

SILVICULTURE

Chapter 222-16 WAC, Definitions

WAC 222-16-010, General definitions.

"Clearcut" means a harvest method in which the entire stand of trees is removed in one timber harvesting operation. Except as provided in WAC 222-30-110, an area remains clearcut until:

It meets the minimum stocking requirements under WAC 222-34-010(2) or 222-34-020(2); and the largest trees qualifying for the minimum stocking levels have survived on the area for five growing seasons or, if not, they have reached an average height of four feet.

"Even-aged harvest methods" means the following harvest methods:

Clearcuts;

Seed tree harvests in which twenty or fewer trees per acre remain after harvest;

Shelterwood regeneration harvests in which twenty or fewer trees per acre remain after harvest;

Group or strip shelterwood harvests creating openings wider than two tree heights, based on dominant trees;

Shelterwood removal harvests which leave fewer than one hundred fifty trees per acre which are at least five years old or four feet in average height;

Partial cutting in which fewer than fifty trees per acre remain after harvest;

Overstory removal when more than five thousand board feet per acre is removed and fewer than fifty trees per acre at least ten feet in height remain after harvest; and

Other harvesting methods designed to manage for multiple age classes in which six or fewer trees per acre remain after harvest.

Except as provided above for shelterwood removal harvests and overstory removal, trees counted as remaining after harvest shall be at least ten inches in diameter at breast height and have at least the top one-third of the stem supporting green, live crowns. Except as provided in WAC 222-30-110, an area remains harvested by even-aged methods until it meets the minimum stocking requirements under WAC 222-34-010(2) or 222-34-020(2) and the largest trees qualifying for the minimum stocking levels have survived on the area for five growing seasons or, if not, they have reached an average height of four feet.

"Forest practice" means any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber or forest biomass, including but not limited to:

Road and trail construction;

Harvesting, final and intermediate;

Precommercial thinning;

Reforestation;

Fertilization;

Prevention and suppression of diseases and insects;

Salvage of trees; and

Brush control.

"Forest practice" shall not include: Forest species seed orchard operations and intensive forest nursery operations; or preparatory work such as tree marking, surveying and road flagging; or

removal or harvest of incidental vegetation from forest lands such as berries, ferns, greenery, mistletoe, herbs, mushrooms, and other products which cannot normally be expected to result in damage to forest soils, timber or public resources.

"Green recruitment trees" means those trees left after harvest for the purpose of becoming future wildlife reserve trees under WAC 222-30-020(11).

"Partial cutting" means the removal of a portion of the merchantable volume in a stand of timber so as to leave an uneven-aged stand of well-distributed residual, healthy trees that will reasonably utilize the productivity of the soil. Partial cutting does not include seedtree or shelterwood or other types of regeneration cutting.

"Plantable area" is an area capable of supporting a commercial stand of timber excluding lands devoted to permanent roads, utility rights of way, that portion of riparian management zones where scarification is not permitted, and any other area devoted to a use incompatible with commercial timber growing.

"Salvage" means the removal of snags, down logs, windthrow, or dead and dying material.

"Scarification" means loosening the topsoil and/or disrupting the forest floor in preparation for regeneration.

"Site preparation" means those activities associated with the removal of slash in preparing a site for planting and shall include scarification and/or slash burning.

"Slash" means pieces of woody material containing more than 3 cubic feet resulting from forest practices activities.

"Weed" is any plant which tends to overgrow or choke out more desirable vegetation.

"Wildlife reserve trees" means those defective, dead, damaged, or dying trees which provide or have the potential to provide habitat for those wildlife species dependent on standing trees.

Wildlife reserve trees are categorized as follows:

Type 1 wildlife reserve trees are defective or deformed live trees that have observably sound tops, limbs, trunks, and roots. They may have part of the top broken out or have evidence of other severe defects that include: "Cat face," animal chewing, old logging wounds, weather injury, insect attack, or lightning strike. Unless approved by the landowner, only green trees with visible cavities, nests, or obvious severe defects capable of supporting cavity dependent species shall be considered as Type 1 wildlife reserve trees. These trees must be stable and pose the least hazard for workers.

Type 2 wildlife reserve trees are dead Type 1 trees with sound tops, limbs, trunks, and roots.

Type 3 wildlife reserve trees are live or dead trees with unstable tops or upper portions. Unless approved by the landowner, only green trees with visible cavities, nests, or obvious severe defects capable of supporting cavity dependent species shall be considered as Type 3 wildlife reserve trees. Although the roots and main portion of the trunk are sound, these reserve trees pose high hazard because of the defect in live or dead wood higher up in the tree.

Type 4 wildlife reserve trees are live or dead trees with unstable trunks or roots, with or without bark. This includes "soft snags" as well as live trees with unstable roots caused by root rot or fire. These trees are unstable and pose a high hazard to workers.

WAC 222-16-050, Classes of forest practices.

- 3) **"Class I."** Those operations that have been determined to have no direct potential for damaging a public resource are Class I forest practices. When the conditions listed in "Class IV - Special" are not present, these operations may be commenced without

notification or application.

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- i) Precommercial thinning and pruning, if not within the CRGNSA special management area.
- j) Tree planting and seeding.
- k) Cutting and/or removal of less than five thousand board feet of timber (including live, dead and down material) for personal use (i.e., firewood, fence posts, etc.) in any twelve-month period, if not within the CRGNSA special management area.
- l) Emergency fire control and suppression.
- m) Slash burning pursuant to a burning permit (RCW 76.04.205).
- n) Other slash control and site preparation not involving either off-road use of tractors on slopes exceeding forty percent or off-road use of tractors within the shorelines of a Type S Water, the riparian management zone of any Type F Water, or the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

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- 4) **"Class II."** Certain forest practices have been determined to have a less than ordinary potential to damage a public resource and may be conducted as Class II forest practices: Provided, That no forest practice enumerated below may be conducted as a Class II forest practice if the operation requires a hydraulic project approval (RCW 77.55.100) or is within a "shorelines of the state," or involves owner of perpetual timber rights subject to RCW 76.09.067 (other than renewals). Such forest practices require an application. No forest practice enumerated below may be conducted as a "Class II" forest practice if it takes place on lands that have been or are being converted to another use. No forest practice enumerated below involving timber harvest or road construction may be conducted as a "Class II" if it takes place within urban growth areas designated pursuant to chapter 37.70A RCW. Such forest practices require a Class IV application. Class II forest practices are the following:

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- c) Any of the following if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone, within a wetland, or within the CRGNSA special management area:
 - i) Construction of advance fire trails.
 - ii) Opening a new pit of, or extending an existing pit by, less than one acre.
- d) Salvage of logging residue if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone or within a wetland; and if none of the operations involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent.
- e) Any of the following if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone, within a wetland, or within the CRGNSA special management area, and if none of the operations involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent, and

if none of the operations are located on lands with a likelihood of future conversion (see WAC 222-16-060):

- i) West of the Cascade summit, partial cutting of forty percent or less of the live timber volume.
- ii) East of the Cascade summit, partial cutting of five thousand board feet per acre or less.
- iii) Salvage of dead, down, or dying timber if less than forty percent of the total timber volume is removed in any twelve-month period.
- iv) Any harvest on less than forty acres.

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5) "**Class III.**" Forest practices not listed under Classes IV, I or II above are "Class III" forest practices. Among Class III forest practices are the following:

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- c) Aerial application of insecticides, except where classified as a Class IV forest practice.
- d) Aerial application of chemicals (except insecticides), except where classified as Class I or IV forest practices.
- e) Harvest or salvage of timber except where classed as Class I, II or IV forest practices.
- j) Site preparation or slash abatement not listed in Classes I or IV forest practices.
- l) Harvesting exceeding nineteen acres in a designated difficult regeneration area.

Chapter 222-30 WAC, Timber Harvesting

WAC 222-30-010 Policy – Timber harvesting.

1) This chapter covers all removal of timber from forest lands in commercial operations, commercial thinning, salvage of timber, relogging merchantable material left after prior harvests, postharvest cleanup, and clearing of merchantable timber from lands being converted to other uses. It does not cover removal of incidental vegetation or removal of firewood for personal use. To the extent practicable, the department shall coordinate activities using a multiple disciplinary planning approach.

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WAC 222-30-020 Harvest unit planning and design.

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9) **Future productivity.** Harvesting shall leave the land in a condition conducive to future timber production except:

- a) To the degree required for riparian management zones; or
- b) Where the lands are being converted to another use or classified urban lands as specified in WAC 222-34-050.

WAC 222-30-070 Ground-based logging systems.

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6) **Protection of residual timber.** Reasonable care shall be taken to minimize damage from skidding to the stems and root systems of residual timber and to young reproduction.

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WAC 222-30-090 Postharvest site preparation.

Unless the application or notification indicates that the landowner or forest landowner specifically agrees to assume responsibility for compliance with this section, the operator shall leave the site in a condition suitable for reforestation following any clear cutting, or any partial cutting west of the summit of the Cascades where 80 percent or more of the cubic volume is removed within any 5 consecutive years unless the department determines that the live trees remaining will reasonably utilize the timber growing capacity of the soils. Lands being converted to another use or classified as urban development lands under WAC 222-34-050 are exempt.

The following site preparation is required when necessary to establish a condition suitable for reforestation:

- 1) Cutting, slashing, or other treatment of all noncommercial tree species, other competing vegetation, and nonmerchantable size trees commonly known as "whips" which will not reasonably utilize the growing capacity of the soil except in wetland management zones, riparian management zones; or
- 2) Pile or windrow slash; or
- 3) Mechanically scatter slash; or
- 4) Leave the cutover area in a condition for controlled broadcast burning, and subsequently burn.

Chapter 222-34 WAC, Reforestation

WAC 222-34-010 Required reforestation — West of Cascades Summit.

1) Reforestation - where required.

a) Unless the harvest application indicates that the land will be converted to another use, or the lands are identified in WAC 222-34-050 as having a likelihood of conversion to urban uses, reforestation is required for forest lands harvested after January 1, 1975 in the following instances:

- i) Clearcutting; or
 - ii) Partial cutting where 50 percent or more of the timber volume is removed within any 5-year period, unless the department determines that the live trees remaining will reasonably utilize the timber growing capacity of the soils.
- b) Reforestation is not required where:
- i) Individual dead, dying, down or windthrown trees are salvaged; or
 - ii) A tree or trees not constituting a merchantable stand are removed from lands in actual use for other purposes; for example, removal of individual trees from lands used for farming or grazing; or
 - iii) Trees are removed under a thinning program reasonably expected to maximize the long-term production of commercial timber; or
 - iv) An average of 190 vigorous, undamaged, well-distributed seedlings per acre of a commercial tree species are established on the area harvested (up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no acre of the harvested area with timber growing capacity may contain less than 150 seedlings per acre); or
 - v) A minimum of 100 vigorous, undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof, remain on the area harvested.

2) **Reforestation standards.** A harvested area is reforested when that area contains an

average of 190 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 150 seedlings per acre. The department may determine that less than an average of 190 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.

3) **Competing vegetation.** Competing vegetation shall be controlled to the extent necessary to allow establishment, survival, and growth by commercial species.

4) **Artificial regeneration standards.**

a) **Satisfactory reforestation - clearcuts.** Satisfactory reforestation of a clearcut harvest occurs if within 3 years of completion of harvest, or a period of from 1 to 10 years as determined by the department in the case of a natural regeneration plan, the site is restocked to at least the acceptable stocking levels described in subsection (2) of this section: Provided, That regeneration failures from causes beyond the applicant's control will not result in violation of this section, but supplemental planting or reforestation may be required except in riparian management zones (see WAC 222-34-030(4)).

The department may grant an extension of time for planting or seeding if suitable seedlings or if seeds are unavailable, or if weather conditions or other circumstances beyond the forest land owner's control require delay in planting or seeding.

i) **Reforestation species.** Where the species proposed for reforestation after timber harvesting differs from the removed stand, the department may approve use of the proposed species where the reforestation plan reveals that the proposed species is preferable from any of the following standpoints:

A) Site data indicates better potential production for the proposed species than the existing species.

B) Control of forest insects or diseases.

C) Greater economic return.

ii) **Seedling or seeding standards.** Except as approved by the department to qualify as acceptable reforestation, the seedlings or seeds must be from an appropriate seed source zone. The department shall establish seed zones and guidelines for their use.

b) **Satisfactory reforestation - partial cuts.** Where reforestation is required in connection with a partial cut, the harvest application shall include a plan for stocking improvement. The plan shall be approved unless the department determines that it will not reasonably utilize the timber growing capacity of the site.

5) **Natural regeneration standards.** A natural regeneration plan may be approved as acceptable reforestation if:

a) A seed source of well formed trees of commercial tree species, capable of seed production is available.

b) The owner of the seed source agrees in writing not to harvest the seed source for the time period specified in the plan, or until issuance of a satisfactory reforestation inspection report.

c) The seed source must consist of:

i) Seed blocks of sizes and locations shown on the plan and satisfactory to the department; or
(ii) An average of at least 8 individually marked, well-distributed, undamaged, vigorous, windfirm seed trees per acre of plantable area and no inadequately stocked area is more than 400 feet from the nearest seed tree; and

(iii) Competing vegetation shall be controlled to the extent necessary to allow establishment,

survival, and growth by commercial species.

(6) **Any alternate plan** for natural reforestation may be approved if it provides a practical method of achieving acceptable stocking levels as described in subsection (2) of this section within a period of 1 to 10 years.

WAC 222-34-020 Required reforestation — East of Cascades Summit.

1) Reforestation - where required.

a) Unless the harvest application indicates that the land will be converted to another use, or the lands are identified in WAC 222-34-050 as having a likelihood of conversion to urban use, reforestation is required for forest lands harvested after January 1, 1975 in the following instances:

i) Clearcutting; or

ii) Partial cutting where 50 percent or more of the timber volume is removed within any 5-year period, unless the department determines that the live trees remaining will reasonably utilize the timber growing capacity of the soils

b) Reforestation is not required where:

i) Individual dead, dying, down or windthrown trees are salvaged; or

ii) A tree or trees not constituting a merchantable stand are removed from lands in actual use for other purposes, for example, removal of individual trees from lands used exclusively for farming or cultivated pasture; or

iii) Trees are removed under a thinning program reasonably expected to maximize the long-term production of commercial timber; or

iv) An average of 150 vigorous, undamaged, well-distributed seedlings per acre of a commercial tree species are established on the area harvested (up to 20 percent of the harvested area may contain fewer than 150 seedlings per acre, but no acre of the harvested area with timber growing capacity may contain less than 120 seedlings per acre); or

v) A minimum of 100 vigorous, undamaged, well-distributed advanced regeneration, saplings or merchantable trees per acre of a commercial tree species or combinations thereof, remain on the area harvested.

2) Reforestation standards. A harvest area is reforested when that area contains an average of 150 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 150 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 120 seedlings per acre. The department may determine that less than an average of 150 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.

3) Competing vegetation. Competing vegetation shall be controlled to the extent necessary to allow establishment survival and growth by commercial species.

4) Artificial regeneration standards.

a) **Satisfactory reforestation - clearcuts.** Satisfactory reforestation of a clearcut harvest occurs if within 3 years of completion of harvest or a period of from 1 to 10 years as determined by the department in the case of a natural regeneration plan, the site is restocked to at least the acceptable stocking levels described in subsection (2) of this section: Provided, That regeneration failures from causes beyond the applicant's control will not result in a violation of this section, but supplemental planting may be required except in riparian management zones (see WAC 222-34-030(4)).

The department may grant an extension of time for planting or seeding if suitable seedlings or seeds are unavailable, or if weather conditions or other circumstances beyond the forest landowner's control require delay in planting or seeding.

i) **Reforestation species.** Where the species proposed for reforestation after timber harvesting differs from the removed stand, the department may approve use of the proposed species where the reforestation plan reveals that the proposed species is preferable from any of the following standpoints:

A) Site data indicates better potential production for the proposed species than the existing species.

B) Control of forest insects or diseases.

C) Greater economic return.

ii) **Seedling and seed standards.** Except as approved by the department to qualify as acceptable reforestation, the seedlings and seed must be from an appropriate seed source zone. The department shall establish seed zones and guidelines for their use.

b) **Satisfactory reforestation - partial cuts.** Partial cuts not meeting the specifications of subsection (1)(b)(iv) or (v) of this section shall have a seed source as required in subsection (5)(c)(ii) of this section.

5) **Natural regeneration standards.** A natural regeneration plan may be approved by the department as acceptable reforestation if:

a) A seed source of well-formed, vigorous trees of commercial tree species capable of seed production is available.

b) The owner of the seed source agrees in writing not to harvest the seed source for the time period specified in the plan or until issuance of a satisfactory reforestation inspection report.

c) The seed source consists of one of the following, or combinations thereof:

i) Seed blocks which total a minimum of 5 percent of the area of each 40 acre subdivision or portion thereof harvested: Provided, That the seed block should be reasonably windfirm, at least 1/2 acre in size, and reserved in locations shown on the plan and approved by the department; or

ii) A minimum of 4 undamaged seed trees per acre, well distributed over each 40 acre subdivision or portion thereof harvested: Provided, That the distance from seed trees of harvested areas that are not adequately stocked should not be more than 200 feet. Seed trees shall be of commercial tree species, vigorous and of seed-bearing age and size.

6) **Any alternate plan** for natural reforestation may be approved if it provides a practical method of achieving acceptable stocking levels as described in subsection (2) of this section within a period of 1 to 10 years.

WAC 222-34-030 Reforestation — Plans — Reports — Inspections.

1) **Reforestation plans.** Reforestation plans must be submitted with the application or notification except where no reforestation is required. The department shall designate difficult regeneration areas utilizing silvicultural information. When a forest practice is proposed for such an area, the department may require additional information regarding harvest systems and post harvest site preparation, as well as regeneration. The department shall approve the reforestation plan for difficult regeneration areas if it determines that such a plan will achieve acceptable stocking according to WAC 222-34-010 and 222-34-020.

2) **Reforestation reports.** The landowner, forest landowner, or his/her designee shall file a report with the department either at the time of completion of planting or reforestation or at the end of the normal planting season. When artificial seeding is used the report shall be filed 2

growing seasons after seeding.

3) The reports in subsection (2) of this section must contain at least the following:

- a) The original forest practices application or notification number.
- b) Species reforested, planted, or seeded.
- c) Age of stock planted or seed source zone.
- d) Description of actual area reforested, planted, or seeded.

4) Inspection; supplemental planting or reforestation directives.

a) Within 12 months after a reforestation report is received, the department shall inspect the reforested lands. The department shall issue written notice to the landowner, forest landowner, or his/her designee stating whether supplemental planting or reforestation or further inspection is required within 30 days after the deadline for inspection or the reforestation shall be deemed satisfactory.

b) If the inspection shows that acceptable stocking levels have not been achieved, the department shall direct the forest landowner to perform supplemental planting in accordance with the planting standards of WAC 222-34-010 (3) and (4)(a)(ii), 222-34-020 (3) and (4)(a)(ii): Provided, That:

i) In lieu of such supplemental planting, the department and the forest landowner may agree on a supplemental reforestation plan.

ii) Supplemental planting or reforestation shall not be required where in the opinion of the department planting or reforestation is not feasible due to rocky ground, dry conditions, excessively high water table or other adverse site factors and the department determines that there is little probability of significantly increasing the stocking level.

iii) Where supplemental planting or reforestation has been required by the department, the landowner, forest landowner, or his/her designee shall file a report of supplemental planting or reforestation upon completion.

iv) Except where stocking improvement is necessary to protect public resources and is feasible, further supplementary planting shall not be required where acceptable stocking levels have not been achieved after two properly performed supplemental plantings.

c) Within 12 months after a supplemental planting or reforestation report is received, the department shall inspect the reforested lands.

d) **Evidence of compliance.** The department shall within 30 days after the deadline for inspection or reinspection and when requested by the forest landowner confirm in writing whether acceptable stocking levels have been achieved, provided field conditions do not prevent the department from properly evaluating the reforestation.

e) Where a natural regeneration plan has been approved by the department, the department may allow up to 10 years to achieve acceptable stocking levels.

WAC 222-34-040 Site preparation and rehabilitation.

1) Heavy equipment. Heavy equipment shall not be used in connection with site preparation or rehabilitation work:

a) When, because of soil moisture conditions or the type of soils, undue compaction or unnecessary damage to soil productivity would occur or erosion would result in damage to water quality; or

b) Within riparian management zones, Type A and B Wetlands, wetland management zones, or within equipment limitation zones of Type Np and Ns Waters on slopes of 30 percent or less. On slopes greater than 30 percent heavy equipment shall not operate within 50 feet of Type S

through Ns Waters unless a site specific plan has been approved by the department.

2) Surface water drainage. Where site preparation or rehabilitation involves contouring or terracing of slopes, drainage ditches, or similar work:

a) The gradient of ditches or other artificial water courses in erodible soils shall not cause significant stream, lake, pond, or wetland siltation.

b) Ditches and other artificial water courses shall not discharge onto any road, landing or fill.

c) Ditches and other artificial water courses shall not be constructed to discharge onto the property of other parties without their consent.

3) Stream channel realignment. Where work involves deepening, widening, straightening or relocating the channel; or bulkheading, riprapping or otherwise stabilizing the banks of a Type S or F Water, a hydraulic project approval is always required, and the work shall be done only:

a) After consultation with any party having an appropriation permit or registered right to appropriate waters from the affected stream segment in cases of streams used for domestic water supplies.

b) Where no significant adverse effects on either the peak or minimum water levels or flows downstream can be expected.

c) In a manner not expected to result in long-term damage to public resources or to adjacent or downstream property.

NOTE: OTHER LAWS AND RULES AND/OR PERMIT REQUIREMENTS MAY APPLY. SEE CHAPTER 222-50 WAC.

WAC 222-34-050 Urban and other lands exempted from the reforestation requirements.

1) **Those lands which** an applicant has declared are to be converted to a nonforest use and are in fact converted within 3 years of completion of harvest.

2) **Those lands the** department determines should be exempted in whole or in part where the forest land has the likelihood of future conversion as defined in WAC 222-16-060. The applicant is encouraged to propose an alternate plan for reforestation on these lands.

3) **Utility rights of way.** Reforestation is not required for initial clearing or reclearing of utility rights of way in actual use for utility purposes or scheduled for construction of utility facilities within 10 years from the date of completion of harvest, provided that if the scheduled facility is not completed, the area shall be reforested within 1 year.

4) **Public lands.** Reforestation is not required on the following lands, unless required by regulation of the agency owning or acquiring the lands:

a) Lands owned in fee by a public agency which has budgeted for construction within 10 years a specific project inconsistent with commercial timber production.

b) Lands being acquired by public agency for construction within 10 years of a project inconsistent with timber production, if at the time of completion of harvest the public agency has entered into a binding contract for the purchase of the lands or initiated legal proceedings for the condemnation of the lands.