vegetation management and its importance in reforestation — an annotated bibliography

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This bibliography represents selected literature pertinent to interaction studies of vegetation-seedling competition in reforestation; it is not a complete review of the scientific literature.

Copies of the references cited are available at libraries or from the respective publishing agencies. Only Cleary (1978) and Newton (1973) are available from the Forest Research Laboratory.


In first-year plantings, pine establishment was seriously impeded by four out of eight grass species. In second- and third-year plantings, the competitive effect of all grasses was more apparent.


In the first 5 years, brush control with herbicides promoted the growth of pine seedlings. Early control also may indefinitely reduce hazardous brush fuels in plantations.


Decreased frequency of watering and increased density of grass significantly reduced survival, height growth, and plant mass of lodgepole pine.


Differences in seedling growth and survival were related to moisture stress levels experienced by seedlings of Douglas-fir and ponderosa pine.


Seedling response to the environment is discussed, particularly in terms of plant moisture stress and leaf temperature which are directly related to a seedling's ability to grow in a given environment.

This up-to-date reference describes weed control methods in various situations.


2,4,5-T successfully controlled pine manzanita, snowbrush ceanothus, and golden chinkapin without injury to intermixed ponderosa pine.


Between 4.4 and 6.0 million acres of commercial forest land occupied by native shrubs and undesirable hardwoods require reclamation and reforestation or type conversion to attain their productive potential.


Topics include silvicultural objectives, factors in herbicidal treatments, herbicides and formulations, rates and seasons of application, carriers, and guidelines for prescribing herbicidal treatment.


Improved site preparation efforts and research in areas such as animal control, herbicides, prescribed burning, and improved planting techniques may help reclaim sites now occupied by nonstocked and poorly stocked brushfields.


The ability of a seedling to outdistance its competitors in terms of light and moisture depends on the stage of development of both the seedling and its competitors. The intensity and duration of brush control depends on how far the seedling is ahead of or behind the development of its competitors.


This discussion of the compatibility of grazing and Douglas-fir establishment points out the absolute need for proper timing and stocking to avoid damage to tree seedlings.


Numbers of seedlings per acre differed significantly for various types of seedbeds. Stocking was worse on plots covered with grass or herbs or on burned-over plots, and it was best on undisturbed duff or seedbed covered with logging slash.


Douglas-fir seedlings planted in an Oregon white oak foothill area grew faster in plots subjected to carefully-controlled short-term spring sheep grazing than in ungrazed plots.


This report clarifies the relationship between amounts of forest overstory and forage, compares forage production from logged and unlogged areas, and
describes ways to improve forage utilization in a mixed coniferous forest.


Spring drought and competing vegetation can prevent the establishment of ponderosa pine seedlings. Soil moisture was significantly higher on herbicide-treated plots than on scalped and untreated plots.


Atrazine at 10 pounds per acre resulted in heaviest grass kill and highest tree survival; herbicides did not damage pine seedlings. Tree survival was generally poor due to heavy grass competition and animals.


A 3-year study of summer soil moisture trends showed that a clearcut contained considerably more moisture than a grassy opening or a second-growth ponderosa pine stand.


Under summer drought conditions, good survival of planted stock depended on removal of competing annual grasses and herbs.


Dinitro, a contact herbicide used as a preburn desiccant, and explosives for mass ignition may be used to help effectively control brush with minimum soil damage and nutrient loss and excellent preplanting site preparation.


Survival and growth of Rocky Mountain Douglas-fir was better on prepared versus unprepared sites. Effects of site preparation upon survival and growth appear to differ between habitat types.


Grass cover was detrimental to the initial establishment of coniferous reproduction. Root and top growth of ponderosa pine seedlings were significantly greater when pines were grown without grass competition.

NEWTON, M. 1967. Control of grasses and other vegetation in plantations. Pages 141-147 in M. Newton, ed. Herbicides and vegetation management. School of Forestry, Oreg. State Univ., Corvallis, OR.

Major considerations involved in the analysis and solution of weed problems on conifer plantations are discussed.


Regeneration practices are discussed, particularly in terms of developing sound ecological management techniques.


Technical information on reforestation practices is summarized for California conifers. Topics include cone and seed handling practices, nursery management, site preparation, planting, and seeding.


Competing vegetation, particularly grasses, was a major deterrent to the establishment of pine seedlings. Plantations should not be grazed for the first 5 to 6 years.


An 11-year study of plant and animal responses to grazing systems and levels of grazing intensity showed deferred rotation is preferred on forested range.

Foliage sprays of 2,4,5-T and Picloram were effective for conifer release and site preparation. Herbicides generally were more effective when applied in late spring than in midsummer.

In central Washington, survival of ponderosa pine seedlings planted in four grass species increased 150 percent on sites with light textured soils and 700 percent on sites with heavier textured soils that were sprayed with herbicide before planting.

The killing of manzanita cover with chemicals greatly reduced the loss of soil moisture during a summer drought. Chemical control presents a promising way to prepare for reforestation with ponderosa pine.

Guidelines are presented for developing a management system to profitably combine livestock and trees on the same land. Grazing should be delayed until seedlings are established.

The relative advantages and disadvantages of alternative site preparation techniques are reviewed for different site conditions.