

Silvicultural Decisions XI: Can Fire Hazard Reduction Treatments Help Achieve Other Silvicultural Objectives?

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Pacific Northwest forests are generally managed to meet landowner objectives, whether held by a private individual or family, a business or trust such as industry or tribal lands, or public land. These objectives may be narrowly focused on specific products such as timber, but more commonly broadly focus on natural resource management that integrates timber and other products including wildlife and special forest products (floral greens, mushrooms etc.) along with less measurable assets often collectively described as *aesthetics*. Increasingly, social impacts and values are included as priority objectives.

Widespread recognition of the biological and financial hazards of decades of fire suppression and resultant high fire-risk forest conditions has led to extensive fire hazard reduction practices. Specifications for hazard reduction are often based solely on producing a more fire resistant forest stand or landscape. Plans for reducing and managing fuel hazards may meet other forest management (silvicultural) objectives such as forest health, aesthetics, and productivity with modifications and additions, or poorly address them.

Recently, I visited the *Coeur d'Alene Tribal Forestry Fuels Treatment Project* with Tribal Fuels Forester Eric Geisler and several other UI professors. The Tribe had implemented treatments that tested the fuel hazard reduction effectiveness of several machines and

different mechanical cutting tools. We now are collaborating to develop a post fuels-treatment project that will measure the effectiveness of alternative vegetation management methods to maintain effective fuel hazard reduction.

The Coeur d' Alene Tribe owns some 30,000 acres of trust land, and currently intends to treat the majority of the forested land in their fuel reduction project. Much of the 20,000 acres in these initial priority treatments are in small blocks of forests bounded by roads, homes and other tribal structures, cultural areas, and riparian and other sensitive sites. Consequently, there are many potential sources for ignition as well as many ecological, financial, social and cultural properties and resources to protect. Although some of the treated areas serve essentially as fire-resistant buffers for these other values, entire forest stands will be treated, following current trials to show which mechanical treatment is the most effective and efficient. Following initial fuel reduction treatments a new Tribal project in partnership with the University of Idaho will conduct experiments to test alternative strategies to maintain desired fuel levels. Post-treatment management would seem to be an obvious requirement, but many land owners and managers have made fuels reduction treatments with no provision for continued maintenance. The amount and species composition of re-growth and in-growth of vegetation, including invasive species, is a critical aspect of sustaining targeted fuel levels.

It is no accident that the Coeur d' Alene Tribal forest was much closer initially to the "prescriptive ideal" for the sites we visited than many other forests on similar habitats. The Tribal forest has sustained fire suppression for a much shorter time (about 40 years vs 80-100 years for much of the regional forest landscape). Historically, both Tribal Trust lands and individual forest land allotments were regularly under-burned by tribal owners and managers until the later 1960's. At the same time, Tribal cultural values and ecological understanding led to favoring large, healthy trees. In this landscape, that meant the seral species including ponderosa pine, Douglas-fir, western larch, and western white pine, species that continue to be favored to retain in fuels treatments and other Tribal management specifications. Consequently, a well-stocked overstory of seral species was present on all of the forest sites we visited. The understory is composed of diverse, largely native species that will be retained or removed to sustain wildlife and cultural

values while reducing fire hazards.

A closer look at some of the stand conditions and fuels treatments, and their silvicultural implications, illustrates how compatible these management goals are, and reveals factors other land owners and managers might consider in fire hazard reduction prescriptions:

- The habitat types in this situation are primarily in the grand fir series ranging from its drier to wetter phases. The climax species, grand fir, is near the margin of its ecological limits for growth and will be the first species to experience stress and associated forest health problems. Some of the hazard reduction sites are at the wetter end of the Douglas-fir series or at the drier end of the western redcedar series but in general, the species designated to leave under fire hazard reduction, ponderosa and white pine, western larch, and Douglas-fir, are the same tree species I would prefer under a silvicultural prescription where the objective is forest health, sustainable timber production, stable, diverse habitats and consideration of appearance, accessibility, and resistance to fire.
 - The tree species designated to remove in the fuel treatments are all grand fir, and commercial-sized lodgepole pine, along with any other species of poorer form, smaller, or less healthy than the nearest designated leave tree within 15 feet. This provides some commercial harvest during the treatments, and future harvest while suppressing establishment and growth of undesirable understory vegetation and conifer regeneration. This designation is compatible with most silvicultural goals, but the spacing of leave trees, 15 feet, would be more variable and likely wider depending on tree size, if timber productivity was a primary objective.
 - The pre-treatment understory in these forests is a diverse composition of native species typical of the grand fir habitat types and is dominated by tall and medium height shrubs, with forbs and grasses and few invasive weed species. The understory also has significant conifer regeneration that is highly
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variable in distribution and species. The preferred shrub species to leave include large scattered clumps of Rocky Mountain Maple as the highest priority species, along with service berry and chokecherry, bittercherry and other fruiting species for wildlife habitat. In addition, riparian areas are designated as preferred habitats to leave clumps of these taller species, along with shrub willows, aspen and lower, moist-site vegetation. Snowberry is left where it is shorter (<15”), but is designated

benefit ratio alone is considered. In many cases, reducing understory competition, managing vegetation composition including conifers and desirable native species of shrubs etc., and discouraging or eliminating invasive species, are recognized as priority objectives from an ecological and long-term productivity and sustainability perspective, but are not accomplished due to financial constraints.

The huge financial and ecological costs of ignoring unhealthy, high fire-risk forest conditions, especially where they could impact structures and threaten human lives, has led to a new era where investments in fire hazard reduction treatments are being made. In some current forests, conditions are such that fuel

treatments will do little to address other silvicultural objectives. But many forests designated for fuel reduction present an opportunity to economically address many other silvicultural objectives addressing recreational, ecological, and sustainable timber management goals. At a minimum, fire hazard reduction plans should not only address immediate catastrophic fire risk, but also consider setting the initial conditions that will help resource managers move towards more comprehensive plans and specifications to achieve a broader array of integrated objectives.

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