OFRC Dry Forest Restoration Recommendations – January 2017

Overarching Statement

The Ochoco Forest Restoration Collaborative is a diverse group of stakeholders who work together to create and implement a shared vision to improve the resilience and well-being of forests and communities in the Ochoco Mountains. OFRC members strive to balance the ecological, economic, and social needs of the forest and the community, recognizing that these needs are interconnected.

Summary

The dry forests of the Ochoco National Forest (defined as the ponderosa pine, Douglas-fir, and dry grand fir plant association groups) are significantly less healthy and resilient today than they were historically, prior to the mid- to late- 1800's. In their current condition, the dry forests of the Ochoco National Forest cannot adequately meet the diverse ecological, economic, and social needs and values identified by the Ochoco Forest Restoration Collaborative. Past management, lack of management, and the effects of drier, warmer winters and longer, hotter summers have combined to create changes in the dry forests. Those changes include overly dense forests dominated by fire-intolerant and drought-intolerant trees, increased risk of severe wildfire, decreased resilience to insects, disease, and drought, and degraded habitat for many dry forest wildlife species.

Throughout 2016 members of the OFRC Dry Forest Subcommittee and the full OFRC participated in presentations, discussions, and field trips with leading scientists, foresters, silviculturists, and fire managers to better understand a wide range of science and management ideas necessary to craft the following management recommendations. These recommendations are intended to meet the wide range of values identified by the group, including restoring the resilience of the dry forests to fire, insects, disease, and drought, and improving the well-being of local communities through landscape restoration projects that include forest thinning and commercial tree harvest. The OFRC recognizes the importance of project viability on the Ochoco National Forest and is eager to continue working with the Forest Service to ensure dry forest restoration work is both economically and ecologically viable.

Based on the compiled knowledge and OFRC discussions, we have developed the following management recommendations using local topographic conditions and appropriate scale to guide forest restoration treatments. There is a great deal of information and detail contained in the recommendations below, but in general they describe:

- The reduction and removal of some of the overabundant grand fir and Douglas-fir (both fire- and drought-intolerant species), while maintaining older, fire-tolerant and drought-tolerant tree species like ponderosa pine.

- The goal of putting dry forests on a trajectory to develop over time in to more open and less uniform forests that more closely resembles the healthy, resilient dry forests that were historically present across more than half of the Ochoco National Forest landscape.
- And include the use of scientific data on current and historical forest conditions to inform desired future conditions, restoration goals, and objectives. Note: in this document the term "historical forest condition" refers to forest conditions prior to the mid-to late-1800's. The use of historical conditions does not mean a strict attempt to "go back to" historical forests, but instead to use clues from the past to guide how we restore forests to be resilient in the future.

The OFRC recognizes the many interests and needs of its membership, the forest, and the community. In the development of these dry forest recommendations the OFRC membership identified the following overarching and interconnected values:

OFRC Values Categories for Dry Forest Recommendation Process

- Resilient and functioning forests
- Community health and safety
- Economic benefits for local communities
- Social benefits to communities
- Fiscally responsible management/Sustainable forest management
- Habitat for diverse and healthy wildlife populations
- Healthy aquatic systems and streams
- Forest serves multiple uses/users
- Value added recommendations to the Forest Service (from OFRC)
- Science based forest management

These recommendations are based on differences in dry forest conditions across the following four **topographic positions:**

- Topographic Position One: Hot, dry, gentle slopes or flat areas at low to mid-elevations with shallow to moderate soils.
- Topographic Position Two: Hot, dry, south aspects with moderate to steep slopes and hot, dry ridgetops at low to mid-elevations with shallow to moderate soils.
- Topographic Position Three: Warm, dry, north and east aspects with moderate to steep slopes at mid-elevations with shallow to moderate soils
- Topographic Position Four: Warm, dry to somewhat moist, north and east aspects on toe-slopes at low-to mid-elevations with moderate soils

The recommendations are further organized into **three scales of planning/management** across the Ochoco National Forest:

- Landscape-scale
- Project-scale
- Stand-scale

Desired Future Conditions

A description of **Desired Future Conditions** crafted by the OFRC (describing the OFRC's vision of how the forest would ideally look in the future) for each of the topographic positions and associated dry forest type on the Ochoco National Forest is provided below.

Topographic Position One

Hot, dry, gentle slopes or flat sites at low to mid-elevations with shallow to moderate soils will be home to open forests dominated (more than 90%) by large, old ponderosa pine trees and isolated/infrequent (less than 10%) large, old western juniper. Stumps and downed western juniper are evident indicating treatments to restore this forest structure and species composition. There are multiple age-classes of ponderosa pine from seedlings, to vigorous young trees, to big, old pine throughout the forest. Stands include a mix of individual trees, various sized clumps of trees, and small openings. This variability and the open canopy allows more sunlight to reach the ground, allowing a rich understory of native grasses and forbs to flourish. There is evidence of low-severity fire in the forest, in the form of burned stumps, charred lower bark, and vigorous grassy understories. Dispersed throughout the forest are large snags and large downed logs, including along riparian areas and streams. There are healthy stands of aspen and hardwood trees and shrubs along streams, springs, and wet meadows. There are also healthy stands of mountain mahogany found in appropriate environments like hot, dry, rocky south-facing slopes within this topographic position.

Topographic Position Two

Hot, dry, south aspects with moderate to steep slopes and hot, dry ridgetops at low to mid-elevations with shallow to moderate soils will be home to open forests dominated (more than 90%) by large, old ponderosa pine trees and isolated/infrequent (approximately 5-10%) large, old Douglas-fir. Stumps are evident indicating treatments to restore this forest structure and species composition. There are multiple age-classes of ponderosa pine from seedlings, to vigorous young trees, to big, old pine throughout the forest. Stands include a mix of individual trees, various sized clumps of trees, and small openings. This variability and the open canopy allows more sunlight to reach the ground, allowing a rich understory of native grasses and forbs to flourish. There is evidence of low-severity fire in the forest, in the form of burned stumps, charred lower bark, and vigorous grassy understories. Dispersed throughout the forest are large snags and large downed logs, including along riparian areas and in streams. There are healthy stands of aspen and hardwood trees and shrubs along streams, springs, and wet meadows.

Topographic Position Three

Warm, dry, north and east aspects with moderate to steep slopes at mid-elevations with shallow to moderate soils will be home to open forest dominated by a majority (approximately 75%) of large, old ponderosa pine trees and occasional (approximately 25%) large, old Douglas-fir. Stumps are evident indicating treatments to restore this forest structure and species composition. There are multiple age-classes of ponderosa pine and Douglas-fir from seedlings,

to vigorous young trees, to big, old trees throughout the forest. Stands include a mix of individual trees, various sized clumps of trees, and small openings. This variability and the open canopy allows more sunlight to reach the ground, allowing a rich understory of native grasses, forbs, and shrubs to flourish. There is evidence of low- and mixed-severity fire in the forest, in the form of burned stumps, charred lower bark, occasional small patches of burned trees, and vigorous grassy understories. Dispersed throughout the forest are large snags and large downed logs, including along riparian areas and in streams. There are healthy stands of aspen and hardwood trees and shrubs along streams, springs, and wet meadows.

Topographic Position Four
Warm, dry to somewhat moist, north and east aspects on toe-slopes at low-to mid-elevations with moderate soils will be home to primarily open forest dominated by a majority (approximately 80%) of large, old ponderosa pine trees and occasional (approximately 20%) large, old grand fir and Douglas-fir. Stumps are evident indicating treatments to restore this forest structure and species composition. There are multiple age-classes of trees, primarily ponderosa pine from seedlings, to vigorous young trees, to big, old trees throughout the forest. Stands include a mix of individual trees, various sized clumps of trees, small openings and occasional dense patches. This variability and the open canopy allows more sunlight to reach the ground, allowing a rich understory of native grasses, forbs, and shrubs to flourish. There is evidence of low- and mixed-severity fire in the forest, in the form of burned stumps, charred lower bark, occasional small patches of burned trees, and vigorous grassy understories. Dispersed throughout the forest are large snags and large downed logs, including along riparian areas and in streams. There are healthy stands of aspen and hardwood trees and shrubs along streams, springs, and wet meadows.

Landscape-scale Recommendations

*Landscape-scale recommendations describe **overarching restoration goals and strategies** necessary to reach OFRC desired future conditions that are **best considered at the scale of the 638,000-acre Ochoco National Forest**. The goals and strategies incorporate scientific principles of dry forest restoration, alongside ecological, economic and community values.*

- **Advance science-based forest management** using the best available science, local data, and OFRC monitoring results to guide planning and management decisions such as the location, distribution, and type of restoration treatments across the landscape to reach OFRC desired future conditions (see above) for the Ochoco dry forest types
    - **Use topographic positions** (and their associated biophysical environments) as a template to develop forest restoration goals in the appropriate location and distribution across the dry forest landscape on the Ochoco National Forest. The four topographic positions associated with dry forests on the Ochoco National forest include:
        1. Hot, dry, gentle slopes or flat areas at low to mid-elevations with shallow to moderate soils, historically occupied by forests of predominantly ponderosa pine and some western juniper

2. Hot, dry, south-aspects with moderate to steep slopes and hot, dry ridgetops at low to mid-elevations, historically occupied by nearly pure ponderosa pine forests
3. Warm, dry, north- and east-aspects with moderate to steep slopes at mid-elevations with shallow to moderate soils, historically occupied by forests of predominantly ponderosa pine and some Douglas-fir
4. Warm, dry to somewhat moist, north- and east-aspects on toe-slopes at low- to mid-elevations with moderate soils, historically occupied by forests of predominantly ponderosa pine and some grand fir and Douglas-fir

- **Increase dry forest resilience and function** by analyzing and developing a landscape prescription to address surpluses and deficits across the landscape in forest successional classes (in other words, young, mid-, and old forest) for each dry forest type compared to historical conditions
  - For example, use local data to analyze and inform the location, distribution, amount, and type of restoration treatment to address the current overabundance of dense, uniform mid-successional closed forest conditions and increase the amount of late-successional open forest conditions consistent with historical conditions
- **Promote adaptive management** by engaging OFRC throughout planning, implementation, and monitoring of dry forest restoration projects that utilize collaborative restoration recommendations and incorporate lessons learned to improve future management

- **Increase community safety and forest resilience** through the use of restoration treatments to manage dry forest conditions so that when wildfires do occur in dry forest types, patches of high-severity fire will be small, can be controlled, and will be isolated across the landscape
  - Forest structure, density, and species composition goals at all scales should **reflect the best available (preferably local) science on historical fire regimes prior to the late 1800's**, which in the case of the dry forests was predominantly frequent, low-severity and some mixed-severity fire that maintained healthy, resilient dry forest conditions

- **Improve habitat for key wildlife** indicator species that utilize the dry forest types using restoration treatments to increase habitat suitability and permeability across the landscape
- **Incorporate road and trail system** considerations in landscape planning by maintaining, creating, rerouting, closing, and decommissioning roads and trails as needed to meet management and restoration needs, improve forest and stream conditions, and increase functional wildlife habitat
- **Recognize and take into account important local values** in the planning, design, and implementation of restoration activities at the landscape-, project- and stand-scale in the dry forest types, including:

- **Economic values**, such as economic viability of forest management and restoration; economic benefits to local communities
- **Social values**, such as recreation access, quality of life, scenic views, community safety and wildfire protection, healthy and abundant wildlife
- **Ecological values**, such as forest function and resilience, stream function and resilience, water quality and quantity, air quality, flora and fauna biodiversity, wildlife habitat

Project-scale Recommendations

*Project-scale recommendations **describe restoration strategies and objectives** necessary to reach OFRC desired future conditions that are **best incorporated at the scale of Forest Service planning areas or project areas** (for example, the Wolf Project or Gap Project) on the Ochoco National Forest. In addition to the scientific principles of dry forest restoration and their drivers, project-scale recommendations also call for the use of project-level data on management history and historical conditions, as well as current forest conditions to help inform the location, distribution, and types of restoration treatments within projects.*

- **Advance science-based forest management** using the best available science, local data, and OFRC monitoring results to guide planning and management decisions, goals, and objectives in dry forest restoration projects, such as project prioritization, location, distribution, and treatment types necessary to reach collaborative desired future conditions for the Ochoco dry forest types
    - **Use topographic, biophysical, and disturbance regime drivers** like aspect, elevation, slope, slope position, temperature, precipitation, soils, and historical fire data to further refine forest restoration treatment objectives for each dry forest type within a given project area:
        1. **<u>Hot, dry, gentle slopes or flat areas at low to mid-elevations with shallow to moderate soils</u>:**
            - The goal of restoration treatments on these topographic positions is to **put them on a trajectory to develop into forests** dominated by large, old ponderosa pine and isolated/infrequent large, old western juniper, with multiple age-classes of these species arranged in a variable pattern in an open forest with abundant understory vegetation dominated by native grasses and forbs, as well as mountain mahogany on appropriate biophysical sites within this forest type
        2. **<u>Hot, dry, south-aspects with moderate to steep slopes and hot, dry ridgetops at low to mid-elevations with shallow to moderate soils</u>:**
            - The goal of restoration treatments on these topographic positions is to **put them on a trajectory to develop into forests** dominated by large, old ponderosa pine and isolated/infrequent large Douglas-fir, with multiple age-classes of these species arranged in

a variable pattern in an open forest with abundant understory vegetation dominated by native grasses and forbs

3. **<u>Warm, dry, north- and east-aspects with moderate to steep slopes at mid-elevations with shallow to moderate soils</u>:**
    - The goal of restoration treatments on these topographic positions is to **put them on a trajectory to develop into forests** dominated by large, old ponderosa pine and large, old Douglas-fir, with multiple age-classes of these species arranged in a variable pattern in an open forest with abundant understory vegetation dominated by native grasses and forbs
4. **<u>Warm, dry to somewhat moist, north- and east-aspects on toe-slopes at low- to mid-elevations with moderate soils</u>:**
    - The goal of restoration treatments on these topographic positions is to **put them on a trajectory to develop into forests** dominated by large, old ponderosa pine, some large, old grand fir and some large, old Douglas-fir, with multiple age-classes of these species arranged in a variable pattern in an open forest with abundant understory vegetation dominated by native grasses and forbs

- **Use best available science on historical and future forest conditions** to inform forest resilience goals and develop forest structure, density, species composition, and pattern objectives (defined more specifically in stand-scale recommendations) in all topographic positions
- Consider the range and distribution of current (pre-treatment) stand conditions within the project area, their past management history, and how the location, distribution and type of proposed treatments across the project will restore forest resilience at the project- and landscape-scale. **In other words, think about the starting conditions across the project and landscape, not just at the stand-level,** and set up treatments to improve forest resilience at multiple scales

- **Increase community safety and forest resilience** through forest restoration and fuels reduction treatments that reduce the current risk of high-severity fire, increase the potential to use prescribed fire where appropriate to reduce future high-severity fire, and promote the development and maintenance of the forest structure, density, species composition, and pattern described in the stand-scale recommendations
    - If necessary given current (starting) stand conditions, **treat stands prior to prescribed burning** to reduce tree density, basal area, crown closure, and ladder fuels in order to minimize mortality to merchantable timber
    - **Address post-treatment slash** and associated fire risk by developing an economically-viable plan to manage within-stand slash levels
    - **Consider fire and smoke impacts** on public health, safety, and private property concerns when determining appropriate use and location of prescribed fire treatments to achieve restoration objectives

- **Collaborate with adjacent landowners** during prescribed fire planning to increase trust, transparency, understand public concerns, and facilitate shared learning across ownership boundaries

- **Incorporate road and trail system** considerations in project planning by maintaining, creating, rerouting, closing, and decommissioning roads and trails as needed to meet management and restoration needs, improve forest and stream conditions, and increase functional wildlife habitat
- **Recognize and take into account important local values** in the planning, design, and implementation of restoration activities within project areas to sustain resilient, healthy, functioning forests that **provide economic, social, and ecological benefits**

Stand-scale Recommendations

*Stand-scale recommendations **describe specific restoration actions and objectives** necessary to reach OFRC desired future conditions that are **best applied at the scale of individual forest stands within Forest Service planning or project areas** on the Ochoco National Forest. These include descriptions of the desired forest structure, density, species composition, and pattern for each dry forest type based on topography, biophysical environment, historical forest conditions, management history, and unique forest microsites.*

- **Advance science-based forest management** using the best available science, local data, and OFRC monitoring results to guide stand-level objectives in each of the dry forest types, such as forest structure, density, species composition, and pattern, to reach OFRC desired future conditions for the Ochoco dry forest types
    - Restore forest structure, density, species composition, and pattern of trees, tree clumps, openings, and understory vegetation consistent with each topographic position, biophysical environment, and associated historical conditions for each of the dry forest types:
        1. **<u>Hot, dry, gentle slopes or flat areas at low to mid-elevations with shallow to moderate soils</u>:**
            - **Thin stands** to reduce the density and increase average stand diameter (in other words, increase average tree size) by **removing young western juniper regardless of size** (and Douglas-fir and grand fir if present) that are growing within approximately 1.5x the dripline of large ponderosa pine. Note: the recommendation to remove young western juniper above does not necessitate hauling this biomass out of the forest.
                - Tree dripline here refers to the extent, or radius, of the tree crown
            - **Shift predominant forest structure** to large ponderosa pine while retaining isolated western juniper consistent with historical species composition mix (see below) for this dry forest type

- **Retain old trees of all species regardless of size** using a guide like the one developed by Robert Van Pelt with some exceptions for old trees that pose a hazard based on Forest Service hazard tree definitions
    - Using Robert Van Pelt's "Identifying Old Trees and Forests" guide makes identifying old trees (commonly defined by other collaborative groups as trees greater than 150 years old) feasible based on easily traits like bark characteristics, lower branch structure, and crown form
- **Improve the resilience and vigor of old trees** by removing young western juniper (and young Douglas-fir and grand fir if present) regardless of size that are growing within approximately 1.5x the dripline of old trees to remove ladder fuels and reduce competition for water
    - Tree dripline here refers to the extent, or radius, of the tree crown
- Use restoration treatments to **shift species composition to ponderosa pine dominance and reduce western juniper prevalence** (and Douglas-fir and grand fir if present), putting stands on a trajectory over time so a majority of basal area (more than 90%) is composed of large diameter, old, fire-tolerant ponderosa pine, and less than 10% of basal area is western juniper or other species, unless site-specific evidence suggests a different species composition goal.
    - When thinning ***outside*** 1.5x the dripline of large and old ponderosa pine to achieve the species composition mix described above, concentrate retention of western juniper in the largest, oldest trees
- Where mountain mahogany is present or the biophysical site is appropriate for that species, thin young ponderosa pine and western juniper to **support growth and vigor of mountain mahogany**
- Where a range of age-classes of ponderosa pine are absent, **increase tree age-class diversity** by retaining appropriate amounts of healthy, young and mid-aged replacement trees and by introducing small, irregularly shaped (i.e. not round) openings ranging in size from .1 to 2 acres in size to recruit new ponderosa pine cohorts
- **Thin stands** in order to put them on a trajectory to develop over time into open forests dominated by large, fire-tolerant trees with large branch structure

- When thinning stands, **use variable density thinning** to leave a variety of individual trees, various sized clumps of trees, small dense patches, and small openings (.1 to 2 acres in size)
- **Improve forest understory vegetation and forage** by thinning stands and reintroducing prescribed fire where appropriate to stimulate abundant native grasses and forbs

2. **<u>Hot, dry, south-aspects with moderate to steep slopes and hot, dry ridgetops at low to mid-elevations with shallow to moderate soils</u>:**
    - **Thin stands** to reduce the density and increase average stand diameter (in other words, increase average tree size) by **removing young Douglas-fir and grand fir regardless of size** that are growing within approximately 1.5x the dripline of large ponderosa pine
        - Tree dripline here refers to the extent, or radius, of the tree crown
    - **Shift predominant forest structure** to large ponderosa pine while retaining isolated Douglas-fir consistent with historical species composition mix (see below) for this dry forest type
    - **Retain old trees of all species regardless of size** using a guide like the one developed by Robert Van Pelt with some exceptions for old trees that pose a hazard based on Forest Service hazard tree definitions
        - Using Robert Van Pelt's "Identifying Old Trees and Forests" guide makes identifying old trees (commonly defined by other collaborative groups as trees greater than 150 years old) feasible based on easily traits like bark characteristics, lower branch structure, and crown form
    - **Improve the resilience and vigor of old trees by removing young Douglas-fir and grand fir regardless of size** that are growing within approximately 1.5x the dripline of old trees to remove ladder fuels and reduce competition for water
        - Tree dripline here refers to the extent, or radius, of the tree crown
    - Use restoration treatments to **shift species composition to ponderosa pine dominance and reduce Douglas-fir and grand fir prevalence**, putting stands on a trajectory over time so a majority of basal area (more than 90%) is composed of large diameter, old, fire-tolerant ponderosa pine, and less than 5-10% of basal area is Douglas-fir or grand fir, unless site-specific evidence suggests a different species composition goal. This includes treating young western juniper that have encroached into dry forest types to reduce their prevalence to historically appropriate levels

    - When thinning ***outside*** 1.5x the dripline of large and old ponderosa pine to achieve the species composition mix described above, concentrate retention of Douglas-fir and grand fir in the largest, oldest trees, which often have less economic value (more defect) but high wildlife value
- Where a range of age-classes of ponderosa pine are absent, **increase tree age-class diversity** by retaining appropriate amounts of healthy, young and mid-aged replacement trees and by introducing small, irregularly shaped (i.e. not round) openings ranging in size from .1 to 2 acres in size to recruit new ponderosa pine cohorts
- **Thin stands** in order to put them on a trajectory to develop over time into open forests dominated by large, fire-tolerant trees with large branch structure
- When thinning stands, **use variable density thinning** to leave a variety of individual trees, various sized clumps of trees, small dense patches, and small openings (.1 to 2 acres in size)
- **Improve forest understory vegetation and forage** by thinning stands and reintroducing prescribed fire where appropriate to stimulate abundant native grasses and forbs

3. **<u>Warm, dry, north- and east-aspects with moderate to steep slopes at mid-elevations with shallow to moderate soils</u>:**
    - **Thin stands** to reduce the density and increase average stand diameter (in other words, increase average tree size) by **removing some young Douglas-fir and grand fir regardless of size** that are growing within approximately 1.5x the dripline of large ponderosa pine
        - Tree dripline here refers to the extent, or radius, of the tree crown
    - **Shift predominant forest structure** to large ponderosa pine, some large Douglas-fir, and isolated large grand fir consistent with historical species composition mix (see below) for this dry forest type
    - **Retain old trees of all species regardless of size** using a guide like the one developed by Robert Van Pelt with some exceptions for old trees that pose a hazard based on Forest Service hazard tree definitions
        - Using Robert Van Pelt's "Identifying Old Trees and Forests" guide makes identifying old trees (commonly defined by other collaborative groups as trees greater than 150 years old) feasible based on easily traits like bark characteristics, lower branch structure, and crown form

- **Improve the resilience and vigor of old trees by removing some young Douglas-fir and grand fir regardless of size** that are growing within approximately 1.5x the dripline of old trees to remove ladder fuels and reduce competition for water
    - Tree dripline here refers to the extent, or radius, of the tree crown
- Use restoration treatments to **shift species composition to ponderosa pine dominance and reduce Douglas-fir and grand fir prevalence**, putting stands on a trajectory over time so a majority of basal area (approximately 75%) is composed of large diameter, old, fire-tolerant ponderosa pine, and approximately 25% of basal area is large Douglas-fir with a minor component of grand fir, unless site-specific evidence suggests a different species composition goal. This includes treating young western juniper that have encroached into dry forest types to reduce their prevalence to historically appropriate levels
    - When thinning ***outside*** 1.5x the dripline of large and old ponderosa pine to achieve the species composition mix described above, concentrate retention of Douglas-fir and grand fir in the largest, oldest trees, which often have less economic value (more defect) but high wildlife value
- Where a range of age-classes of ponderosa pine and Douglas-fir are absent, **increase tree age-class diversity** by retaining appropriate amounts of healthy, young and mid-aged replacement trees and by introducing small, irregularly shaped (i.e. not round) openings ranging in size from .1 to 2 acres in size to recruit new ponderosa pine cohorts
- **Thin stands** in order to put them on a trajectory to develop over time into open forests dominated by large, fire-tolerant trees with large branch structure
- When thinning stands, **use variable density thinning** to leave a variety of individual trees, various sized clumps of trees, small dense patches, and small openings (.1 to 2 acres in size)
- **Improve forest understory vegetation and forage** by thinning stands and reintroducing prescribed fire where appropriate to stimulate abundant native grasses and forbs

4. **<u>Warm, dry to somewhat moist, north- and east-aspects on toe-slopes at low- to mid-elevations with moderate soils</u>:**
    - **Thin stands** to reduce the density and increase average stand diameter (in other words, increase average tree size) by **removing some young grand fir and Douglas-fir regardless of size** that are growing within approximately 1.5x the dripline of large ponderosa pine

    - Tree dripline here refers to the extent, or radius, of the tree crown
- **Shift predominant forest structure** to large ponderosa pine and some large grand fir and large Douglas-fir consistent with historical species composition mix (see below) for this dry forest type
- **Retain old trees of all species regardless of size** using a guide like the one developed by Robert Van Pelt with some exceptions for old trees that pose a hazard based on Forest Service hazard tree definitions
    - Using Robert Van Pelt's "Identifying Old Trees and Forests" guide makes identifying old trees (commonly defined by other collaborative groups as trees greater than 150 years old) feasible based on easily traits like bark characteristics, lower branch structure, and crown form
- **Improve the resilience and vigor of old trees by removing some young Douglas-fir and grand fir regardless of size** that are growing within approximately 1.5x the dripline of old trees to remove ladder fuels and reduce competition for water
    - Tree dripline here refers to the extent, or radius, of the tree crown
- Use restoration treatments to **shift species composition to ponderosa pine dominance and reduce grand fir and Douglas-fir prevalence**, putting stands on a trajectory over time so a majority of basal area (approximately 80%) is composed of large diameter, old, fire-tolerant ponderosa pine, and approximately 20% of basal area are large grand fir and Douglas-fir, unless site-specific evidence suggests a different species composition goal. This includes treating young western juniper that have encroached into dry forest types to reduce their prevalence to historically appropriate levels
    - When thinning ***outside*** 1.5x the dripline of large and old ponderosa pine to achieve the species composition mix described above, concentrate retention of Douglas-fir and grand fir in the largest, oldest trees, which often have less economic value (more defect) but high wildlife value
- Where a range of age-classes of ponderosa pine, Douglas-fir, and grand fir are absent, **increase tree age-class diversity** by retaining appropriate amounts of healthy, young replacement trees and by introducing small, irregularly shaped (i.e. not round) openings ranging in size from .1 to 2 acres in size to recruit new ponderosa pine cohorts

- **Thin stands** in order to put them on a trajectory to develop over time into open forests dominated by large, fire-tolerant trees with large branch structure
- When thinning stands, **use variable density thinning** to leave a variety of individual trees, various sized clumps of trees, small dense patches, and small openings (.1 to 2 acres in size)
- **Improve forest understory vegetation and forage** by thinning stands and reintroducing prescribed fire where appropriate to stimulate abundant native grasses and forbs

- **Use site-specific evidence and clues** within a given stand to further refine and tailor restoration objectives related to forest density, structure, species composition, and pattern, and restore forest diversity and variability
    - Look for evidence such as the **density, age, species, and arrangement of old trees, old stumps, snags, and downed woody debris**, all of which can provide clues on what forests in a given stand on a given topographic position looked like historically (prior to the late 1800's) and how they functioned
    - Look for evidence of **unique habitats and microsites** like springs, wet meadows, aspen clones, riparian hardwood areas, and rock outcrops and **make appropriate adjustments to restoration treatments** to incorporate this diversity into project planning and implementation
    - Where indications of past or present meadows, scablands, or other non-forested areas exist, remove encroaching conifers to **reestablish forest diversity and functioning meadows, grasslands, scablands, etc**.
    - Restore the dry upland forest portions (i.e. not riparian vegetation) of Riparian Habitat Conservation Areas (RHCA's) using the same restoration recommendations that are applied in the adjoining dry forest type when consistent with the desired vegetation characteristics needed to attain Riparian Management Objectives. Apply silvicultural practices in a manner that does not retard attainment of Riparian Management Objectives and that avoids adverse effects on inland native fish

- **Increase community safety and forest resilience** through forest restoration and fuels reduction treatments that reduce the current risk of high-severity fire, increase the potential to use prescribed fire to reduce future potential for high-severity fire, and promote the development and maintenance of the forest structure, density, species composition, and pattern described above
    - If necessary given current (starting) stand conditions, **treat stands prior to prescribed burning** to reduce tree density, basal area, crown closure, and ladder fuels in order to minimize mortality to merchantable timber
    - **Address post-treatment slash** and associated fire risk by developing an economically-viable plan to manage within-stand slash levels

    - **Consider fire and smoke impacts** on public health, safety, and private property concerns when determining appropriate use and location of prescribed fire treatments to achieve restoration objectives
    - **Collaborate with adjacent landowners** during prescribed fire planning to increase trust, transparency, understand public concerns, and facilitate shared learning across ownership boundaries

- **Improve habitat for key wildlife** indicator species that utilize the dry forest types using restoration treatments to increase habitat suitability and connectivity across the landscape
    - Restore forest structure, density, species composition, and spatial arrangement of trees, tree clumps, and openings consistent with historical conditions and the habitat requirements of key wildlife indicator species that utilize each of the dry forest types
    - Improve habitat for key dry forest wildlife species by retaining snags and downed wood debris (including in riparian areas and streams) and allowing recruitment of future large snags and downed woody debris where they are absent utilizing Forest Service analysis tools like DecAID (Decayed Wood Advisor)
    - Improve available forage, cover, and nesting habitat by releasing hardwood tree and shrub species (aspen, black cottonwood, mountain mahogany, willow, and other associated species) within project areas. NOTE: see OFRC Aspen Zones of Agreement for further recommendations regarding hardwood restoration
    - Incorporate non-treatment areas within stands across projects on sites like swales and moist microsites where they have the greatest likelihood of persisting as wildlife habitat and hiding cover over time on the landscape

OFRC Active Membership Level of Agreement – January 30, 2017

A group member must be an active member (see Membership/Active Participation in Section III.F. of the OFRC Operations Manual) to be able to participate in decision-making. Consensus on a decision about a recommendation the group plans to take will be reached when active members can make one of the following statements about a decision:

- I agree with the decision and will publicly support it
- I agree with the decision but will refrain from publicly supporting it
- I can live with the decision (and won't disparage it in public)

Dry Forest Restoration Recommendations (January 2017):

Members or Regular Attendees ((m) after name indicates full member who has signed Commitment to Productive Participation)				
Tyson	Bertone-Riggs	(m)	Oregon Department of Forestry	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Roy	Beyer	(m)	Private Landowner	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Pete	Caligiuri	(m)	The Nature Conservancy	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Jerry	Cordova	(m)	US Fish and Wildlife Service	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Sarah	Cuddy	(m)	Oregon Wild	I agree with the OFRC Dry Forest Recommendations and will refrain from publicly supporting it.
Kit	Dickey	(m)	COFSF and volunteer	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Vernita	Ediger	(m)	COIC and COFSF	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
George	Heinz	(m)	OFRC member	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
John	Jackson	(m)	Single Tree Consulting	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Cliff	Kiser	(m)	Community member	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Marilyn	Miller	(m)	Miller Conservation Consulting	I agree with the OFRC Dry Forest Recommendations and will refrain from publicly supporting it.
Betty	Roppe	(m)	Mayor of Prineville	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Pete	Sharp	(m)	Community member	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Nicole	Strong	(m)	OSU Extension	I agree with the OFRC Dry Forest Recommendations and will publicly support it.
Craig	Woodward	(m)	Local landowner	I agree with the OFRC Dry Forest Recommendations and will refrain from publicly supporting it.