FOREST PRACTICES PROGRAM
REFORESTATION RULE REVISION
ISSUE PAPER

Prepared by

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Forest Practices Program
Oregon Department of Forestry

August 9, 1994
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EXECUTIVE SUMMARY

The purpose of this Department of Forestry issue paper is to present background on the Forest Practices Program staff’s recommendations for revising the forest practice rules regulating reforestation in Oregon. These rule revisions are needed to respond to changes in the Oregon Forest Practices Act and to Oregon Board of Forestry direction to the department. Proposed rules are included which will form the basis for Board of Forestry discussion.

The objectives for the forest practice reforestation rule revision process are to:

1. Develop rules that ensure tree stocking will be maintained on Oregon forestlands for future growth and harvest, consistent with landowner objectives and the sound management of timber and other forest resources;

2. Develop rules that recognize the variety of silvicultural methods and tree species that will be used in the future;

3. Develop clearly worded rules that are easily implemented by landowners and forest practices foresters;

4. Develop rules that are technically sound; and to

5. Provide flexibility for site-specific reforestation decisions.

Staff recommendations are:

1. All forestlands with a timber growth potential of 20 cubic feet per acre per year or more (Cubic Foot Site Class VI or better) will be subject to the requirements of the reforestation rules.

2. The concept of a "free to grow" tree or stand of trees will be broadened to acknowledge the use of shade tolerant species and different silvicultural methods.

3. A harvest of "green" healthy trees that will result in a reforestation requirement should not be undertaken without the landowner having first secured a viable source of seedlings or having determined a high likelihood of successful natural reforestation.
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4. All operations which result in post-operation tree stocking below the site-based standards established by the rule concepts will be reforested unless the State Forester determines that the residual stand conditions after an operation will result in enhanced long-term tree growth and will achieve the purpose of the reforestation rules.

5. The following minimum reforestation standards will be enforced within six years after the completion of the operation:

   a. 200 free to grow seedlings per acre on Cubic Foot Site Class III and better forestlands;

   b. 125 free to grow seedlings per acre on Cubic Foot Site Class IV and V forestlands; and

   c. 100 free to grow seedlings per acre on Cubic Foot Site Class VI lands.

6. The rules will allow using good quality, post-operation residual seedlings, saplings, and larger trees to meet some or all of the stocking requirements.

7. Rule language will be revised for determining acceptable species for reforestation to provide greater flexibility to the landowner and to incorporate the amendments to the Forest Practices Act.

8. Approved written plans will be required when natural regeneration methods will be used and when species not native to the operation area will be planted or seeded.

9. The requirements of the reforestation rules will be suspended when the State Forester determines that all the following apply:

   a. The harvest area involves the conversion of underproducing forestland or the salvage of timber stands severely damaged by wildfire, insects, disease, or other factors beyond the landowner's control;
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b. The cost of harvest preparation, logging, site preparation, reforestation, harvest taxes, severance taxes, applicable income taxes, and any other measures necessary to establish a free to grow forest stand will likely exceed the gross revenues of the harvest.

c. The harvest area will be covered by a plan for reforestation cost-share programs or other reforestation incentive programs administered by the State Forester, or where the State Forester is the primary technical advisor.

10. Rule language will be revised to require more information from landowners before exempting reforestation for non-forestland uses.

Other issues not fully addressed by the proposed rule concepts need further consideration. They include:

- Insect and disease management,
- Soil and site productivity,
- Reforestation after catastrophic stand losses,
- Informing new forest landowners of outstanding reforestation requirements,
- Revision of Oregon forest tax laws tied to reforestation,
- Reforestation and residual tree stocking within visually sensitive highway corridors, and
- Reforestation and residual tree stocking within riparian and wetland management areas.

The Forest Practices Program and other department programs are addressing these issues through the Forest Practices Strategic Plan and other processes.

Questions or comments on this issue paper should be directed to:

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PURPOSE

The purpose of this Department of Forestry issue paper is to present background on the Forest Practices Program staff’s recommendations for revising the forest practice rules regulating reforestation in Oregon. The department has been directed by the Oregon Board of Forestry to undertake this rule revision task as part of the board’s strategic plan for the Forest Practices Program. Rule-making is necessary to incorporate changes in the Forest Practices Act passed by the 1991 and 1993 Oregon Legislatures (specifically ORS 527.715 and 527.745). Proposed rules are included in the issue paper which will form the basis for Oregon Board of Forestry discussion.

This paper is the result of a technical and policy study by the Forest Practices staff combined with public input received through Regional Forest Practice Committee meetings and comments submitted to the department by the Forest Research Laboratory at Oregon State University, other technical experts, forest landowners, and other interested parties.

OBJECTIVES AND JUSTIFICATION FOR RULE REVISIONS

The objectives for the forest practice reforestation revision process are to:

1. Develop rules that ensure tree stocking will be maintained on Oregon forestlands for future growth and harvest, consistent with landowner objectives and the sound management of timber and other forest resources;

2. Develop rules that recognize the variety of silvicultural methods and tree species that will be used in the future;

3. Develop clearly worded rules that are easily implemented by landowners and forest practices foresters;

4. Develop rules that are technically sound; and to

5. Provide flexibility for site-specific reforestation decisions.
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The staff recommends revision of the reforestation rules at this time for the following reasons:

1. The current forest practice rules do not incorporate the revisions to the Forest Practices Act resulting from 1991 Senate Bill 1125 and 1993 Senate Bill 193 (ORS 527.745).

2. Available scientific information and operational information indicate the range of tree species and growing site conditions throughout the state require different standards for biologically effective reforestation than those currently required by the Forest Practices Act and the rules.

3. The use of hardwoods, shade-tolerant conifer species, and different silvicultural techniques such as shelterwood, seed tree, group selection, and overstory removal cuts are not adequately addressed by either the Forest Practices Act or the current rules.

4. Different methods are needed to ensure that reforestation exemptions for non-forest uses are appropriate and that other government bodies are made aware of the proposed changes.

5. The current rules contain outdated references, and some of the rules are not useful in their current form. Examples are the weather map used to define the subregion referenced in OAR 629-24-602 (2), the variance allowed in that subregion, the 1971 document used to define sites where reforestation will be required in western Oregon, and the criteria to determine economic suitability in eastern Oregon.

6. Landowners may be confused and uncertain about which reforestation standards (the current rules or the statute) may apply to their harvest areas. If a clearcut is not created, the reforestation provisions of the Forest Practices Act do not apply and reforestation under different standards may be required by the forest practice rules.

7. Broadening the scope of what constitutes appropriate reforestation will enhance landowners’ ability to manage forests for a more diverse array of consumptive and nonconsumptive products and values.
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HISTORICAL BACKGROUND

While reforestation is sometimes referred to as an expense incurred by the landowner, it is also an investment which will likely result in increased land values and returns from future timber harvests. The general public also reaps benefits from reforestation through the enhancement of fish and wildlife habitat, watersheds, soil productivity, and timber supplies. Therefore, reforestation of Oregon’s forestlands is generally viewed as a positive action by both forest landowners and other citizens of the state. The history of reforestation regulations in Oregon is based on this premise.

The Oregon Conservation Act of 1941 directed forest landowners to leave seed trees after harvesting. Reforestation requirements were expanded in 1972 when the Board of Forestry adopted the first administrative rules under the authority of the 1971 Oregon Forest Practices Act. During the first two decades of the Act, the basic elements of the reforestation requirements have remained as follows:

1. Define which lands are suitable for reforestation;
2. Define when reforestation will be required;
3. Establish minimum stocking levels;
4. Establish time limits for reforestation compliance; and
5. Establish regional lists of acceptable species for reforestation.

The most significant modification in the forest practice reforestation requirements prior to the 1991 changes in the Act occurred in 1980 with the transfer of the legal responsibility for reforestation from the operator to the landowner.

In 1992, 85,689 acres of private and local government forest land required reforestation under the forest practice rules. Department inspections indicate that of this total, 82,030 acres (95.7 percent) were found in compliance. The high degree of landowner compliance with the reforestation rules has been one of the major successes of the Forest Practices Act. The Forest Practices Program continues to place a high priority on reforestation compliance field inspections, and annually reports the results of those inspections to the Board of Forestry (see Figure 1).
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A 1987 department study of western Oregon clearcuts harvested and reforested between 1972 and 1979 concluded that 88 percent of the surveyed acres remained free to grow in 1986. The study defined free to grow as "stands appearing to have at least the required stocking density ... and actively growing above competing vegetation." The remaining 12 percent of the stands were either understocked, overtopped or threatened by competing vegetation, or both. The study also indicated that industrial landowners were doing a better overall job of maintaining plantations in a free to grow condition than non-industrial forest landowners (see Figure 2).

![Reforestation Accomplishments 1987-1992](image)

**Figure 1**
CURRENT RULES AND STATUTES

Administrative Rules

The current forest practice rules require reforestation of economically suitable forestland whenever, as a result of an operation, the stocking is reduced below a specific minimum level. *Economically suitable* forestlands are defined as:

- Class I or Class II lands in eastern Oregon, as defined by ORS 526.305 to 370, and
- Lands capable of a mean annual production of at least 50 cubic feet per acre per year at culmination of mean annual increment in western Oregon.
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With the exception of the Southwest Oregon Interior Subregion, the minimum allowable stocking level following harvest in all forest regions is 25 percent crown closure or 80 square feet of basal area per acre of trees 11 inches in diameter at breast height (DBH) and larger. In the Southwest Oregon Interior Subregion, a minimum stocking level of 15 percent crown closure or 40 square feet of basal area per acre of trees 11 inches DBH and larger is allowed, with prior approval, if no more than 40 percent of the basal area is harvested during a five year period.

If these standards are not met, reforestation is required using well-distributed acceptable species in the operation area. The time limits and minimum stocking densities vary with the growing conditions in each forest practice region as follows:

<table>
<thead>
<tr>
<th>FOREST PRACTICE REGION</th>
<th>CURRENT RULES MINIMUM NUMBER OF TREES PER ACRE</th>
<th>CURRENT RULES TIME LIMIT FOR ESTABLISHMENT</th>
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</thead>
<tbody>
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<td>NORTHWEST</td>
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<td></td>
</tr>
<tr>
<td>Coastal subregion</td>
<td>150</td>
<td>3 years</td>
</tr>
<tr>
<td>Interior subregion</td>
<td>150</td>
<td>5 years</td>
</tr>
<tr>
<td>SOUTHWEST</td>
<td>100</td>
<td>4 years</td>
</tr>
<tr>
<td>EASTERN</td>
<td>100</td>
<td>6 years</td>
</tr>
</tbody>
</table>

Statute

The 1991 Oregon Legislature passed Senate Bill (SB) 1125 which amended the Oregon Forest Practices Act. Among the changes in the statute were new requirements for harvest units meeting the statutory definition of a clearcut. For clearcuts, SB 1125 replaced the regional reforestation requirements of the current forest practice rules with uniform, statewide statutory reforestation requirements. The Act now requires that by the end of the fifth growing season after planting, at least 200 conifer or suitable hardwood seedlings must be established, well distributed, and free to grow in clearcuts.
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The Act also requires the Board of Forestry to define what a "free to grow" tree seedling is. The board is also given authority to adopt administrative rules that incorporate and expand on the statutory reforestation requirements. Reforestation rules which differ from the statute are permissible if one or more of the technical findings listed in the statute are met.

Harvest units which reduce stocking below the forest practice rule standards, but which do not meet the Act’s clearcut definition, remain subject to the current reforestation rule requirements.

The board was also directed by SB 1125 to encourage forest landowners to plant insect and disease resistant species on appropriate sites.

The 1993 Legislature removed a potential disincentive for salvage harvests and conversions of underproducing lands through SB 193. This bill amended the Forest Practices Act to suspend the Act’s clearcut reforestation requirements on certain types of harvest areas where harvest costs may exceed gross revenues. Federal law prohibits landowners from using federal cost-share funds for management activities required by state law. If not corrected, the Forest Practices Act would have forced Oregon’s forest landowners to be treated differently than landowners in any other state, resulting in the loss of more than $3 million in federal funds per biennium. Suspensions of the reforestation rules can now be granted on a case-by-case basis by the State Forester based on specific criteria in the statute.
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BACKGROUND ON THE PROPOSED NEW RULES

The following section of the issue paper describes several general rule topics by summarizing the current rules, relevant staff findings, and proposed new rule concepts.

A. Purpose of Rules

Summary of Current Rules

The current purpose statement for the reforestation rules is:

"Prompt reforestation of forestland following harvesting operations is an important factor in assuring continuous growing and harvesting of forest tree species on forestlands economically suitable therefor. The purpose of administrative rules relating to reforestation of such lands is to define economic suitability, as a basis for designating the forestland subject to reforestation requirements; to describe the conditions under which reforestation will be required; to specify the minimum number of trees per acre and the maximum period of time allowed after an operation for establishment of such trees; and to require stabilization of soils which have become exposed as a result of operations." (OAR 629-24-400, 500, and 600)

Finding: The current purpose statement is appropriate, but revisions are needed for clarity and specificity, to highlight recognition of landowner objectives, and to incorporate Board of Forestry policy.

The Board of Forestry’s 1990 policy document, Forestry Program for Oregon, includes the following objective and policy for timber growth and harvest:

Objective "Promote the maximum level of sustainable timber growth and harvest on all forest lands available for timber production, consistent with applicable laws and regulations and taking into consideration landowner objectives."

Policy "On both industrial and non-industrial lands, the Board will attain the timber growth and harvest objective primarily through the use of cooperative efforts including incentives for long term management, education and the provision of support services."³
While 1991 SB 1125 indicated that higher reforestation stocking standards were desired, staff has interpreted the board’s policy statement as meaning non-regulatory methods are to be used to achieve the maximum timber growth and harvest objective. Therefore, the purpose of the reforestation rules should be to maintain adequate tree cover on forestland to efficiently occupy the site, but not necessarily require the most valuable species to be grown or require optimum stocking levels. Figure 3 illustrates the intended relative level of reforestation required under the rules on a continuum of possible stocking levels.

Proposed New Rule

Staff recommends the following purpose statement:

629-XX-100 PURPOSE

(1) Timely reforestation of forestland following operations that reduce tree stocking below established standards is an essential factor in assuring continuous growing and harvesting of forest tree species, considering landowner objectives and consistent with the sound management of timber and other forest resources. Reforestation or other forms of revegetation are also important for continued productivity and stabilization of soils exposed as a result of operations.

(2) OAR 629-XX-100 through 190 shall be known as the reforestation rules.
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(3) The purpose of the reforestation rules is to establish standards to ensure the timely replacement and maintenance of free to grow forest tree cover following forest operations at or above stocking levels that will use the tree growth potential of forestlands in Oregon.

(4) The reforestation rules are designed to:

(a) Define forestland subject to reforestation requirements;
(b) Describe the conditions under which reforestation shall be required;
(c) Specify the minimum number of trees per acre;
(d) Specify the maximum time period allowed for establishment of such trees after an operation reduces stocking;
(e) Describe the acceptable species for reforestation;
(f) Describe the conditions under which revegetation shall be required in lieu of reforestation; and
(g) Specify the conditions under which an exemption from the reforestation requirements may be approved.

B. Forestlands suitable for reforestation

Summary of Current Rules

In the Eastern Oregon Region, forestlands determined to be Class I or Class II forestlands under ORS 526.305-526.370 are considered lands economically suited for reforestation (629-24-401). Ownerships smaller than 11 acres in one contiguous tract are exempt from the reforestation requirements (629-24-404).

In the Northwest and Southwest Oregon Regions, forestlands which are capable of a mean annual production of at least 50 cubic feet per acre at culmination are subject to the reforestation requirements (629-24-501 and 601). The rules cite a 1971 Forest Service inventory manual as a reference for determining site productivity. Harvest areas of any size are subject to the reforestation requirements.

Under the rules, forestland means land for which a primary use is the growing and harvesting of forest tree species. The Forest Practices Act defines forestland as land which is used for the growing and harvesting of forest tree species, regardless of how the land is zoned or taxed or how any state or local statutes, ordinances, rules, or regulations are applied.
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Finding: SB 1125 revised the Forest Practices Act to require reforestation, regardless of growing site productivity, if the end result of harvesting is a clearcut.

Without a minimum site productivity standard, even the most marginal sites such as the juniper forests of southeastern Oregon would require reforestation under the Act. A culmination of mean annual increment growth rate of 20 cubic feet per acre per year is generally recognized as a minimum when defining commercial forestland. Mean annual increment is the stand volume divided by the stand age. Culmination of mean annual increment is the highest possible mean annual increment value for a given stand or site.

Finding: To ensure statewide consistency, reforestation should be required on all forestlands in the state classified as Cubic Foot Site Class VI or better.

The land classification system described in ORS 526.305 to 370 is inadequate for defining eastern Oregon lands suitable for reforestation. This system was originally developed for fire protection purposes, and it lacks the specificity to be useful to forest practices foresters and landowners. Islands of productive forestlands may be included within larger Class III areas which are exempt from reforestation, while unstockable islands may be included within Class I and Class II lands.

Cubic foot site productivity at culmination of mean annual increment on individual harvest areas provides a more direct and accurate standard. Cubic foot productivity at culmination of mean annual increment in fully stocked natural stands is related to the site index for forest tree species. Existing site productivity data, such as USDA Soil Conservation Service soil surveys, USDA Forest Service plant association guides, and Department of Revenue western Oregon site class maps are useful tools for determining average potential productivity of most Oregon forest sites.

Sixty-two percent of non-federal eastern Oregon commercial forestlands are capable of producing between 20 and 49 cubic feet per acre per-year (Cubic Foot Site Class VI). Reforestation has been required under the forest practice rules on most of these eastside lands in the past (see Figure 4).

Landowners in western Oregon have not been required to reforest Cubic Foot Site Class VI forestlands under the current rules. Of the 5.9 million acres of private commercial forestlands in western Oregon, 98 percent are capable of growing trees at a rate of at least 50 cubic feet per acre per year (see Figure 5). Approximately 120,000 western Oregon acres, primarily in interior southwest Oregon, are Cubic Foot Site Class VI forestlands.
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EASTERN OREGON NON-FOREST SERVICE FOREST LAND
BY CUBIC FOOT SITE CLASS

![Pie chart of Eastern Oregon non-forest service forest land by cubic foot site class.](image)

ANNUAL CUBIC FOOT GROWTH RATE

<table>
<thead>
<tr>
<th>SITE CLASS</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>165 to 224</td>
</tr>
<tr>
<td>II</td>
<td>120 to 164</td>
</tr>
<tr>
<td>III</td>
<td>85 to 119</td>
</tr>
<tr>
<td>V</td>
<td>50 to 84</td>
</tr>
<tr>
<td>VI</td>
<td>20 to 48</td>
</tr>
</tbody>
</table>

AREA BY SITE CLASS IN THOUSANDS OF ACRES

Based on OMANI in fully stocked natural stands.

Figure 3

WESTERN OREGON PRIVATE FOREST LAND
BY CUBIC FOOT SITE CLASS

![Pie chart of Western Oregon private forest land by cubic foot site class.](image)

ANNUAL CUBIC FOOT GROWTH RATE

<table>
<thead>
<tr>
<th>SITE CLASS</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>225+</td>
</tr>
<tr>
<td>II</td>
<td>165 to 224</td>
</tr>
<tr>
<td>III</td>
<td>120 to 164</td>
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<td>IV</td>
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<tr>
<td>V</td>
<td>50 to 84</td>
</tr>
<tr>
<td>VI</td>
<td>20 to 48</td>
</tr>
<tr>
<td>VII</td>
<td>Less than 20</td>
</tr>
</tbody>
</table>

AREA BY SITE CLASS IN THOUSANDS OF ACRES

Based on OMANI in fully stocked natural stands.

Figure 4
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Data from the 1984 to 1986 USDA Forest Service Pacific Research Station inventory of western Oregon private forestlands indicate that most Cubic Foot Site Class VI lands are located in southwest Oregon (87 percent of total), on slopes gentler than 35 percent (77 percent of total), 100 percent stockable (63 percent of total), and are conifer growing sites (96 percent of total)\(^7\). In addition, soil surveys indicate many Site VI soil types are closely intermingled with higher site productivity soils.\(^8\) Harbors on Cubic Foot Site VI forestlands have not been common in the past. However, high stumpage prices and tight timber supplies may place increasing pressure on these low productivity sites as a timber source in the future.

**Finding:** Forest landowners who attended the October 1992 Eastern Oregon Regional Committee meeting supported elimination of the exemption for eastside ownerships smaller than 11 acres.

This exemption does not exist in western Oregon. An increasing number of eastside forest acres fall into this small ownership category. The exemption is also inconsistent with the requirements of SB 1125 related to land use changes.

**Proposed New Rule**

Staff supports the use of a site productivity standard for determining when reforestation will be required with no exceptions for parcel size:

**629-XX-110 FORESTLANDS SUITABLE FOR REFORESTATION**

(1) Any forestland which is capable of annual wood production of at least 20 cubic feet per acre at culmination of mean annual increment (Cubic Foot Site Class VI or better) shall be subject to the requirements of the reforestation rules.

(2) Potential site productivity is determined directly by tree growth and stocking measurements throughout the operation area or determined indirectly using applicable USDA Soil Conservation Service soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, or other information determined by the State Forester to be of comparable quality.
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C. Definition of free to grow

Summary of Current Rules

*Free to grow* is not defined in current rules or statutes. The 1987 *Free-To-Grow Survey* defined the term as, "...stands appearing to have at least the required stocking density ... and actively growing above competing vegetation."\(^9\)

**Finding:** The 1987 study found that meeting the reforestation standards did not produce the desired results in 12 percent of the surveyed western Oregon units.

Criteria are needed to ensure reforested stands have strong probability of using the growth potential of each site and will grow to merchantable size.

**Finding:** The 1987 study definition of free to grow focused on shade-intolerant species becoming overtopped by competing vegetation.

A new definition is needed to recognize that more shade-tolerant tree species such as hemlock and white fir respond differently to light, space, and moisture competition than less tolerant species like Douglas-fir and ponderosa pine.

**Finding:** A reworded, broad definition of free to grow should be used in the rules. Technical criteria are needed that are consistent with the more general rule definition. These criteria will be implemented through forest practices forester guidance and landowner education.

In general, a tree will be considered free to grow if:

1. It is not severely damaged by insects, disease, fire, wildlife, weather, or logging;
2. It exhibits the potential for continued height growth, consistent with the normal growth for the species on similar sites;
3. It has at least one-third of the tree height in full, live crown; and
4. It is taller than and out-competing grass, shrubs, or other trees growing within a ten-foot radius from the tree.

These general criteria may be modified on case-by-case bases following on-site evaluations by forest practices foresters if they determine that the free to grow definition can be better satisfied.
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Proposed New Rule

Staff recommends the following definition be added to OAR 629-24-101:

"Free to grow" means the State Forester's determination that a tree or a stand of well distributed trees, of acceptable species and good form, has a high probability of remaining or becoming vigorous, healthy, and dominant over undesired competing vegetation.

For the purpose of this definition, trees are considered well distributed if 80 percent or more of the portion of the operation area subject to the reforestation requirements of the rules contains at least the minimum per acre tree stocking required by the rules for the site and not more than ten percent contains less than one-half of the minimum per acre tree stocking required by the rules for the site.

D. Reforestation Stocking Standards

Summary of Current Rules

In all three regions, operations that reduce stocking of acceptable species below either 25 percent based on estimated crown closure or 80 square feet of basal area per acre, of trees 11 inches in diameter breast height and larger must be reforested by the landowner. In computing basal area per acre, trees over 36 inches DBH must be counted as 36 inches DBH trees (629-24-402 [1] and [2], 629-24-502 [1] and [2], and 629-24-602 [1] and [3]).

In addition, within the Southwest Oregon Interior Subregion, as defined by certain zones on a 1970 weather map, if no more than 40 percent of the basal area per acre is removed during any one period of five successive years, the stocking may be reduced to 15 percent crown closure, or 40 square feet of basal area per acre of trees 11 inches DBH and larger, before reforestation is required (629-24-602 [2]). This variance requires prior approval of the State Forester.

The Eastern and Southwest Oregon Regions' rules require landowners to establish at least 100 seedlings or saplings per acre, well distributed over the operation area (OAR 629-24-401 [1], OAR 629-24-601 [1]).

In the Northwest Oregon Region, landowners must establish at least 150 well distributed seedlings or saplings per acre on the area (OAR 629-24-501 [1]).
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**Finding:** The stocking variance currently permitted in the rules in the interior subregion of the Southwest Oregon Region is a complex concept that has been rarely used.

Staff recommends elimination of this variance.

**Finding:** The current rules and statute each establish ceilings on the DBH of trees that may be considered when calculating basal area. These maximum diameter standards may be a disincentive for landowners to leave large diameter residual trees on-site.

The rules specify that trees larger than 36 inches in diameter at breast height (DBH) must be considered as 36-inch DBH trees when calculating basal area per acre. The Forest Practices Act requires that trees larger than 20 inches DBH must be considered as 20-inch DBH trees when calculating basal area per acre. Both of these standards discourage retention of large trees. The largest trees in a stand are often genetically superior dominants that, if retained, may serve as prolific seed producers, provide stand diversity, and benefit fish and wildlife habitat. Measuring basal area without using the true diameter of a tree is difficult.

**Finding:** Current reforestation rules assume even-aged silvicultural systems will be used. In the future, the use of uneven-aged systems may become more common.

Proper stocking levels in uneven-aged stands for various species and sites have not been as well defined in the research literature as for even-aged stands. However, for the proposed reforestation rules to be effective in uneven-aged stands, a method is needed to evaluate the quantity and quality of merchantable trees, saplings, and seedlings remaining on a site after an operation. In these cases, the rules use the number of trees per acre in each of the three size categories and assign proportional values to each category to determine if stocking is adequate.

Forest practices foresters, with training and experience in their local areas, can evaluate the quality and quantity of residual stocking. Simple criteria that can be applied in the field will be used to ensure consistency.
Finding: The Forest Practices Act currently requires minimum reforestation stocking of at least 200 free to grow seedlings per acre in clearcuts.

The Board of Forestry has the option of modifying this stocking level based on findings that different standards are justified for silvicultural reasons. However, the Forest Practices Act requires that no clearcut be allowed within 300 feet of the perimeter of a prior clearcut unit if the combined acreage of the clearcut areas would exceed 120 acres, unless a specified exemption has been granted or the prior clearcut contains at least 200 healthy conifer or suitable hardwood seedlings per acre. The average height of the seedlings must be at least 4 feet or else at least 48 months must have elapsed since the seedlings were planted and the seedlings must be free to grow. The board has no authority to modify this requirement. These statute requirements are not addressed in the proposed rules but will continue to be enforced. A change in the Act is recommended which makes the clearcut "green-up" requirement consistent with the stocking requirements adopted for different site productivity ranges.

Finding: Current minimum stocking standards in the rules and in statute do not adequately address differences in tree size, tree species and site productivity.

The 200 free to grow seedling standard (roughly equivalent to a 15 ft. by 15 ft. tree spacing) is too high as a minimum standard for Cubic Foot Site IV, V, and VI lands. A stocking standard of 125 free to grow seedlings per acre (roughly equivalent to a 19 ft. by 19 ft. tree spacing), if managed properly, can fully use the growth potential of Cubic Foot Site IV and V lands. A stocking standard of 100 free to grow seedlings per acre (roughly equivalent to a 21 ft. by 21 ft. tree spacing), if managed properly, can fully use the growth potential of Cubic Foot Site VI lands. Research indicates lower stocking on medium and low productivity sites will help to maintain stand vigor and health. Slowly growing overstocked or suppressed stands are more likely to suffer major insect damage.

"Stand density index" is one of several available technical measures of how densely a stand of even-aged trees is stocked.\(^\text{10}\) The formula for computing stand density index (SDI) is:

\[
\text{SDI} = \frac{\text{Trees per acre \times (quadratic mean stand diameter (in.) / 10)}}{\text{where quadratic mean stand diameter =}}
\]

\[
\left( \frac{\text{Stand basal area per acre}}{(\text{Trees per acre \times 0.005454154})} \right)^{1/2}
\]
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and for the "b" exponent, 1.6 for Coastal Douglas-fir and 1.77 for ponderosa pine are used.¹¹

Maximum stand densities vary by species. For Douglas-fir an SDI of 600 is considered the maximum, while 365 is used for ponderosa pine. In general terms, an SDI of 55 percent or more of the maximum species value probably means stocking is sufficient to cause competition-related mortality. An SDI between 35 and 50 percent of the maximum indicates individual tree growth is suboptimal, but stand vigor and growth are maximized. An SDI of less than 35 percent of the maximum species value indicates individual tree growth is maximized, but overall stand growth is less than its potential.¹² It is often necessary to thin a stand’s density below the 35 percent level to allow it to continue growing without exceeding a 55 percent of maximum SDI before the next harvest entry.¹³

The proposed rules assume that below an SDI of approximately 25 percent of maximum, stocking of 11-inch and larger trees is inadequate and, if sufficient seedlings or saplings are not present, reforestation should be required. Douglas-fir and ponderosa pine SDI values are used. In the rules, basal area per acre is used as a more user-friendly surrogate for SDI. Figure 6 illustrates how the proposed rules for minimum stocking on Cubic Foot Site Class I, II, III, IV, and V lands compare to even-aged Douglas-fir stocking at 25 percent of maximum SDI. Figure 7 compares the proposed rules for Cubic Foot Site Class IV, V, and VI minimum stocking to even-aged Ponderosa pine stocking at 25 percent of maximum SDI.

Operation areas may contain a mixture of productivity classes. In all cases, any portions of the operation area not capable of producing at least 20 cubic feet per acre per year (Cubic Foot Site Class VI or better) will be stratified out and no reforestation requirement will be imposed. On higher productivity areas containing mixtures of the three stockable productivity ranges defined in the rules land within each range will be stratified where practical. If the soils are highly intermingled, stocking will be required at the level corresponding to the predominant productivity range present.
STOCKING FOR EVEN-AGED STANDS
ON SITE I TO V FOREST LANDS (DOUGLAS-FIR SITES)

Trees per acre

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Quadratic mean stand diameter (inches)

Douglas-fir stocking at 25% of maximum S/D.
Proposed minimum stocking for Site I, II, and III lands.
Proposed minimum stocking for Site IV and V lands.

Figure 5

STOCKING FOR EVEN-AGED STANDS
ON SITE IV TO VI FOREST LANDS (PINE SITES)

Trees per acre

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Quadratic mean stand diameter (inches)

Ponderosa pine stocking at 25% of maximum S/D.
Proposed minimum stocking for Site IV and V lands.
Proposed minimum stocking for Site VI lands.

Figure 6
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**Finding:** Reforestation success will be enhanced when forest practices foresters have a tool to review landowners' plans when natural reforestation methods will be used.

The Forest Practices Act only permits natural reforestation of clearcuts through an approved alternate plan. Natural reforestation, if properly designed and implemented, can be a successful and cost-effective way to achieve regeneration. Poorly planned natural reforestation efforts can lead to inadequately stocked forestlands and/or long-term forest health problems. The landowner accepts an increased risk of reforestation failures when using natural reforestation methods since adequate tree seed may not be immediately produced by post-operation seed sources. Good seed years often cannot be accurately predicted and may be many years apart. Natural reforestation should be permitted by rule through prior approval of a written plan that describes how reforestation will be achieved.

Reforestation will be required after operations on Cubic Foot Site Class VI sites, but more flexibility should be given in meeting compliance time frames. Landowners should be encouraged to use carefully planned harvest methods that leave residual trees on low productivity sites and to use natural reforestation methods where appropriate.

Landowners who may conduct multiple operations over time using identical natural reforestation methods should be allowed to submit a single written plan. Once a plan has been approved for the first operation, it can be referenced when conducting subsequent operations on similar sites instead of submitting additional duplicate plans.

**Finding:** Landowners must decide how many planted seedlings will be needed to meet the required free to grow stocking level as well as their own objectives.

Even under ideal conditions, some tree mortality can be expected between planting and the deadline for establishing a free to grow stand. Therefore, operations areas will usually need to be planted at a stocking level higher than required by the rules. For many landowners this is not an issue since they often choose to establish higher numbers of trees per acre based on their own economic analyses and future management objectives.

Stocking standards in the forest practice rules should be considered as acceptable minimums for established stands. Once established, careful management of these minimum levels of stocking can adequately use the site's growing potential. If initial stocking standards are too high, intermediate stand treatments such as pre-commercial or commercial thinning may be necessary to maintain stand growth and vigor.
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Non-industrial landowners may qualify for federal cost-share funds for planting trees at stocking levels above the minimum standards specified in the rules or, under certain conditions, the rule requirements may be suspended so they can receive funds for all the trees established.

*Proposed New Rules*

*Staff recommends the current rules be deleted and replaced with the following rules:*

**629-XX-120 Reforestation Stocking Standards**

(1) The landowner shall increase tree stocking to a level that meets the applicable productivity-based stocking standards described in sections (4), (5), and (6) of this rule within the time limits established by OAR 629-XX-140 whenever as a result of an operation:

   (a) Trees or snags of acceptable species are harvested, or
   (b) Free to grow tree stocking is reduced,

and post-operation free to grow tree stocking in all or a portion of the operation area is below the applicable stocking standards.

(2) Reforestation is not required on those portions of the operation area:

   (a) Where adequate free to grow tree stocking remains after the completion of the operation,
   (b) That are not disturbed by operation activities, or
   (c) On soils or sites not meeting the minimum productivity requirements of OAR 629-XX-110.

(3) The reforestation requirements may be waived or modified following a stand improvement operation such as a pre-commercial thinning, commercial thinning, overstory removal, or other partial cut harvest if the State Forester determines that the residual stand conditions after such an operation will result in enhanced long-term tree growth and there is a high probability that the purpose of the reforestation rules will be achieved.
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(4) For Cubic Foot Site Class I, II and III forestlands (capable of producing at least 120 cubic feet per acre per year at culmination of mean annual increment), the minimum tree stocking standards are:

   (a) 200 free to grow seedlings per acre; or
   (b) 120 free to grow saplings and poles per acre; or
   (c) 80 square feet of basal area per acre of free to grow trees 11-inches DBH and larger; or
   (d) An equivalent combination of seedlings, saplings and poles, and larger trees as calculated in section (7) of this rule.

(5) For Cubic Foot Site Class IV and V forestlands (capable of producing between 50 and 119 cubic feet per acre per year at culmination of mean annual increment), the minimum tree stocking standards are:

   (a) 125 free to grow seedlings per acre, or
   (b) 75 free to grow saplings and poles per acre; or
   (c) 50 square feet of basal area per acre of free to grow trees 11-inches DBH and larger; or
   (d) An equivalent combination of seedlings, saplings and poles, and larger trees as calculated in section (7) of this rule.

(6) For Cubic Foot Site Class VI forestlands (capable of producing between 20 and 49 cubic feet per acre per year at culmination of mean annual increment), the minimum tree stocking standards are:

   (a) 100 or more free to grow seedlings per acre; or
   (b) 60 free to grow saplings and poles per acre; or
   (c) 40 square feet of basal area per acre of free to grow trees 11-inches DBH and larger; or
   (d) An equivalent combination of seedlings, saplings and poles, and larger trees as calculated in section (7) of this rule.

(7) In both even-aged and uneven-aged stands, the stocking of residual seedlings, saplings and poles, and larger trees shall be weighted to determine stand stocking and potential reforestation requirements. For this purpose, seedlings, saplings and poles, and trees 11-inches DBH and larger are proportionally equivalent in the following ratios: 100 free to grow seedlings are equivalent to 60 free to grow saplings and poles, which are equivalent to 40 square feet of basal area of free to grow trees 11-inches DBH and larger.
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(8) Live conifer trees 11 inches DBH and larger left standing in harvested areas to meet the green tree and snag retention requirements of Section 5, Chapter 919, Oregon Laws 1991 shall be counted towards meeting the tree stocking standards if the trees are free to grow.

(9) For the purposes of determining compliance with the tree stocking requirements of the reforestation rules, tree stocking in riparian management areas within an operation area will be considered separately from stocking in the rest of the operation area.

(10) Landowners may submit plans for alternate practices that do not conform to the reforestation stocking levels established under these rules. A plan for alternate practices may be approved if the State Forester determines that there is a high probability that the purpose of the reforestation rules will be achieved, or if the plan carries out an authorized research project conducted by a public agency or educational institution.

629-XX-130 WRITTEN PLANS FOR NATURAL REFORESTATION METHODS

(1) Natural reforestation methods may be the best means to meet a variety of resource management objectives on some forestlands. Successful natural reforestation requires careful, flexible, site-specific pre-harvest planning and post-harvest monitoring.

(2) Reforestation may be difficult on Cubic Foot Site Class VI forestlands due to factors such as poor soils, harsh climate, and competing vegetation. Reforestation in wetlands areas may be difficult because of high water tables, competing vegetation, and inaccessibility. Careful reforestation planning is needed before operations are conducted on these sites. On Cubic Site Class VI forestlands and in wetlands, the use of silvicultural systems that promote natural regeneration and the retention of good quality residual trees after operations often have a higher probability of success than artificial reforestation methods.

(3) When an operation will result in a reforestation requirement and natural reforestation methods are planned, the landowner shall obtain written approval from the State Forester of a written plan which describes how reforestation will be accomplished. Information in the plan shall include:
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(a) A description of the seed sources that will be used;
(b) Site preparation and vegetation competition control methods;
(c) An estimate of the time needed to obtain an adequately stocked free
to grow stand;
(d) How progress towards natural reforestation will be evaluated; and
(e) Alternative strategies that will be used if natural reforestation does
not progress as planned.

(4) The written plan required in section (3) of this rule must be submitted no later
than twelve months after tree stocking is reduced.

(5) Written plans for the use of natural reforestation methods shall be approved by
the State Forester if a determination is made that the information provided
accurately indicates there is a high probability that the purpose of the reforestation
rules will be achieved.

The following definitions will be added to OAR 629-24-101:

"Artificial reforestation" means restocking a site by planting trees or through
the manual or mechanical distribution of seed.

"Completion of the operation" means harvest activities have been completed to the
extent that the operation area will not be further disturbed by those activities.

"Diameter breast height" (DBH) means the diameter of a tree inclusive of the bark
measured four and one-half feet above the ground on the uphill side of the tree.

"Natural reforestation" means restocking a site with self-grown trees resulting from
self-seeding or vegetative means.

"Saplings and poles" means live trees of acceptable species of good form and
vigor, with a DBH of one to 10 inches.

"Seedlings" means live trees of acceptable species of good form and vigor less
than one inch in DBH.

(The concepts of free to grow and acceptable species are addressed in sections C
and F of this issue paper.)
Example using stocking equivalents:

A partial cut harvest unit on Site IV forest land contains the following tree stand after the operation:

Average number of seedlings per acre = 35
Average number of saplings and poles per acre = 8 (8 / 0.6 = 13)

Average square feet of basal area per acre of trees 11-inches DBH and larger = 15 (15 / 0.4 = 38)

35 + 13 + 38 = 86 seedling equivalents. One hundred and twenty-five (125) seedlings or equivalent larger trees is the minimum stocking standard; therefore, establishment of an additional 39 trees to grow seedlings per acre would be required on this site.

(Example assumes all trees are healthy, undamaged, and well distributed)

E. Time allowed for reforestation

Summary of Current Rules

Eastern Region reforestation must be established within six years (OAR 629-24-402 [1]).

For reforestation the Northwest Region is divided into two subregions. In the area west of the Coast Range summit, compliance with the minimum stocking standards must be achieved at the end of three growing seasons following operations. In the area east of the Coast Range summit, compliance with the minimum stocking standards must be achieved at the end of five growing seasons following operations.
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When smoke management restricts the burning of slash in the Northwest Region, an extension in writing may be granted by the State Forester. Determining establishment times of seedlings shall be based on completion of the logging operations and removal of equipment. (OAR 629-24-502 [3] and [4]).

Four years are allowed to establish trees in the Southwest Region. Within the Southwest Interior Subregion, and under special stand conditions approved by the State Forester, a maximum of six years is allowed for establishment after reduction of stocking (OAR 629-24-602 [1] and [2]).

The Forest Practices Act requires that reforestation of a clearcut begin in 12 months and be completed within 2 planting seasons. A free to grow stand must be established by the end of the fifth growing season after planting or seeding.

Finding: The Forest Practices Act establishes the timing requirement for the reforestation of clearcuts. This timing requirement, with modifications to ease administration, should be applied to both clearcut and non-clearcut harvest areas requiring reforestation.

Weather variations can cause the lengths of planting and growing seasons to vary from year to year. The Act’s time requirements, as written, may generate confusion in determining planting and free to grow dates for landowners and forest practices foresters. Using years instead of the number of planting and growing seasons will not significantly alter the time lines established by SB 1125; however, administration and tracking of units for compliance checks will be simplified.

Finding: Expanded statewide rule language is needed to provide specific examples of circumstances where extensions of the reforestation time requirement can be granted by the department.

Extensions without a citation are appropriate for nursery crop failures or when established seedlings are lost to wildfire, extreme drought, insects, disease, or to unanticipated and uncontrollable wildlife damage. Extensions should be requested by the landowner prior to the free to grow compliance date. A harvest of "green" healthy trees that will result in a reforestation requirement should not be undertaken without the landowner having first secured a viable source of seedlings or having determined a high likelihood of successful natural reforestation.
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Landowners accept a risk of poor seed crops when using natural reforestation methods, and extensions should not be allowed for this reason. Natural reforestation compliance timing requirements will be determined through the proposed approved written plan requirement.

The following situations are examples of where rule violations exist and an extension should not be granted. Citations would be issued in these cases:

1. Failure of artificial reforestation efforts is due to landowner’s failure to secure appropriate seed or seedlings following the harvest of free to grow trees. Exceptions may be granted for salvage harvests that the landowner could not anticipate.

2. Natural reforestation failures are due to inadequate seed sources or poor seed crops in the years immediately after an operation.

3. Failures on harsh reforestation sites resulting from harvest area design or competing vegetation.

*Proposed New Rule*

*Staff recommends deletion of the existing regional rule sections and replacing them with the following rule:*

**629-XX-140 TIME ALLOWED FOR REFORESTATION**

(1) The time period for compliance with the reforestation rules begins at the completion of the operation or 12 months after tree stocking has been reduced, whichever comes first.

(2) The landowner shall begin reforestation, including any necessary site preparation, within 12 months when reforestation is required.

(3) The landowner shall complete planting or seeding within 24 months unless a written plan for natural reforestation has been approved by the State Forester.

(4) By the end of the sixth full calendar year, the landowner shall have established a free to grow stand of trees which meets or exceeds the minimum stocking level required by OAR 629-XX-120.
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(5) When natural reforestation methods are planned, the time limits for evidence of successful germination and for establishing a free to grow stand of trees which meets or exceeds the minimum stocking level required for the site shall be established in the approved written plan required for such methods.

(6) If reforestation cannot be accomplished within the specified time due to circumstances determined by the State Forester to be beyond the landowner's control, the State Forester shall extend the time to accomplish reforestation. Such circumstances may include, but are not limited to:

(a) Nursery failure;
(b) Inadequate seedling availability following salvage harvesting;
(c) Extreme drought;
(d) Insect infestation;
(e) State smoke management restrictions on the burning of slash;
(f) Wildfire or disease damage; or
(g) Severe wildlife damage that could not be reasonably anticipated or controlled by the landowner.

Extensions shall be made only upon a determination by the State Forester, based on timely written evidence provided by the landowner, that documents the landowner made reasonable attempts to comply with the reforestation requirements of the rules.

(7) Where an extension is granted for reforestation failure on land suitable for reforestation or in cases where a violation of the reforestation rules is cited, the landowner shall be required to take remedial action to achieve the required stocking standards within a time prescribed by the State Forester using recognized stand establishment methods.
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F. Acceptable species for reforestation and residual stand stocking

**Summary of Current Rules**

For each region, the State Forester maintains a list of acceptable species normally marketable within the region. Incense-cedar and juniper are not counted as acceptable species in stocking surveys of lands which formerly supported adequately stocked stands of ponderosa pine, mixed species, lodgepole pine, or other acceptable species prior to the forest harvest operation. Red alder or other hardwood species are not counted as acceptable in stocking surveys of lands which have supported adequately stocked stands of Douglas-fir or other acceptable conifers, unless a prior alternate plan is approved by the State Forester (OAR 629-24-403, 503 and 603).

**Finding:** The current rules do not address the potential problem of a landowner selecting an acceptable species, but using planting stock from an inappropriate seed zone or elevation. The current lists of acceptable species are inadequate.

The regional lists of acceptable reforestation species are currently provided to forest practices foresters in their rule guidance. Forest practices forester discretion is still required because some species on the regional lists may not be suitable for all sites within their respective regions. Other emerging commercial species such as Pacific yew are missing from these regional lists.

Site-specific species selection decisions are more appropriate. Forest practices foresters and landowners have expressed their comfort at making these decisions in their local areas. Advisory rule language is desirable to encourage using appropriate seed sources and establishing mixed species stands.

**Finding:** Hardwoods should be permitted as acceptable species.

Prior to SB 1125, forest practices foresters reviewed requests to use hardwood species in reforestation through plans for alternate practices submitted by landowners. The Forest Practices Act now allows "suitable hardwood seedlings" to be used in the reforestation of clearcuts. Through the proposed rules, artificial reforestation with any "acceptable" hardwood species will be allowed. Natural reforestation will be allowed only through an approved written plan. Fairly rigid criteria will be established through guidance for the approval of natural reforestation plans involving hardwoods. Up to 20 percent of the stocking requirement in an operation area may be met through post-operation residual hardwoods of "acceptable" species. Higher proportions of hardwood residual stocking will require prior approval.
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**Finding:** Greater reforestation success is likely if forest practices foresters have a tool to review landowners’ plans when non-native tree species will be used.

In nearly all cases, native species will be considered "ecologically suited" and the preferred reforestation species. Exceptions may exist where a species has migrated into a lower productivity site due to fire suppression (example: white fir into ponderosa pine/Douglas-fir forests on low productivity sites).

The use of tree species not native to the planting site can result in low tree survival and low growth rates which may continue throughout the life of the stand. However, exotic species have proven in some cases to be ecologically suited to the planting site and have grown to maturity without difficulty. Careful planning and consideration of research findings and previous field tests, if available, are needed before the use of exotic species should be allowed. Small-scale field tests of non-native species should be allowed.

Landowners who wish to reforest all or portions of multiple operations over time using a non-native species should be allowed to submit a single written plan. An example may be reforesting root-rot pockets with a tree species not already present in the area. Once a plan has been approved for the first operation, it can be referenced when conducting subsequent operations under similar conditions instead of submitting additional duplicate plans.

**Proposed New Rules**

*Staff recommends deleting the existing regional rule sections and replacing them with the following rules:*

629-XX-150 ACCEPTABLE SPECIES FOR REFORESTATION AND RESIDUAL STAND STOCKING

(1) The State Forester shall determine if tree species are acceptable for artificial reforestation, natural reforestation, and as residual seedling, sapling and pole, or larger tree stocking based on all of the following criteria:

(a) The species must be ecologically suited to the planting site;
(b) The species must be capable of producing logs, fiber, or other wood products suitable in size and quality for the production of lumber, sheathing, pulp or other commercial forest products; and
(c) The species must be marketable in the foreseeable future.
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(2) Up to 20 percent of the site-based stocking levels required by 629-XX-120 may be met by using free to grow hardwood trees remaining after harvest if the trees are of species meeting the requirements of section (1) of this rule. Prior approval of the State Forester is required before more than 20 percent of the required stocking may be met with residual, post-operation hardwood trees. Prior approval for the use of higher levels of hardwood residual stocking shall be based on a determination by the State Forester that there is a high probability that the purpose of the reforestation rules will be achieved.

(3) Landowners are encouraged to reforest with a mixture of acceptable tree species where appropriate to reduce the risk of insect and disease losses and to promote stand diversity. Seedlings or seeds used for artificial reforestation should be from seed sources that are genetically adapted to the growing site.

629-XX-160 WRITTEN PLANS FOR THE USE OF NON-NATIVE TREE SPECIES

(1) When an operation will result in a reforestation requirement, and the landowner intends to plant or seed a tree species not native to the operation area, the landowner shall obtain prior approval from the State Forester of a written plan which describes the tree species and how it will be used to meet the reforestation requirements. Information in the plan shall include:

(a) The tree species that will be used;
(b) Evidence that the species is ecologically suited to the planting site;
(c) Evidence that the species is capable of producing commercial forest products that will be marketable in the foreseeable future; and
(d) Available research or field test findings which demonstrate the tree species has been successfully used in reforesting sites similar to the operation area.

(2) Written plans for the use of non-native tree species must be submitted for approval no later than twelve months after tree stocking is reduced and prior to planting. Written plans for the use of non-native tree species shall be approved by the State Forester if a determination is made that the information provided indicates there is a high probability that the purpose of the reforestation rules will be achieved.

(3) For the purpose of this rule, any tree species that the State Forester determines has naturally existed and reproduced in the operation area or on similar sites will be considered a native species.
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G. Suspension of the reforestation rule requirements for certain types of harvest units.

Finding: The current rules exempt operations, such as salvage harvesting, where sufficient stocking of live, healthy trees was not present prior to the operation.

At the regional committee meetings, forest landowners expressed general support for changing these rules and requiring reforestation after a salvage operation. However, there are financial implications for non-industrial landowners since not exempting salvage operations may prevent those operations from fully qualifying for federal cost-share funds for reforestation.


Under the revised statute, these requirements may be suspended on certain types of harvest areas if the landowner has qualified to participate in the Forest Resource Trust program (1993 Senate Bill 81) or cost-share programs administered by the State Forester. The requirements of the Forest Practices Act are to be imposed and enforced if adequate reforestation is not accomplished under the incentive program.

The intent of this change in the Act was that reforestation rule suspensions will only be granted on a small fraction of the units harvested in the state and will be reviewed and approved or disapproved on a case-by-case basis. Cleared harvest of adequately stocked stands of live trees must still be reforested under the statute and forest practice rules.

The department’s Service Forestry and Forest Practices Programs will jointly develop the criteria for units to qualify for the rule suspension.

Proposed New Rule

629-XX-170 SUSPENSION OF THE REFORESTATION RULES

(1) A landowner may request from the State Forester a suspension of the reforestation rules for the salvage or conversion of low value forest stands, to establish forest stands that are adequately stocked and free to grow.
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(2) The State Forester may suspend the reforestation rules in writing when the harvest area is a conversion of underproducing forestland or a salvage of forest stands where the merchantable trees are dead or dying due to wildfire, insects, diseases or other factors beyond the landowner's control and the State Forester determines:

(a) The landowner is approved for funding from a forest incentive program, for which the State Forester is the technical advisor; and
(b) The gross harvest revenues will not exceed the total costs of harvest, taxation, and reforestation.

For the purposes of this rule, "conversion of underproducing forestland" means an operation conducted on forestland subject to the reforestation requirements that does not currently support the minimum number of free to grow trees required with the objective of removing undesirable competing vegetation, including the incidental harvest of forest products, and establishing an adequately stocked, free to grow forest stand.

(3) To determine whether subsection (2)(b) of this rule is met on a harvest operation that has not started, the State Forester shall make a field observation of the harvest area to determine:

(a) The estimated merchantable volume;
(b) The value of the merchantable volume by applying current local market values; and
(c) The estimated harvest, taxation, and reforestation costs.

(4) When the State Forester is not able to determine the projected revenues and projected costs from the field observation described in subsection (3) of this rule, the State Forester may require the landowner to submit one or more of the following:

(a) A third party estimate, by species and grade, of the volumes and values of logs to be delivered to the mill;
(b) The projected costs of harvesting the forest products, including, but not limited to, harvest planning and administration, road construction and maintenance, felling and bucking, yarding, and loading and hauling;
(c) The projected severance, harvest, and income taxes;
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(d) The projected costs of reforestation, including planning and administration, site preparation, trees, tree planting, tree protection, and moisture conservation; or

(e) The projected costs of any other measures necessary to establish a forest stand in an adequately stocked and free to grow condition, as specified in the reforestation rules.

(5) To determine whether subsection (2)(b) of this rule is met on a harvest operation that has started, but is not yet complete, the landowner shall submit to the State Forester one or more of the following:

(a) The contracts executed to sell and harvest forest products, including but not limited to, all logging costs and receipts;

(b) All the forest products scaling summaries showing gross and net volumes, by species and corresponding mill receipts showing payment; or

(c) Any tax forms, records, or reports submitted by the landowner that detail the gross and net volumes of forest products harvested, by species, plus the logging and management cost used to determine harvest and severance taxes.

(6) Operations that are complete are not eligible for a suspension of the reforestation rules.

(7) The State Forester shall revoke the suspension of the reforestation rules at any time within six years of completing the operation if the landowner fails to establish a forest stand according to the specifications and time lines required under the applicable forest incentive program.

H. Revegetation when reforestation is not required

Summary of Current Rules

In all three regions, within one year following harvesting on lands not subject to the reforestation requirement, and on which reforestation is not being planned, some form of sufficient vegetative cover shall be required to provide continuing soil productivity and stabilization. Landowners are advised to consider using plants suitable for wildlife habitat and, in the Eastern Oregon Region, domestic livestock. (OAR 629-24-405, 504, and 605)
August 9, 1994

Finding: The existing three regional rules should be combined into a single statewide rule. Emphasis should be placed on the use of native plant species suitable for soil stabilization and productivity protection.

Domestic livestock is not a resource addressed by the Forest Practices Act, so the specific reference in the rules should be dropped.

Proposed New Rule

Staff recommends the following rule:

629-XX-180 REVEGETATION WHEN REFORESTATION IS NOT REQUIRED

When reforestation is not required or planned, the landowner shall ensure sufficient revegetation of the site to provide continuing soil productivity and stabilization within 12 months of the completion of the operation. Revegetation required by this rule may be planted or naturally established, and shall consist of trees, shrubs, grasses, or forbs suitable for soil stabilization and productivity protection. Landowners are encouraged to revegetate the operation area with native plants.

1. Exemption from reforestation for land uses not compatible with forest tree cover

Summary of Current Rules

When a landowner wishes to convert forestland to another use in any of the three regions, the conversion must be accomplished within the period required to achieve reforestation, as specified in 629-24-402, 629-24-502, and 629-24-602, or else reforestation will be required. The determination by the State Forester as to whether or not the land use change has been accomplished is governed by:

1. The presence or absence of improvements necessary for use of the land for the intended purpose; and
2. Evidence of actual use of the land for the intended purpose. (OAR 629-24-103)
August 9, 1994

Finding: New rule wording is needed to address the direction of the Legislature to the Board in Senate Bill 1125.

SB 1125 directs the Board of Forestry to require the landowner to prove that the land use change is authorized under local ordinances. For example, many grazing uses are compatible with the maintenance of tree cover. If grazing uses are proposed, information about the intensity of grazing use and carrying capacity should be provided. Only the smallest area necessary for the change in land use may be exempted from the reforestation requirements. Areas not needed for the new use remain subject to the reforestation requirements. Progress towards the changes must be evident within two planting seasons.

Finding: The administrative costs of handling bonds on every operation involving a proposed change in land use would outweigh the benefits since the proportion of operations where the bond would be needed would be very small.

The board has been directed to consider requiring a bond from landowners equal to the amount needed to reforest the site in the event the change in land use does not take place. The bond would be used to cover possible site preparation and reforestation costs.

Proposed New Rule

Staff recommends the following rule:

629-XX-190 EXEMPTION FROM REFORESTATION FOR LAND USES NOT COMPATIBLE WITH FOREST TREE COVER

(1) A landowner may request all, or portions of, an operation area be exempted from the reforestation requirements for the purpose of developing forestland for a use that is not compatible with the maintenance of forest cover. Prior approval shall be obtained for such an exemption from the State Forester and shall only be granted for the smallest land area necessary to carry out the intended change in land use. Reforestation shall be required on the portions of operation areas not directly involved in the land use change.

(2) In seeking prior approval, the landowner shall provide written documentation to the State Forester which establishes:

(a) The specific portion of the operation area necessary for the proposed
change in land use;

(b) The intended change in land use and the incompatibility of the land use with forest tree cover;

(c) The intended change in land use is authorized under local land use and zoning ordinances, and all necessary permits and approvals have been obtained, or will be obtained within 12 months following the reduction in tree stocking; and

(d) The county assessor and local planning department have been notified in writing of the proposed change in land use.

(3) Reasonable progress towards the change in land use, as determined by the State Forester, shall be made within 12 months of the completion of the operation. Evidence of reasonable progress towards a change to an agricultural use may include activities such as stump removal, cultivation, fencing, and planting or seeding of crops or pasture. Evidence of reasonable progress towards a change to use involving building a structure may include activities such as stump removal, excavation, and construction.

(4) The change in land use shall be completed and continuously maintained within 24 months of the completion of the operation.

(5) If the change in land use cannot be accomplished within the specified time due to circumstances beyond the landowner’s control, the State Forester shall extend the time to accomplish the change in land use. Such circumstances may include, but are not limited to, governmental delays in reviewing and processing permits and approvals, but do not include delays where a landowner is appealing the denial of a permit or approval if the State Forester does not have reason to believe the landowner will prevail on appeal. Extensions shall be made only upon a determination by the State Forester, based on written evidence provided by the landowner, that the landowner made reasonable attempts to comply. Landowners who need extensions are encouraged to contact the State Forester as soon as possible after the circumstances occur.

(6) The State Forester shall determine if the change in land use has been completed by:

(a) The presence or absence of improvements necessary for use of the land for the intended purpose; and

(b) Evidence of established and continuously maintained use of the land for the intended purpose.
August 9, 1994

(7) To remain exempt from the reforestation requirements the landowner shall continuously maintain the land in the new use for at least six calendar years following the completion of the operation.

IMPORTANT ISSUES NOT FULLY ADDRESSED BY PROPOSED RULES

The following issues emerged while writing this issue paper, but are not fully dealt with in the proposed rules. Other processes in the department's Forest Practices, Service Forestry, and Insect and Disease Programs will further address these topics.

A. Insect and disease management

Reforestation decisions play an important role in determining the resistance of future stands to insect and disease attacks. The rules recommending planting a mixture of species and requiring written plans when natural reforestation methods are used partially address this issue. Education and incentive programs are ways to further encourage forest landowners to establish insect and disease resistant stands.

B. Soil and site productivity

Both the success of reforestation and subsequent stand growth are greatly influenced by the condition of soils on the growing site. The department has drafted a "Soil and Site Productivity Project Plan" to address this topic as a part of the overall Forest Practices Program Strategic Plan.

C. Catastrophic stand losses

Support was expressed by landowners for state assistance to reforest private lands when growing stock is lost to wildfire, insects, disease, or other natural disturbances. Suggestions included help in obtaining seedlings and access to low- or no-interest loans. Senate Bill 81, passed in 1993, established a Forest Resource Trust intended to address this issue. The Board of Forestry has adopted rules to implement the Forest Resource Trust Program.
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Even with tighter reforestation rules, reforestation may be impossible in areas of heavy insect mortality in eastern Oregon due to the lack of quality seedlings from appropriate seed zones. Current nursery production must expand to meet this current demand. In response, northeast Oregon landowners have recently formed the "Blue Mountain Private Forest Lands Forest Tree/Seedling Network." This cooperative will facilitate cone collection, nursery contracts, and seedling storage, as well as landowner education and information exchange.

D. Informing new landowners of outstanding reforestation requirements

A continuing problem throughout the state is the failure of sellers of forestland to inform the new forest landowners about outstanding reforestation requirements under the forest practice rules. A written notice from the seller is required by the Forest Practices Act (ORS 527.665). Historically, enforcement and corrective action has often been made complicated and time consuming for the department when new landowners were not informed of their legal obligations.

An expanded scope of education of landowners, realtors, consulting foresters, and title companies is a way to manage this problem.

E. Revision of WOSTOT and Underproductive Forest Land Conversion Tax Credit

The administrative rules for the Western Oregon Small Tract Optional Tax and the Under Productive Forest Land Conversion Tax Credit reference components of the forest practice reforestation rules. Concurrent with revision of the forest practice rules, OAR 629-23-110, 170, 420, and 450 should be rewritten to make the language compatible with the new reforestation regulations.

F. Reforestation and residual tree stocking within visually sensitive scenic highway corridors

Different reforestation standards apply when operations occur within, or adjacent to, visually sensitive highway corridors designated by the Forest Practices Act. The department has chosen to deal with rule adoption on this topic at a later date.

G. Reforestation and residual tree stocking within riparian and wetland management areas

Additional requirements for the retention, protection, and establishment of trees within riparian and wetland management areas are currently being revised through a separate rule development process.
REFERENCES


August 9, 1994.


## Comparison of Reforestation Requirements of the Current Forest Practice Rules, Forest Practices Act, and Draft Rules

<table>
<thead>
<tr>
<th>Topic</th>
<th>Current Rules</th>
<th>Forest Practices Act</th>
<th>Draft Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of rules</td>
<td>Purpose statement provided.</td>
<td>Not addressed. (NA)</td>
<td>Purpose statement revised and expanded.</td>
</tr>
<tr>
<td>Written plans</td>
<td>NA</td>
<td>Alternate plans encouraged when conditions warrant.</td>
<td>Approved written plans are required when natural reforestation methods will be used or when exotic species will be planted. Alternate plans are encouraged where the intent of the rules can still be met.</td>
</tr>
<tr>
<td>Lands subject to reforestation requirements</td>
<td>Forestlands capable of producing 50 cubic feet per acre per year or more at CMAI in eastern Oregon and Class I and II forestlands in eastern Oregon. Eastern Oregon ownerships smaller than 11 acres exempt.</td>
<td>All forestlands.</td>
<td>Forestlands capable of producing 20 cubic feet per acre per year or more at CMAI statewide. On low productivity sites and wetlands careful reforestation planning is encouraged along with the retention of trees and the promotion of natural reforestation methods.</td>
</tr>
<tr>
<td>Free-to-grow definition</td>
<td>NA</td>
<td>Directs Board of Forestry to define.</td>
<td>Definition is proposed which broadens the 1987 definition. Additional criteria for determining free to grow status will be provided through rule guidance.</td>
</tr>
<tr>
<td>Pre-operation and post-operation conditions required for reforestation requirement.</td>
<td>Pre-operation conditions must exceed 100 trees per acre (150 in NW Oregon), 25 percent crown closure, and 80 square feet of basal area per acre, and post-operation conditions must reduce one or more of these factors below specified minimums. (Variance provided for interior SW Oregon) Salvage operations exempted.</td>
<td>Pre-operation stocking not addressed. Post-operation stocking must result in a &quot;clearcut&quot; situation.</td>
<td>Pre-operation stocking not considered. On Site I, II, and III lands, reforestation is required if less than 80 square feet of basal area per acre of trees 11 inches DBH and larger, 120 saplings per acre 1 to 10 inches DBH, 200 seedlings per acre, or an equivalent combination are present after harvest. On Site IV and V lands, reforestation is required if less than 50 square feet of basal area per acre of trees 11 inches DBH and larger, 75 saplings per acre 1 to 10 inches DBH, 125 seedlings per acre, or an equivalent combination are present after harvest. On Site VI lands, reforestation is required if less than 40 square feet of basal area per acre of trees 11 inches DBH and larger, 60 trees per acre 1 to 10 inches DBH, 100 seedlings per acre, or an equivalent combination are present after harvest. Reforestation required on underproductive lands and after salvage unless State Forester determines that costs will exceed revenues and the landowner has qualified for an incentive program.</td>
</tr>
<tr>
<td>Minimum stocking standards</td>
<td>150 established trees per acre in NW Oregon, 100 trees per acre elsewhere.</td>
<td>200 free-to-grow trees per acre statewide.</td>
<td>Stocking must meet or exceed the site-based standards listed above. Good quality residual stocking can be counted to offset required stocking.</td>
</tr>
<tr>
<td>TOPIC</td>
<td>CURRENT RULES</td>
<td>FOREST PRACTICES ACT</td>
<td>DRAFT RULES</td>
</tr>
<tr>
<td>-----------------------------</td>
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<tr>
<td>Time limits for reforestation</td>
<td>3 to 6 year time limits for stand establishment, depending on region of the state. A variance is allowed in interior SW Oregon under special conditions.</td>
<td>Begin artificial reforestation in 12 months, complete planting or seeding by the end of two planting seasons, establish free-to-grow stand within five growing seasons of planting or seeding.</td>
<td>Begin artificial reforestation in 12 months, complete planting or artificial seeding within 24 months operation. Establish free-to-grow stand by the end of six years. Natural reforestation time limits established through the written plan.</td>
</tr>
<tr>
<td>Time extensions</td>
<td>Extensions for smoke management restrictions specifically addressed in NW Oregon. Extensions permitted administratively for other reasons and in other parts of the state.</td>
<td>NA</td>
<td>Extensions granted for circumstances beyond landowner control. Additional planting may be required in cases of reforestation failures.</td>
</tr>
<tr>
<td>Acceptable species</td>
<td>State Forester maintains regional lists.</td>
<td>Use healthy conifer or suitable hardwood seedlings.</td>
<td>Any tree species ecologically suited to site, capable of the production of wood products, and marketable in the foreseeable future may be used. No more than 20 percent of the required stocking may be met with post-operation residual hardwoods without prior approval. Seeds and seedlings should come from appropriate genetic sources. Approved written plans required for exotic species.</td>
</tr>
<tr>
<td>Residual stand protection</td>
<td>Required under harvesting rules. Slightly different wording for eastern Oregon.</td>
<td>NA</td>
<td>Statewide rule wording proposed.</td>
</tr>
<tr>
<td>Revegetation</td>
<td>Required statewide within one year when reforestation not required. Use of plants suitable for wildlife (and for livestock in eastern Oregon) is encouraged.</td>
<td>NA</td>
<td>Retain existing rule, but encourage the use of native plants and eliminate the reference to livestock.</td>
</tr>
<tr>
<td>Changes in land use</td>
<td>Evidence of change in use must be visible within required time limits for reforestation.</td>
<td>Landowner must prove change is authorized under local ordinances. Progress towards change must be evident within two planting seasons. Areas not needed for new use must remain subject to reforestation requirements. Board directed to consider requiring bonds.</td>
<td>Statute wording used and expanded upon. Landowner required to notify county assessor and county planner. Bonding not addressed.</td>
</tr>
</tbody>
</table>