

 UI Extension Forestry Information Series

Silvicultural Decisions VI - Site Preparation for Natural or Planted Regeneration

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Site preparation alters surface vegetation and debris to enhance conditions for natural regeneration from vicinity tree seed or planted seedlings. The goals for site preparation include altering the amount and composition of competing vegetation, increasing site plantability by reducing woody and other debris, and reducing damage to regeneration from wildlife and other organisms. Site preparation can also increase or decrease the hazard of subsequent wildfire damage to tree seedlings.

There are many decisions to be made in planning for site preparation. These include the current condition of the area to be regenerated, the type and timing of regeneration, legal and social constraints, and economics. Site preparation methods include fire (prescribed burning), chemical herbicides, and mechanical (hand or machine scalping of sod and removal of debris) methods, as well as fertilization and irrigation in some situations. Sometimes these methods are combined, as when vegetation is first “browed” with chemicals, then burned with fire. Each method has specific advantages and disadvantages, not only for their effectiveness in establishing trees, but also for their impact on the environment and other land uses. Because site preparation alters vegetation, it can directly impact wildlife populations and water quality. It can also impact visuals, especially where broadcast application of fire or herbicide browns and/or eliminates large areas of vegetation.

Site preparation can be critical to the survival and growth of both naturally seeded and planted trees. Total mortality of seedlings can occur without site preparation where conditions are marginal or hostile to seedling establishment. For example, planting trees on a south-facing slope covered with well-established

sod-forming grass is a wasted effort that will result, in most cases, in nearly total seedling loss unless the competing grasses are controlled.

It is also possible to increase mortality and decrease growth of surviving seedlings when site preparation methods are either incorrect for the situation or improperly applied. For example, a north-facing, heavily forested slope with almost no understory vegetation is clearcut, then broadcast-burned to remove accumulated woody debris in preparing the site. The expectations for good survival and growth may be high due to the lack of competing vegetation on this prime tree-growing site. However, in the northern Rocky Mountains, these sites often contain vast stores of *Ceanothus*, a shrub genus with several species. *Ceanothus* seed is notorious for its ability to survive in forest duff for as long as 500 years, then germinate and grow vigorously when stimulated out of dormancy by fire. The result can be total domination of the site by this shrub with no tree regeneration for many years, even decades.

Because site preparation can create opportunities to increase regeneration survival and growth, as well as promote rare but significant regeneration hazards, it should be considered carefully when planning and implementing forest management where regeneration is a goal. Site preparation can be even more critical when reforesting old farm and pasture sites, where soil alteration and heavy grass cover can be major obstacles to successful regeneration.

Several good publications can guide landowners and resource managers in planning and implementing site

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preparation. These publications also provide excellent information on the limitations, advantages and proper application of various methods of site preparation, and the conditions required for their success. Two of the best are:

- *Enhancing Reforestation Success in the Inland Northwest (PNW 520, March 2000)*
- *Site Preparation: An Introduction for the Woodland Owner (EC 1188, August 1996).*

Both are available through any Extension office in the Pacific Northwest, or directly from Publication Orders, Oregon State University, 422 Kerr Administration, Corvallis OR 97331-2119. These publications

are also downloadable from the Internet at:

<http://eesc.orst.edu/AgComWebFile/EdMat/edmatindexfor.html>. (click on reforestation).

For on-the-ground site preparation advice on your land, contact your local Idaho Department of Lands Forest Practices Advisor, or professional forestry consultant.

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