitions. Cable yard. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/burning piles or through underburning as needed to slow development of ladder fuels

**Silvicultural Options Considered:** None.

UNIT 12-4 T.33S., R.9W., section 12

**Stand Description:** Unit 12-4 is very similar to other stands in the area. It is an unentered stand of sawtimber, pole, and post-size Douglas fir mixed with chinkapin and madrone. There are a limited number of larger remnant Douglas fir and sugar pine. There are a limited number of sugar pines. The sugar pine and hardwoods are falling out of the stand. Many of have died in recent years or will die in the near future. Past snow and/or wind damage is evident in a small percentage of the conifers. The understory is open with areas of salal, rhododendron, and canyon live oak. Bear grass is present. Manzanita is has been shaded out.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked with conifers and other vegetation. Suppression mortality is occurring in smaller conifers and hardwoods. Ladder fuels are a concern in portions of this ridge unit. With allowance to retain some “damaged” stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be a hardwood component within the stand for a longer period of time. There would be development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Periodic underburning or other fuels treatment would retard the development of ladder fuels.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thin is the recommended treatment for unit 12-4. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles. Evaluate for fuels build-up 3-5 years after harvest. Treat fuels through slashing/handpiling/ burning piles or through underburning as needed to slow development of ladder fuels.

**Silvicultural Options Considered:** None.

## UNIT 13-1 T.33S., R.9W., section 13

**Stand Description:** Unit 13-1 is an unentered multi-storied stand. The overstory consists of mature and older Douglas-fir 20-40" dbh mixed with occasional sugar pines of the same size and larger. A middle canopy layer of scattered 4-8" dbh madrone is present. This canopy layer is above an understory of thick tanoak and chinkapin brush. Canyon live oak and manzanita are present. There is a limited amount of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Stand is showing signs of decline. Tree crowns are thinning. There are trees with broken tops and snags. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir with scattered pine. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 13-1. Design unit so that it cannot be seen from the Rogue River or other conflict with VRM II guidelines. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Tractor yard portions of the unit <35% slope. Cable yard remainder. Slash brush and damaged conifer regeneration. Handpile and burn piles. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** A smaller unit (39 acres) was considered for treatment in Alternative 2. No treatment under this project was considered in Alternative 4.

UNIT 17-3 T.33S., R.8W., section 17

**Stand Description:** Unit 17-3 is, for the most part, a two-storied stand of pole and sawtimber size Douglas fir that is mixed with scattered large, mature and older Douglas fir and sugar pine. Tree form chinkapin and madrone are present. Areas of salal, tanoak canyon live oak, and chinkapin brush, and Douglas-fir regeneration is present in the understory.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some “damaged” stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be multi-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain present canopy characteristics or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of multiple canopy layers. There would be larger Douglas fir and sugar pine over pole and sawtimber size Douglas fir over areas of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thin is the recommended treatment for unit 17-3. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles. Conduct follow-up treatment to maintain stocking standards. Follow-up treatments may include brushing, handpiling and burning piles, and underburning.

**Silvicultural Options Considered:** None.

MARI KELSEY

UNIT 13C T.32S., R.9W., section 13

**Stand Description:** Unit 13C is an unentered stand of pole, small sawtimber, sawtimber size, and mature Douglas fir. Diameters of the conifers generally range from 4-30" at breast height with most trees ranging from 6-16". There are occasional large, older remnant conifers with in the unit. Some wind and/or snow damage is evident on trees within the stand. Rhododendron and salal are present. Stand is two-storied.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Pole size and larger remnant conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some "damaged" stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. There would be development of ground cover and brush in the unit as the result of the canopy being opened. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thin is the recommended treatment for unit 13C. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles. Conduct follow-up treatment to maintain stocking standards. Follow-up treatments may include brushing, handpiling and burning piles, and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover was considered in Alternatives 2 and 4.

UNIT 14A T.32S., R.9W., sections 14, 23

**Stand Description:** Unit 14A is an unentered stand of pole and small sawtimber size Douglas fir and sugar pine. Douglas fir is the predominant species. Diameters of the conifers generally range from 3-16" at breast height. Some wind and/or snow damage is evident on trees within the stand. Tree form chinkapin, manzanita, and salal are present. Portions of the stand do not contain merchantable conifers. Stand is two-storied.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some "damaged" stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. Non-commercial size conifers would be spaced. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 12-4. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Above the Kelsey Mule Road retain a slightly higher canopy cover to allow for potential wind and/or snow damage in the future. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles.

Precommercial (PCT) thin non-merchantable conifers within the unit to a 14'x14' spacing. Slash brush and smaller (<7" dbh) hardwoods. In areas where there are no conifers, retain hardwoods on the 28'x28' grid. Utilize a 7" dbh upper diameter cut limit on conifers and hardwoods. Handpile and burn piles. Conduct follow-up treatment to maintain stocking standards. Follow-up treatments may include brushing, handpiling and burning piles, and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover in areas of pole-size conifers was considered in Alternatives 2 and 4.

## UNIT 22A T.32S., R.9W., sections 22, 23

**Stand Description:** Unit 22A is a two-storied stand. Overstory consists of pole and small sawtimber size Douglas fir and sugar pine. Diameters of these trees are generally less than 24" dbh. Tree form chinkapin and tanoak is present. The understory consists of rhododendron, manzanita, salal, and dwarf Oregon grape. Beargrass is present within the unit. In places the understory is open.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. Calvert Airstrip is adjacent to the unit. With allowance to retain some "damaged" stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. Non-commercial size conifers would be spaced. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre. Calvert Airstrip could still be used.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 22A. The thinning should be from below for most of the unit with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Within 100' of the ends of the airstrip and within 50' of the side the thinning should be from above. As in the other parts of the unit retain a minimum canopy of 40% canopy. Retained trees are to be vigorous trees capable of responding to release. Above the Kelsey Mule Road retain a slightly higher canopy cover to allow for potential wind and/or snow damage in the future. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles.

Precommercial (PCT) thin non-merchantable conifers within the unit to a 14'x14' spacing. Slash brush and smaller (<7" dbh) hardwoods. In areas where there are no conifers, retain hardwoods on the 28'x28' grid. Utilize a 7" dbh upper diameter cut limit on conifers and hardwoods. Handpile and burn piles. Conduct follow-up treatment to maintain stocking standards. Follow-up treatments may include brushing, handpiling and burning piles, and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover in areas of pole-size conifers was considered in Alternatives 2 and 4.

UNIT 23A T.32S., R.9W., section 23

**Stand Description:** Unit 23A is a stand of pole and sawtimber size Douglas fir with scattered larger trees occurring lower on the slope near the riparian reserve. Unit contains areas of smaller non-commercial size conifers mixed tanoak, madrone, canyon live oak and salal.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some “damaged” stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. Non-commercial size conifers would be spaced. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 23A. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles.

Precommercial (PCT) thin non-merchantable conifers within the unit to a 14'x14' spacing. Slash brush and smaller (<7" dbh) hardwoods. In areas where there are no conifers, retain hardwoods on the 28'x28' grid. Utilize a 7" dbh upper diameter cut limit on conifers and hardwoods. Handpile and burn piles. Conduct follow-up treatment to maintain stocking standards. Follow-up treatments may include brushing, handpiling and burning piles, and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover in areas of pole-size conifers was considered in Alternatives 2 and 4.

## UNIT 23-A1 T.32S., R.9W., section 23

**Stand Description:** Unit 23A-1 is a multi-storied stand. The overstory consists of mature and older Douglas fir. Diameters generally range from 20-40" dbh. The understory consists of tree form and brush form tanoak, with chinkapin and salal. There is little conifer regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 23-A1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternatives 2 and 4.

UNIT 24A T.32S., R.9W., section 24

**Stand Description:** Unit 24A is similar to many of the other younger stands in the area. It is a two-storied stand. The unit consists of areas of pole and small timber size Douglas fir mixed with hardwoods and noncommercial size Douglas fir. Understory vegetation includes tanoak, manzanita, rhododendron, and salal.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some “damaged” stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. Non-commercial size conifers would be spaced. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 24A. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles.

Precommercial (PCT) thin non-merchantable conifers within the unit to a 14'x14' spacing. Slash brush and smaller (<7" dbh) hardwoods. In areas where there are no conifers, retain hardwoods on the 28'x28' grid. Utilize a 7" dbh upper diameter cut limit on conifers and hardwoods. Handpile and burn piles. Conduct follow-up treatment to maintain stocking standards. Follow-up treatments may include brushing, handpiling and burning piles, and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover in areas of pole-size conifers was considered in Alternatives 2 and 4.

UNITS 26A, 26A-1 T.32S., R.9W., sections 22, 23, 26, 27

**Stand Description:** Units 26A and 26A-1 are stands of mature and older Douglas fir that overtop sawtimber, pole, and post size Douglas-fir regeneration. Stem diameters generally range from 3-26" dbh with some trees being larger. There is a limited amount of hardwoods and brush within the units. Species present include tanoak, madrone, and chinkapin.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately nine large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation, removal of slash from established seedlings, and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through an Overstory Removal (OR) is recommended for units 26A and 26A-1. Harvest merchantable conifers greater than six inches dbh. Emphasize retention of existing conifer regeneration. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Evaluate for stocking levels. Space regeneration at a spacing of 14'x14' where clumpy. Handpile and burn piles. If necessary for unit to meet stocking standards, plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Retention of 60% canopy cover was considered in Alternatives 2. No harvest of the overstory and precommercial thinning of the understory was considered in Alternative 4.

UNITS 27-1C, 27-2 T.32S., R.9W., section 27

**Stand Description:** Units 27-1C and 27-2 are multi-storied stands. The overstory consists of scattered larger, mature Douglas fir and sugar pine. A middle canopy layer consisting of pole and sawtimber size conifers with diameters generally between 8” and 20”. This middle layer also tree form tanoak and chinkapin. In places, there is a third canopy layer of salal, rhododendron, and tanoak. In other areas the understory is open. Some snow and/or wind damage is evident. Some Douglas-fir regeneration is present.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some “damaged” stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. Non-commercial size conifers would be spaced. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation. Maintenance of additional stems (and associated canopies) in areas of past snow and/or wind damage will help lessen the chances of unacceptable damage occurring, as the trees will tend to support each other.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 27-1C. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. In areas that have had substantial snow or wind damage in the past, retain a greater number of conifers (~50% canopy) to allow for future loss. Cable yard. Handpile slash and burn piles. Underburn /burn fuel concentrations where prescribed this type of prescribed fire would not cause unacceptable mortality.

Precommercial (PCT) thin non-merchantable conifers within the unit to a 14’x14’ spacing. Slash brush and smaller (<7” dbh) hardwoods. In areas where there are no conifers, retain hardwoods on the 28’x28’ grid. Utilize a 7” dbh upper diameter cut limit on conifers and hardwoods. Handpile and burn piles. This unit contains areas that may not meet stocking standards for smaller conifers (<8” dbh) after thinning is complete. Evaluate unit for stocking. Interplant as needed to meet standard. Conduct follow-up treatments to ensure survival of seedlings and maintenance of standard. Follow-up treatments may include additional brushing, handpiling, burning of piles and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover in areas of pole-size conifers was considered in Alternatives 2 and 4.

## UNIT 27-1D T.32S., R.9W., section 27

**Stand Description:** Unit 27-1D is a multi-storied stand. The overstory consists of scattered mature and older Douglas fir and sugar pine. A middle canopy layer consists of sawtimber and pole size Douglas fir. Most of these trees have diameters less than 30" dbh. Most have diameters near 16" dbh. Some tree form chinkapin and tanoak exists. The lowest canopy layer contains rhododendron, chinkapin, tanoak, salal, and beargrass. It is open in places.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. With allowance to retain some "damaged" stems for wildlife objectives growth would be concentrated on the more economically valuable trees.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 27-1D. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles. Conduct follow-up treatments such as brushing, handpiling and burning of piles, and underburning to maintain stocking.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternatives 2 and 4.

UNIT 27-3 T.32S., R.9W., section 27

**Stand Description:** Unit 27-3 is a multistoried stand. The overstory consists large, mature and older Douglas fir and sugar pine. Diameters are in the 40"-50" dbh range. There is a middle canopy layer of areas of pole and sawtimber size conifers mixed with tree form chinkapin, tanoak, and madrone. Below this layer are tanoak and chinkapin brush and salal. Some areas of the unit are understocked.

**Analysis:** This area is designated Matrix. Portions of the stand meet RMP criteria for regeneration harvest. Other parts of the stand do not meet regeneration harvest criteria but contain conifers. Concerns with slope stability and soils during road construction to access this unit and yarding that were voiced during the Interdisciplinary Team Process. Although parts of the unit contains older conifers, there are conifers present capable of responding to a thinning. Areas of the unit are overstocked. Areas of the unit do not meet stocking standards. There is mortality occurring within the larger diameter classes. A reduction in competition will help these trees remain in the stand.

**Desired Future Condition:** The desired future condition resulting from this action would be to maintain the health and presence of an overstory of large diameter conifers to allow existing smaller conifers within the stand to reach a merchantable size. The stand would be a multi-storied. The overstory would consist of large, mature and older conifers. The middle canopy layer would have been thinned and would have a canopy cover of approximately 40%. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease.

In the long-term, stand vigor would be maintained. Larger conifers would remain in the stand and would be in sound condition at the time thinned trees met criteria for regeneration harvest. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a multi-storied-stand. There would be Douglas fir over limited amounts of brush and ground cover. In areas there would be patches of young conifers. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing pole and sawtimber size conifers is the recommended treatment for unit 27-3. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across thinned areas. Space codominant and dominant trees where they are clumped. Throughout the unit, retain large, mature and older conifers unless they show signs of mortality within 2-3 years. Retain snags. Helicopter yard. Space non-commercial conifers on a 14'x14' spacing. Slash brush and hardwoods less than 7" dbh. Handpile slash and burn piles. Evaluate stocking levels. Consider planting of disturbed areas if stocking levels do not meet minimum standards. If necessary to meet minimum standards, plant with mixture of Douglas fir (75%) and minor species (25%) primarily rust resistant sugar pine. Conduct follow-up treatments through establishment of planted stock. These treatments could include additional brushing, handpiling, and burning of piles.

**Silvicultural Options Considered:** Regeneration harvest of areas with larger conifers was considered. Retention of 60% canopy cover was considered in Alternatives 2 and 4.

## UNIT 27-4 T.32S., R.9W., section 27

**Stand Description:** Unit 27-4 is much like unit 27-3. Unit 27-4 is a multistoried stand. There is an overstory of large, mature and older Douglas fir and sugar pine. There is a middle canopy layer of areas of pole and sawtimber size conifers mixed with tree form chinkapin, tanoak, and madrone. Below this layer are tanoak and chinkapin brush and salal. Some areas of the unit are understocked. There is mortality in parts of the stand.

**Analysis:** This area is designated Matrix. Portions of the stand meet RMP criteria for regeneration harvest. Other parts of the stand do not meet regeneration harvest criteria but contain conifers. Concerns with slope stability and soils during road construction to access this unit and yarding that were voiced during the Interdisciplinary Team Process. Although parts of the unit contains older conifers, there are conifers present capable of responding to a thinning. Areas of the unit are overstocked. Areas of the unit do not meet stocking standards. Unit 27-4 is similar to unit 27-3 in that there is mortality occurring within the larger diameter classes. There is, however, a greater amount of mortality in this unit. A reduction in competition will help these trees remain in the stand.

**Desired Future Condition:** The desired future condition resulting from this action would be to maintain the health and presence of an overstory of large diameter conifers to allow existing smaller conifers within the stand to reach a merchantable size. The stand would be a multi-storied. The overstory would consist of large, mature and older conifers. The middle canopy layer would have been thinned and would have a canopy cover of approximately 40%. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease.

In the long-term, stand vigor would be maintained. Larger conifers would remain in the stand and would be in sound condition at the time thinned trees met criteria for regeneration harvest. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a multi-storied-stand. There would be Douglas fir over limited amounts of brush and ground cover. In areas there would be patches of young conifers. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing pole and sawtimber size conifers is the recommended treatment for unit 27-4. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across thinned areas. Space codominant and dominant trees where they are clumped. Throughout the unit, retain large, mature and older conifers unless they show signs of mortality within 2-3 years. Retain snags. Helicopter yard. Space non-commercial conifers on a 14'x14' spacing. Slash brush and hardwoods less than 7" dbh. Handpile slash and burn piles. Evaluate stocking levels. Consider planting of disturbed areas if stocking levels do not meet minimum standards. If necessary to meet minimum standards, plant with mixture of Douglas fir (75%) and minor species (25%) primarily rust resistant sugar pine. Conduct follow-up treatments through establishment of planted stock. These treatments could include additional brushing, handpiling, and burning of piles.

**Silvicultural Options Considered:** Regeneration harvest of areas with larger conifers was considered in Alternative 1.

UNIT 28A T.32S., R.9W., section 28

**Stand Description:** Unit 28A is a stand of sawtimber mixed with mature and older Douglas fir. Stem diameters range from 10-24" dbh. Wind and/or snow damage is evident on some stems. The larger mature and older Douglas fir is located primarily in the eastern portion of the unit. The western portion consists of pole and sawtimber size conifers.

**Analysis:** This area is designated Matrix. The eastern portion of the unit meets RMP guidelines for regeneration harvest. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment. There are areas of pole and sawtimber size Douglas fir that would respond to the release provided by a commercial thin. Growth would be concentrated into existing stems with a thinning treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that retained multiple canopies. Overall, the unit would retain considerable diversity. Where there are currently large Douglas fir over pole size Douglas fir, advanced Douglas-fir regeneration, and hardwoods. The upper canopy layer would consist of larger, older conifers. Trees within this canopy layer would provide future larger structural elements such as snags and coarse woody debris. A middle canopy layer would consist of pole-size Douglas-fir. The lowest canopy layer would consist of existing conifer regeneration, hardwoods, and shrubs. Where there are currently smaller conifers, stand densities would be reduced. These areas would still retain many of the characteristics they currently have. Areas of smaller post/sapling size conifer regeneration would be spaced and retained trees would respond to the release.

In the long-term the unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of three canopy layers. There would be dominant conifers over pole size and mature Douglas fir. These two canopy layers would be over conifer regeneration. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for the eastern three-quarters of unit 28A. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present.

In areas of pole and sawtimber size conifers and areas where those trees are mixed with non-merchantable conifers and hardwoods, Commercial Thin (CT) is the recommended treatment. The thinning should be primarily from below with the emphasis on maintaining a canopy cover of 40%. When clumped, dominant trees may be removed to achieve better spacing. Emphasize retention of vigorous, well-formed pine where possible. Hardwoods may be counted for up to 10% of the desired canopy cover.

Cable yard. Slash brush and damaged conifer regeneration. Broadcast/ burn fuel concentrations areas with larger, more fire resistant trees. Handpile and burn piles other areas. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Commercial thinning (that retained 60% canopy cover) only of the unit was considered in Alternatives 2 and 4.

## UNIT 33-1 T.32S., R.9W., section 33

**Stand Description:** Unit 33-1 is a stand of pole and sawtimber size conifers mixed with mature and older Douglas fir, sugar pine and hardwoods. Stem diameters generally range from 6-24" dbh, with most 20"+dbh. The understory is predominantly Douglas fir, tanoak, chinkapin, and a limited amount of sugar pine. Some rhododendron is present. In the upper part of the unit, the understory is relatively open. There is a considerable amount of advanced Douglas-fir regeneration. In the lower part there are larger trees with little understory other than salal. There is some mistletoe in this area.

**Analysis:** This area is designated Matrix. The portions of the unit meet RMP guidelines for regeneration harvest. Conifer regeneration exists and is capable of responding to release. There are areas of pole and sawtimber size Douglas fir that would respond to the release provided by a commercial thin. Growth would be concentrated into existing stems with a thinning treatment. The potential for erosion on unit soils is rated in the moderate to severe range. Incorporation of applicable Best Management Practices (BMPs) described in the RMP should prevent unacceptable levels of erosion.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that retained multiple canopies. Overall, the unit would retain considerable diversity. Where there are currently large Douglas fir over pole size Douglas fir, advanced Douglas-fir regeneration, and hardwoods. The upper canopy layer would consist of larger, older conifers. Trees within this canopy layer would provide future larger structural elements such as snags and coarse woody debris. A middle canopy layer would consist of pole-size Douglas fir. The lowest canopy layer would consist of existing conifer regeneration, hardwoods, and shrubs. Where there are currently smaller conifers, stand densities would be reduced. These areas would still retain many of the characteristics they currently have. Areas of smaller post/sapling size conifer regeneration would be spaced and retained trees would respond to the release.

In the long-term the unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of three canopy layers. There would be dominant conifers over pole size and mature Douglas fir. These two canopy layers would be over conifer regeneration. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through an Overstory Removal (OR) is recommended for unit 33-1. Harvest merchantable conifers greater than six inches dbh. Emphasize retention of existing conifer regeneration. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Select against retaining trees infected with mistletoe. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present.

In areas of pole and sawtimber size conifers and areas where those trees are mixed with non-merchantable conifers and hardwoods, Commercial Thin (CT) is the recommended treatment. The thinning should be primarily from below with the emphasis on maintaining a canopy cover of 40%. When clumped, dominant trees may be removed to achieve better spacing. Emphasize retaining vigorous, well-formed pine where possible. Hardwoods may be counted for up to 10% of the desired canopy cover.

Cable yard areas along road. Helicopter yard other areas. Slash brush and damaged conifers. Space regeneration. Handpile and burn piles. Select against retaining trees infected with mistletoe. . Evaluate stocking. In necessary to meet stocking standards, plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct

follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Commercial thinning and helicopter only yarding of the unit was considered in Alternatives 2 and 4. In these alternatives the commercial thin would retain 60% canopy cover.

## UNIT 33-2 T.32S., R.9W., section 33

**Stand Description:** Unit 33-2 is a multi-storied stand. The southern portion of the unit contains an overstory of Douglas-fir 24"-36" dbh. There is a middle canopy layer of 12"-20" dbh Douglas fir and an understory that is open except for areas of tanoak brush. The northern portion of the unit has an overstory primarily of 10"-16" Douglas fir over canyon live oak and chinkapin. There are open areas with canyon live oak, manzanita, and Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. The portions of the unit meet RMP guidelines for regeneration harvest. There are areas of pole and sawtimber size Douglas fir that would respond to the release provided by a commercial thin. Growth would be concentrated into existing stems with a thinning treatment. The potential for erosion on unit soils is rated in the moderate to severe range. Incorporation of applicable Best Management Practices (BMPs) described in the RMP should prevent unacceptable levels of erosion.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that retained multiple canopies. Overall, the unit would retain considerable diversity. Where there are currently large Douglas fir over pole size Douglas fir, advanced Douglas-fir regeneration, and hardwoods. The upper canopy layer would consist of larger, older conifers. Trees within this canopy layer would provide future larger structural elements such as snags and coarse woody debris. A middle canopy layer would consist of pole-size Douglas fir. The lowest canopy layer would consist of existing conifer regeneration, hardwoods, and shrubs. Where there are currently smaller conifers, stand densities would be reduced. These areas would still retain many of the characteristics they currently have. Areas of smaller post/sapling size conifer regeneration would be spaced and retained trees would respond to the release.

In the long-term the unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of three canopy layers. There would be dominant conifers over pole size and mature Douglas fir. These two canopy layers would be over conifer regeneration. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 33-2. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present.

In areas of pole and sawtimber size conifers and areas where those trees are mixed with non-merchantable conifers and hardwoods, Commercial Thin (CT) is the recommended treatment. The thinning should be primarily from below with the emphasis on maintaining a canopy cover of 40%. When clumped, dominant trees may be removed to achieve better spacing. Emphasize retaining vigorous, well-formed pine where possible. Hardwoods may be counted for up to 10% of the desired canopy cover.

Cable yard. Slash brush and damaged conifer regeneration. Space releasable conifer regeneration on a 14'x14' spacing. Broadcast/ burn fuel concentrations areas with larger, more fire resistant trees. Handpile and burn piles other areas. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Commercial thinning of a smaller unit was considered in Alternatives 2 and 4. In these alternatives the commercial thin would retain 60% canopy cover. **UNIT 4-1 T.32S., R.9W., section 33**

**Stand Description:** Unit 4-1 is a multi-storied stand. The overstory consists of mature and older Douglas fir. Diameters generally range from 20-40" dbh. The understory consists of tree form and brush form tanoak, with chinkapin and salal. There is little conifer regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP guidelines for regeneration harvest. Some conifer regeneration exists but for the most part it is not of high quality. That is, much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 4-1. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Broadcast burn. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** No treatment under this project was considered in Alternative 4.

## UNIT 33A T.32S., R.9W., section 33

**Stand Description:** Unit 33A is a mixed stand. The northwestern portion of the unit consists of mature and older Douglas fir generally 15"-30" dbh. The understory is open with scattered areas of vegetation. The southeastern portion of the unit has a similar overstory. There is an understory of Douglas-fir regeneration.

**Analysis:** This area is designated Matrix. Stand meets RMP criteria for regeneration harvest. Portions of the unit contain conifers capable of responding to release. Areas of the unit are overstocked. Areas of the unit do not meet stocking standards.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would consist of a mixture of primarily mature Douglas fir. Trees within this layer would provide larger structural elements such as future snags and larger coarse woody debris. Canopy cover would be light, as approximately ten large conifers per acre would remain. The understory canopy layer would consist of existing Douglas-fir regeneration and regeneration that became established within a few years following harvest, treatment of activity fuels, and other site preparation. In the long-term, the stand would retain this two-storied structure. There would be 3-5 larger hardwoods/acre.

**Prevention/Avoidance Strategies:** Timely site preparation and reforestation following harvest would allow conifer seedlings the benefit of occupying the site before competitive species such as tanoak. Once conifer seedlings are established, maintenance of conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) and Overstory Removal (OR) is recommended for unit 33A. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. Retained conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yard. Slash brush and damaged conifer regeneration. Space undamaged regeneration. Broadcast burn areas without conifer regeneration. In areas with conifer regeneration, handpile and burn piles. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/ protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** A smaller unit consisting of the overstory removal portion of the unit was considered in Alternative 2. Under Alternative 2 there would be no broadcast burning. No treatment under this project was considered in Alternative 4.

UNIT 33B T.32S., R.9W., section 33

**Stand Description:** Unit 33B is a two-storied stand. The overstory consists of pole and sawtimber size Douglas fir. Stem diameters generally range from 12"-22" dbh. Openings exist in the stand from past wind and/or snow damage. Tree form chinkapin and madrone to 12" dbh are present. There is chinkapin and madrone brush. Understory consists of areas of Douglas-fir regeneration. In the northern part of the unit, ground cover consists of beargrass.

**Analysis:** This area is designated Matrix. Stand does not currently meet RMP guidelines for regeneration harvest. Conifers are capable of responding to a thinning. Areas of the unit are overstocked. Treatment would concentrate growth into fewer stems.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that had approximately 40% canopy cover retained across the unit. Reduction of the canopy to this level would result in reduced competition on retained trees. Growth rates of the remaining trees would increase. Mortality of remaining conifers and hardwoods would decrease. Non-commercial size conifers would be spaced. The stand would be two-storied.

In the long-term, stand vigor would be maintained. Crowns of existing trees would become fuller and overall canopy cover would increase from post harvest levels. Eventually canopy cover would return to near pretreatment levels. However, instead consisting of numerous smaller trees, the canopy would be formed from the crowns of fewer but larger trees. The unit would retain or develop (where disturbance created canopy gaps and there was no understory canopy layer) into a stand of two canopy layers. There would be Douglas fir over limited amounts of brush and ground cover. The stand would contain 3-5 larger hardwoods per acre.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Commercial thinning (CT) of areas containing merchantable conifers is the recommended treatment for unit 33A. The thinning should be from below with the emphasis on maintaining a minimum canopy cover of 40% across the unit. Space codominant and dominant trees where they are clumped. Cable yard. Handpile slash and burn piles

Precommercial (PCT) thin non-merchantable conifers within the unit to a 14'x14' spacing. Slash brush and smaller (<7" dbh) hardwoods. In areas where there are no conifers, retain hardwoods on the 28'x28' grid. Utilize a 7" dbh upper diameter cut limit on conifers and hardwoods. Handpile and burn piles. This unit contains areas that may not meet stocking standards for smaller conifers (<8" dbh) after thinning is complete. Evaluate unit for stocking. Interplant as needed to meet standard. Conduct follow-up treatments to ensure survival of seedlings and maintenance of standard. Follow-up treatments may include additional brushing, handpiling, burning of piles and underburning.

**Silvicultural Options Considered:** Retention of 60% canopy cover in areas of pole-size conifers was considered in Alternatives 2 and 4.

## WEST FORK WHISKY

UNIT West Fork Whisky Pine Enhancement/Maintenance  
T.33S.,R.8W., sections 4,5,8,9,10,15,16,17

**Stand Description:** The West Whisky Fork subwatershed is dominated with Douglas fir and scattered remnant sugar pine species in the upper canopy. Many of these trees are flat topped, indicating that the sites are low in productivity and that the trees are declining. The all aged stand conditions reflect the frequent fire intervals that occurred prior to the early 1900's. These conditions range from open brush fields dominated by tanoak to a few homogenous Douglas fir stands. The area is overstocked with brush, hardwoods, and conifers. Sugar pine mortality has increased the past few decades through drought and increased vegetative competition. Many sugar pine trees are displaying signs of stress through decreased crown ratios and needle loss.

**Analysis:** Fire suppression, since the early 1900's, has interrupted the fire frequency in southern Oregon and encouraged the overstocked conditions that present a high fire hazard. Additional pine mortality is expected unless competing vegetation is reduced. This area has limited access.

**Desired Future Condition:** The desired future condition for West Fork Whisky is to maintain the large overstory pine component and provide favorable conditions that allow smaller diameter pine to eventually grow and replace existing, larger trees.

**Prevention/Avoidance Strategies:** None.

**Recommended Treatment (see also Appendix 2; marking guidelines):** A treatment designed to maintain large pines within the treatment area is recommended. Within all land use allocations in the treatment area (except 100 acre owl core areas), create small openings (<1/4 acre) around large pines and groups of pine at a rate not to exceed two per acre where large pine are present. Emphasize retention of codominant and dominant trees. However, if codominant and dominant trees exist around large pines thin so that crowns do not interfere with crown of leave pine. Slash brush and hardwoods less than 7" dbh. Thin conifers and hardwoods in areas of pole and sawtimber size pine that are capable of responding to release. On Matrix allocated lands, cable yard where feasible. Helicopter remainder of treated Matrix. If judged to be a fuels concern (for example, areas near roads or high on a ridge) handpile slash and burn piles otherwise pull back from boles of pines and lop and scatter. Within Riparian Reserves create openings and reduce stocking in the outer half of the reserve only. The inner half of the Riparian Reserves is to be untreated. Openings are to be a minimum 300' apart. Retain dominant trees. Remove codominants if crowns interfere with crown of leave pine. Slash brush and hardwoods less than 7" dbh. Leave merchantable material on the site as coarse woody debris unless it is a fire hazard. If judged to be a fuels concern (for example areas near roads or high on a ridge), helicopter yard merchantable material, handpile slash and burn piles otherwise pull back from boles of pines and lop and scatter.

**Silvicultural Options Considered:** Salvage of snags in excess of the amounts described in the RMP was considered.

UNIT 4-2 T.33S., R.8W., section 4

**Stand Description:** Unit 4-2 is a two-storied stand with a north aspect and 55% slope. The overstory consists of mature and older Douglas fir and minor amounts of sugar pine. Average stand age is approximately 140 years and a quadratic mean diameter of 17 inches diameter breast height (DBH). The understory vegetation is dominated by salal with lesser amounts of Oregon-grape, tanoak and rhododendron. This is considered to be within the LIDE3-PSME/GASH-RHMA3 plant association.

**Analysis:** This area is designated Matrix and meets the RMP guidelines for regeneration harvest. This stand has reached culmination of mean annual increment. Some conifer regeneration exists but for the most part it is not of high quality. Much of the regeneration would not respond to a release treatment.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a unit that had two very distinct canopy layers. The upper canopy layer would be dominated by Douglas fir. These remaining trees would provide larger structural elements such as future snags and larger coarse woody debris. The upper canopy cover would be open, as approximately ten large conifers per acre would remain. The understory would consist of a mixture of residual Douglas fir and young conifers that become established after harvest and post harvest activities. In the long-term, the stand would retain this two-storied structure.

**Prevention/Avoidance Strategies:** Site preparation and reforestation following harvest would allow conifer seedlings to establish themselves before tanoak sprouts dominated the site. Once conifer seedlings are established, release of understory conifer canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment (see also Appendix 2; marking guidelines):** Modified Even-aged Silvicultural System with stand regeneration through a Regeneration Harvest (RH) is recommended for unit 4-2. Harvest merchantable conifers greater than six inches dbh. Retain 7 conifers across the range of diameters over 20" dbh per acre. These conifers should approximate species composition of the present stand and should be dispersed throughout the unit. Retained conifers should consist of both sound and cull trees. Retain three additional conifers per acre for future coarse woody debris. Retain 3-5 larger hardwoods per acre where present. Cable yarding is the recommended yarding system. Slash brush and damaged regeneration, handpile and burn piles. Plant with a mixture of 75% Douglas fir and 25% minor species predominantly rust resistant sugar pine. Conduct follow-up maintenance/protection treatments through stand establishment. Follow-up treatments may include treatments such as handpiling and burning of piles to reduce activity fuels.

**Silvicultural Options Considered:** Commercial thinning (retaining 60% canopy cover) of the unit was considered in Alternative 2. No treatment under this project was considered in Alternative 4.

UNIT 5-4,16-1,17-1,17-2 T.33S., R.8W., section 5, 16,17

**Stand Description:** Stands 5-4, 16-1, 17-1 and 17-2 are identified as belonging to the tanoak (Lide3) plant series and, for the most part, are within the LIDE3-PSME-QUCH/BENE2 plant association. The overstory is dominated by Douglas fir with scattered sugar pine and incense-cedar. The understory is composed primarily of tanoak, chinkapin, salal, and dwarf-Oregon-grape. While average stand basal areas range from 100 to 140 square feet/acre, these stands are generally open with overstocked pockets of mature Douglas fir and lesser numbers of associated conifers that range from one to two acres in size. Quadratic mean stand diameters range from 6 to 10 inches (DBH) with larger trees surpassing 52" DBH.

**Analysis:** The areas are designated Matrix. While portions of the units (primarily near the riparian reserves) meet or are close to meeting RMP criteria for regeneration harvest, the units overall do not.

The clumpy distribution of conifers and brushy tanoak openings suggest that these stands were influenced by wildland fires prior to the 1900's. The residual groups of mature conifers have withstood numerous fire events that maintained a lower level of competitive vegetation in the stands. The units are now overstocked with younger pole and sawtimber size conifers, hardwoods, and brush. Increment cores of the larger trees indicate reduced to minimal diameter growth. These trees are in a condition considered in a zone of imminent mortality. Areas of releasable conifers exist. Portions of these units are understocked with conifers.

**Desired Future Condition:** The desired future condition for the short-term is to maintain the health and presence of an overstory of large diameter Douglas fir and sugar pine to allow existing smaller conifers within the stand to reach a merchantable size. A middle canopy layer of released pole and sawtimber size conifers would exist. A lower canopy would consist of areas of Douglas fir regeneration mixed with limited amounts of brush. In the long-term, these stands would consist of large remnant Douglas fir and sugar pine over pole and sawtimber size conifers mixed with limited numbers of large hardwoods.

**Prevention/Avoidance Strategies:** None.

**Recommended Treatment (see also Appendix 2; marking guidelines):**

The objective of Commercial Thinning (CT) within units 16, 17, 17-1, and 5-4 is to reduce the basal area in areas that are overstocked. The target basal area is 120 square feet basal area per acre. The maintenance thinning would allow residual trees further dominance of the site by reducing competition for water and nutrients. At least 40% canopy cover would be maintained. Open canopy around large conifers (preferably sugar pine) to 15' past dripline. Precommercial thin using a 14' by 14' spacing in areas that contain non-commercial conifers. Brush units up to 7" DBH, handpile and handpile burn.

Within Riparian Reserves, reduce stocking levels of non-commercial conifers and hardwoods, space conifers 16'x16', slash brush, handpile and burn piles.

**Silvicultural Options Considered:** None.

UNIT 2-3 T.33S., R.10W., sections 2,3,10,11

**Stand Description:** Unit 2-3 is a young stand of ponderosa pine that was planted following the Quail Creek wildfire in the mid-1970s. Stem diameters generally range from 3"-14" dbh. Portions of the unit have been treated in the past with release and precommercial thinning treatments. In areas there is thick tanoak and ceanothus brush. In other areas the "understory" is open with Douglas-fir seedling in from surrounding mature trees.

**Analysis:** Unit is within a Late Successional Reserve. When viewed within the context of surrounding stands, unit is out of place. It is an isolated stand of pine within an area of mixed conifer stands, which are predominantly Douglas fir. Stand will take considerable time to provide meaningful habitat for late successional species. Douglas fir is seeding in from surrounding stands. Unit is near Rogue River Corridor (Congressional Reserve) and is along a backcountry byway.

**Desired Future Condition:** The desired future condition resulting from this action would, in the short-term, be a stand that would have changed little in outward appearance. The unit would contain stocking levels of approximately 150-220 young trees per acre. There would be a shift in stand composition towards more Douglas fir. Existing Douglas fir would be released.

In the long-term, the unit would blend in with the surrounding stands. Douglas fir would be the predominant species. There would be scattered larger ponderosa pine. Characteristics of older forests such as trees with larger branches, trees with fuller crowns, late successional forest associated species and multiple canopy layers would be present.

**Prevention/Avoidance Strategies:** None.

**Recommended Treatment:** A noncommercial density management (NDM) treatment that favors the retention of late successional conifer species such as Douglas fir over ponderosa pine is recommended. Thin the pines to an average spacing of 17'x17' where conifers are not already at that spacing. Release Douglas fir when it is greater than half the height of adjacent ponderosa pine. Retain the pine when the Douglas fir is less than half the height to retain visuals along the backcountry byway. Where Douglas-fir seedlings are clumpy and less than half the height of the pine space the Douglas fir on a 17'x17' spacing. Slash brush and hardwoods. Leave one or two main stems on clumps of madrone sprouts. Retain dogwoods, big leaf maples and willows. Utilize a 7" dbh upper diameter cut limit for these treatments. Prune conifers along byway and throughout the unit. Handpile slash and burn piles. Do treatments between October and May to avoid conflicts with recreation use of nearby areas. Conduct follow-up fuels treatments. Evaluate for need for similar treatments in the future so that acceleration of stand development can be achieved while minimizing visual effects to area.

**Silvicultural Options Considered:** Removal of a small amount of commercial size material was considered.

UNITS 14C,23B,23E,33D T.32S., R.9W., sections 14,23,33

**Stand Description:** These units are stands of smaller non-commercial size conifers primarily Douglas fir with a minor component of sugar pine. Some merchantable size trees exist in the stands. Hardwoods are present and consist of chinkapin, tanoak, and madrone. Salal is present.

**Analysis:** These area are designated Matrix. Stand meets does not RMP guidelines for regeneration harvest. Conifers for the most part are not large enough for a commercial operation. Units are overstocked with non-commercial conifers, hardwoods, and brush. Many of these conifers would respond to a release treatment.

**Desired Future Condition:** The desired future condition of these units in the short-term would be stands of vigorous well-spaced conifers. There would be a minor component of hardwood trees. In the long-term, the stands would develop into stands of pole and sawtimber size conifers. One or more commercial thinning operations would be possible. Given a longer period of time the stands would consist of sawtimber size conifers and large hardwoods.

**Prevention/Avoidance Strategies:** Maintenance of canopy cover and subsequent treatments such as fertilization to increase this canopy cover and density would slow/prevent the establishment and growth of competitive vegetation.

**Recommended Treatment:** A precommercial thin (PCT) is the recommended treatment for these units. Space conifers on a 14' x 14' spacing. Slash brush. Utilize a 7" dbh upper diameter cut limit on both conifers and hardwoods. Retain dogwoods. Handpile and burn piles. Conduct follow-up treatments such as brushing, handpiling and burning of piles, and underburning to maintain stocking.

**Silvicultural Options Considered:** None.

**KELSEY WHISKY EIS  
MARKING GUIDELINES**

(for the preferred alternative)

**REGENERATION HARVESTS**

**RH Units** 31-1,5-1,6-3,6-4,6-5,7-1,35-1,1-1,1-2,8-1,18-1,13-1,23-1A,4-1,4-2

**OR Units** 12-1, 26A, 26A1

**RH/OR Unit** 33A

**RH/CT, OR/CT Units** 6-2, 28A, 33-2, 33-1

**In areas of larger conifers:**

**Conifers >20 inches dbh**

- Retain 7 per acre (to comply with 6-8 larger trees per acre as called for by RMP; verify number of acres before marking)
- Retain conifers across the range of diameters
- Retain conifers to represent species present before harvest
- Disperse through unit where possible (ex. 7 tpa corresponds to approximate spacing of 79' X 79')
- Retain both sound and cull trees
- Retain if falling would damage or destroy regeneration
- Retain to form buffer of uncut trees around desired snags

**Additional Conifers to meet interim CWD guidelines**

- Retain 2 trees per acre greater than 20 inches dbh (verify number of acres before marking)
- Retain 1 tree per acre 10-19 inches dbh (verify number of acres before marking)
- Retain well-formed, vigorous trees
- Retain a mix of species
- Retain throughout the unit

**Hardwoods**

- Retain larger (>10 inches dbh) trees
- Retain a mix of species
- On an acre by acre basis, not an average over the unit (3 tpa corresponds to an approximate spacing of 120' X 120')

**In areas of pole and sawtimber size conifers**

- See marking guides for Commercial Thinning units.

**In areas that contain large as well as pole and sawtimber size conifers**

- Space conifers greater than 20 inches dbh on an approximate spacing of 79 x79 (approximately 7 trees per acre) in that area. Select trees as described above. No additional conifers in these areas to be retained for coarse woody debris.
- Space pole and sawtimber size conifers as described under commercial thinning units.

**Snags**- retain except when they are a safety hazard

**COMMERCIAL THIN**

CT Units 35-2, 7-2A,7-2B,8-2,12-4,17-3,13C,27-1D,27-3,27-4

CT/PCT Units 14A,22A,23A,24A,27-1C,27-2,33B,5-4,16-1,17-1,17-2

**Thin from below (unless noted)**- Mark so that the trees to be removed are primarily suppressed and intermediates. Mark to take selected codominants and dominants when they are clumped. All CT and CT/PCT units except unit 8-2 to be marked so that 40% canopy cover remains at the end of the treatment. Unit 8-2 to retain 50% canopy cover.

Unit 22A - Thin from above portions of the unit within 100' of the ends and within 50' of the side of Calvert Airstrip.

Units 5-4, 16-1, 17-1, 17-2 - These units to be thinned across the range of diameters to a conifer basal area of 120 square feet. Retain vigorous, well-formed conifers. Trees to be removed include suppressed, intermediates, codominants, and dominants. Favor retention of pines.

**Pole and smaller sawtimber (<20 dbh) size trees**

- Retain larger, well-formed trees without wind, snow, or other damage (generally dominants and codominants)
- Retain trees with full, vigorous, long crowns
- OK to vary spacing some to retain best trees
- Retain some broken top/damaged trees on grid (for wildlife)

**Species preference**

- Retain conifers that represent species mix of stand
- Retain releaseable pine over other species. Mark so that pines are spaced a little more open than Douglas-fir or white fir.
- Retain Douglas-fir over white fir.

**Occasional Remnant Mature/Old Growth Conifers within units (all CT, CT/PCT units except 5-4, 16-1, 17-1, 17-2)**

- Retain 8-10 per acre where present as leave trees
- Where present space approximately 65 X 65'
- Favor pines that are likely to remain in stand for awhile

## **COMMERCIAL DENSITY MANAGEMENT**

**CDM Units**                                **11-1,22-1,26-3,27-1A,27-1B,28-1A,28-1B,12-2**

**CDM/NDM Units**                        **26-2**

**Reduce stand density (thin) from below** - Mark so that the trees to be removed are suppressed and intermediates. Retain codominants and dominants. Mark with the objectives of the land use allocation in mind (late-successional stand characteristics). Retain overall canopy cover of 60%. Around large conifers (especially pines) within units 27-1A, 27-1B, 28-1A, and 28-1B open up canopy to 15' past dripline (with 11 dbh upper diameter cut limit).

Conifers Greater than 11 inches DBH

-Retain all.

### **Conifers Less than or equal to 11 inches DBH**

-Retain larger, well-formed trees without wind, snow, or other damage

-Retain trees with good crowns

-OK to vary spacing

-Retain some broken top/damaged trees on grid (for wildlife)

### **Species preference**

-Retain conifers that represent species mix of stand

-Retain releaseable pine over other species. Mark so that pines are spaced a little more open than Douglas-fir or white fir.

-Retain Douglas-fir over white fir.

-Reserve retain late successional conifers such as hemlock and western red cedar

## **PINE ENHANCEMENT/MAINTENANCE UNIT**

### **West Fork Whiskey Creek Uplands**

### **West Fork Whiskey Creek Riparian Reserves**

Mark to create small openings (<1/4 acre) around large pines and groups of pine at a rate not to exceed two per acre where large pine are present. Large pine should be the vigorous and as free of disease and mistletoe as possible. Emphasize the retention of codominant and dominant trees. However, if codominant and dominant trees exist around large pines, mark to thin so that retained trees do not interfere with the crown of the leave pine(s). Openings within the outer half of Riparian Reserves are to be a minimum of 300' apart. No treatment within inner half of the Riparian Reserves. Within Riparian Reserves retain dominant trees.

# Appendix 14-1. Past Timber Harvests and Related Projects in the Project Area since 1982.

Past Timber Harvests and Related Projects North

Harvest and Projects	Legal Description	Type of Harvest per Acre	Miles of Road Construction	Miles of Road Renovation	Miles of Road Closures
Marial alternative road (culverts)					
Cold Mule Timber Sale	Sec. 13, 15, 19-	325 acres (2 acres of R/W) 180 acres RH 92 acres OSR 53 acres CT 9 acres RR	0.7 miles of temp road construction	25 miles of existing road were storm proofed to reduce potential erosion and plugging culverts	
Marial Road Improvement	Sec. 6; T33S, R10W, Sec.1,	6 acres 20 trees removed for safety		Entire road ripped 25 culverts replaced and 20 new installed ditches filled goal- improve drainage, reduce sediment, increase road width and remove protruding rocks on road	
Mule's Brew Replacement Timber Sale	Sec. 19, 29, 31, Sec. 1 & 12	151 acres (1 acre R/W)	The following temp road spurs were constructed: 11a, 12b, & 13	19.7 miles of road renovated	
Byways Hazard Salvage		58 acres Roadside hazard tree removal along the Byway.			
Whisky Creek Cabin Road Surfacing	Sec. 27			1.5 miles of existing natural surface road would be rocked 5 culverts installed spot rocking and water management where unstable soils and stee radiant are	Portion of roadway below gate within 0.25 miles of the Wild and Scenic stretch of the Rogue River would remain closed to the public

Harvest and Projects	Legal Description	Type of Harvest per Acre	Miles of Road Construction	Miles of Road Renovation	Miles of Road Closures
Mule Creek Road Management Plan	Sec. 15; T32S, R10W, Sec.35			present Improvements needed to reduce sediment runoff into Whisky Creek during storm events	vehicular traffic
Liberty Salvage	Sec. 16, 20 &	1 acre CC 3 acres Salvage tree removal along roads and one small clearcut.			Barricade 7.7 miles of road with 7 lockable gates 24.4 miles of road with 18 barricades of logs, rock, etc. goal – limit motor vehicle access to reduce harassment of elk
Bobby Creek Timber Sale	Sec. 15, 16, &	85 acres CC		1.1 miles of existing road re-surfaced	Roads 32-15.4, 32-9-barricaded with log/soil berm
Dutch Henry Timber Sale	Sec. 31 Sec.34 &35	172 acres (119 acres CC)	miles of new road construction	0.1 mile road improvement	
Sawmill Gap Timber Sale	Sec. 12 & 13	9 acres overstory removal unit project boundary, rest of			

Harvest and Projects	Legal Description	Type of Harvest per Acre	Miles of Road Construction	Miles of Road Renovation	Miles of Road Closures
Rueben Road surfacing and additional culverts 1990s		sale outside.			
Kelsey Creek North Timber Sale	Sec. 22, 23, &	108 acres CC 6 acres R/W	0.9 mile of new road construction	2.4 miles of existing road re-surfaced	32-9-13 road barricaded with guard rail at 32-9-13 intersection
Anaktuvuk Relog Timber Sale	Sec. 8, 17, 18 &	87 acres CC		9.5 miles road improvement	
Ana Plot Timber Sale	Sec. 25, 26 &	27 acres CC		1.6 miles road renovation	
Cold Decks Salvage	Sec. 15, 16 &	1 acre 15 log decks on landings			
Trapper's Trap	Sec. 25, 26, & Sec. 29 & 31	425 acres (399 acres CC)	1.0 miles temp road construction	27.6 miles road renovation blading, cleaning of ditches and culverts, and roadside brushing)	
Whisky Creek Timber Sale	Sec. 8, 16, 17,	308 acres (299 acres CC)	4.0 miles of new road construction	3.9 miles of road improvement	
Arrasta Plot II Timber Sale	Sec. 30	2 acres CC 1 acre other			
East Whisky LIM Timber Sale	Sec. 9	19 acres CC 7 acres other			
Ana-Scattered Salvage	Sec. 17, 20, 29	20 acres CC	0.1 miles new construction	1.9 miles road improvement	

Harvest and Projects	Legal Description	Type of Harvest per Acre	Miles of Road Construction	Miles of Road Renovation	Miles of Road Closures
Arrasta Plot Timber Sale	Sec. 30				
Marial Plot Timber Sale	Sec. 35				
Mule Ridge Again Salvage	Sec. 1&2 Sec. 16 & 21	19 acres road side salvage			
Bruin II Timber Sale	Sec. 28, 29, 30,	268 acres CC		11.15 miles road improvement 6.86 miles road improvement	
Corral Releg Timber Sale	Sec. 31	274 acres CC	1.2 miles new road construction	1.2 miles road improvement	
Dutch Kelsey Timber Sale	Sec. 4, 5 & 6 Sec. 1, 10, 11 &	305 acres CC	miles new road construction	14.1 mile road improvement	
Mule Bob Cleanup Timber Sale	Sec. 15 & 22	21 acres Individual salvage tree and clearcut wildlife tree removal			
Scattered Mules Timber Salvage	Sec. 16, 20, 21,	59 acres Individual salvage tree removal			
Thin Bobby Timber Sale	Sec. 15, 16, &	6 acres R/W clearcut 93 acres partial cut	1.2 miles new road construction		

Harvest and Projects	Legal Description	Type of Harvest per Acre	Miles of Road Construction	Miles of Road Renovation	Miles of Road Closures
Marial Thin Timber Sale	Sec. 35 & 36	53 acres cut look up what kind of cut	4.4 miles road improvement		
Mule Arrasta Timber Sale	Sec. 20, 21, 28 Sec. 23, 24, 25	282 acres CC	19.3 miles road improvement		
Rebon Cleanup Salvage	Sec. 4, 9 & 11	50 acres Partial cut salvage within and around past timber sale units and along roads.			
Walker Return Timber Sale	Sec. 17	41 acres CC rest of sale is area.	No road work to this part of sale.		
<b>Totals</b>		<b>3,291 acres</b>	<b>33.6 miles</b>	<b>127.61 miles</b>	<b>32.1 miles</b>

Legend

CC = Clear cut  
 Shelterwood cut (removal cut)  
 R/W = Right-of-way

RR = Riparian Reserves, only treated for fuels  
 RH = Regeneration Harvest  
 SRC = Stand Replacement Cut (leaving 6-8 trees/acre)

= Overstory Removal  
 Commercial Thinning

## Appendix 14-2. Regeneration Success.

Stocking Class represents a measure of the distribution of regeneration, expressed as the proportion (percentage) of the area actually occupied by conifer and a limited number of hardwood trees. Stocking is determined from a series of circular plots. For the Medford District under the Northwest Forest Plan (NFP), plot size for trees less than 4.1 inches dbh is 1/229<sup>th</sup> of an acre, which corresponds to a circular plot with a radius of 7.8 feet. Average spacing corresponds to approximately 14' X 14'. Pre-NFP standards were based on plot sizes relative to site class.

NFP standards are more closely linked to assumptions made in the Kelsey Whiskey EIS planning. Target stocking has 80-100% of the regeneration plots occupied by suitable trees. Minimum stocking has 60-79% of the regeneration plots occupied by suitable trees. Sub-minimum stocking is where less than 60% of the regeneration plots are occupied by suitable trees. To be counted as stocked, a plot must contain at least one tree of suitable attributes. A suitable tree is a tree species, adapted to the ecological site, considered capable of meeting forest management objectives. It may qualify as a component of the stand by having survived at least one growing season in the field. Current stocking standards are higher for Matrix allocated lands where production of timber is a primary objective and lower for reserve areas where there habitat and other non-timber objectives.

The following table depicts regeneration success of acres denuded by timber harvest and wildfire within the Kelsey Whiskey EIS area. It contains combined information from both Forest Plan and pre-Forest Plan survey systems. The breakdown of stocking classes under both systems when viewed independently is essentially the same. Given the tools described in the Medford District RMP and sufficient funding, reforestation success of harvest units within the Kelsey Whiskey is expected to be similar.

### Regeneration Success by Stocking Class (1959-Present)

Acres reforested through seeding and/or planting

STOCKING CLASS	planted/seeded	
	Acres	%
TARGET	6517	84%
MINIMUM	1035	13%
SUB-MINIMUM	194	3%
TOTAL	7746	100%

### Glendale Resource Area Micro\*Storms Database.

Forest management does not end with the successful regeneration of cut or burned areas. Unit condition and stocking are mentioned and treatments to promote growth and stand characteristics applicable to the land use allocation are done to meet the objectives of the allocation. (Stocking classes will be updated as monitoring under the Forest Plan system is done.) These treatments are done until the unit has reached a point where commercial thinning and commercial density management (8-12' dbh) is appropriate. Some of the units regenerated in the late 1950s and 2960s have reached this point.

# Appendix 15. Public Comments and BLM Responses.

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Many comments fell into a category of “statement of opinion” without providing additional information not previously known, or provided no substantive argument for considering the statement anything more than a personal point of view. Some of these types of statements required no response. Many comments have been combined with others to facilitate concise and complete responses. Each letter was given a unique number.

**Table A15-1 Commenters to the Kelsey Whisky DEIS and corresponding letter number**

#	Name of Commenter	#	Name of Commenter	#	Name of Commenter
1	Gerald F. Jeli	5	Ianto Evans	9	J. Cass
2	Howard S. Gold	6	Allison Hamilton	10	Gary Brostek
3	Tim Rosenthal	7	Friends of Living Oregon Waters	11	Sallie S. Danielson
4	Jacob S. Handwerher	8	Nan & Walter Simpson	12	Lynn Pruzan

#	Name of Commenter	#	Name of Commenter	#	Name of Commenter
13	Lea Wood	41	Barbara Deutsch	69	Shirley Nelson
14	David and Julie Occhioto	42	Siskiyou Project	70	Charles Steadman
15	David Rains Wallace	43	Headwaters	71	Randall E. Hartman
16	Northwest Environmental Defense Center	44	Klamath Siskiyou	72	James Bender
17	Ted Scourles	45	Stacy Drake	73	Phyllis Kirk
18	Alex Hamilton III	46	Jonathan Levann	74	Myra Erwin
19	Judith K. Canepa	47	Association of O & C Counties	75	Deborah Newell
20	Jeremy Kamil	48	Lance Bisaccia	76	Dianna Huntington
21	William K. Steele	49	Siskiyou Chapter, Native Plant Society of Oregon	77	Peter Zadis
22	Barry D. Blumberg	50	Elaine Woodruff	78	M.L. Chris Fielding
23	Jim O'Neil	51	Chris Matheurn	79	Corrie Watterson
24	Oregon Natural Resource Council	52	Rachel Aquino	80	Robert Adams
25	Neil Seigel	53	Joan Baylie and Jim Mullins	81	Mr. & Mrs. Stephen L. Graves
26	David Mildrexler	54	John Schraufnagel	82	Reg Reagau
27	John Saemann	55	Phyllis Macy	83	Charlie Vincent
28	Karen L. Machciniski	56	Bradley H. Boyden	84	Connie Lonsdale
29	Lydia Garvey	57	Vasiliki P. and Paul Jr. L. Kelly	85	Rod Birney, M.D.
30	Barbara Dudman	58	Gerald and Robin Wisdom	86	John M. Kalb
31	Richard Campos	59	Donald Fontenot	87	Paul T. Howard
32	C.E. Close M.D.	60	McKenzie Flyfishers	88	John Saemann
33	Bruce Campbell	61	Olive Miller	89	Susan Landu
34	Gerald Orchard	62	Joanne Vinton	90	Dorothy J. Layman
35	Dr. & Mrs. Jonathan S. Levy	63	James Bender	91	John Pamperin
36	Sally Streeter	64	Clifford E. Anderson	92	Susanna DeFazio
37	Frances Petschek	65	Gary and Christine Pellett	93	Sharon Laskey
38	Paul Moss	66	Patricia K., Just Imagine U, Inc.	94	David Shane
39	R. Meehan	67	C Smith	95	Julie Remmerde
40	Terry Raymer	68	Mark R. Furler	96	Helon Howard

#	Name of Commenter	#	Name of Commenter	#	Name of Commenter
97	Margie Mee	113	Carla Winston	129	Russell Frankel
98	Eletheah Kesarah	114	Swanson Group, Inc.	130	Elizabeth Roberts
99	Steve Krisa	115	Barry Sniktkin	131	John Yoakum
100	Carol Ampel	116	David Dillon	132	Francis Eatherington
101	Alison Miller	117	Justin Fleming	133	Don Schuman
102	Southern Oregon Timber Industries Association (SOTIA)	118	Dave Metz	134	Sarah Damsell
103	Robert R. Rodriguez	119	Judith Gonzalez Plascencia	135	Marion Warfield
104	Swanson Group	120	Bill Yake	136	Scott Vasak
105	Robert L. Harvey	121	Steve Koller	137	Guy Prouty
106	M. Levin	122	Dave Willis	138	Alice Di Micele
107	Diane Hillgrove	123	S. Gertsch/R.Moore	139	Christine Perala
108	United States Environmental Protection Agency Region 10	124	Beverly B. McDonald	140	Adrienne Sturbois
109	Jane Moody	125	Wayne L. Kelly	141	Cheyne Cumming
110	Karen Salley PhD	126	Cynthia M. Hogan	142	Rebecca P. Wilmore
111	Steven Polinger	127	Rolf Starr	143	Odgen Kellogg
112	George Shook	128	Gerald G. Gold	144	Larry Laitner

**Appendix 15- BLM responses to public comments on the Kelsey Whiskey Draft EIS**
