

Proposed Forest Practice Rules and Forest Practice Act language changes re: stocking standards from the William Main Research Group

Prepared for the March 2019 Board of Forestry Management Committee Meeting
 Presented by Rachelle Hedges Policy Analyst for Berkeley Forests at the University of California, Berkeley

Main Points

1. Separate sets of minimum TPA stocking standards for the higher fire risk soil water limitations in the Northern and Southern Districts, compared to the Coast District.
2. Southern Subdistrict TPA stocking standards are revised to reflect the 50% higher ratio from the baseline Coast standards.
3. No proposed changes in how stocking sampling is measured and evaluated
4. No proposed changes in the basal area based stocking standards

Table 1: Proposed revisions of trees per acre (TPA) stocking standards – from WMRG March 2019

Districts		FPR Site				
		I	II	III	IV	V
	Northern, Southern	125	125	125	100	100
	Coast	200	200	125	100	100
	Coast, Southern Subdistrict	300	300	200	200	200

CALIFORNIA FOREST PRACTICE RULES

912.7, 932.7, 952.7 Resource Conservation Standards for Minimum Stocking [All Districts, note (b)(1)(D)]

The following resource conservation standards constitute minimum acceptable stocking in the Coast [Northern, Southern] Forest District after timber operations have been completed.

- (a) Rock outcroppings, meadows, wet areas, or other areas not normally bearing commercial species shall not be considered as requiring stocking and are exempt from such provisions.
- (b) An area on which timber operations have taken place shall be classified as acceptably stocked if either of the standards set forth in (1) or (2) below are met within five (5) years after completion of timber operations unless otherwise specified in the rules.

(1) An area in the **Coast District** contains an average point count of **300 200 per acre on Site I and II and III lands, 125 on Site III lands, or 150 100 on site IV and V lands**; and in the **Northern and Southern Districts 125 per acre on Site I, II, and III lands and 100 per acre on Site IV and V lands** to be computed as follows:

- (A) Each countable tree [Ref. PRC § 4528(b)] which is not more than 4 inches d.b.h. counts 1 point.
- (B) Each countable tree over 4 inches and not more than 12 inches d.b.h. counts 3 points.
- (C) Each countable tree over 12 inches d.b.h. counts as 6 points.
- (D) [Coast] Root crown sprouts will be counted using the average stump diameter 12 inches above average ground level of the original stump from which the sprouts

originate, counting one sprout for each foot of stump diameter to a maximum of 6 per stump.

(D) [Northern] Sprouts over 1 foot in height will be counted, counting one sprout for each 6 inches or part thereof of stump diameter to a maximum of 4 per stump.

(D) [Southern] Root crown sprouts over 1 foot in height will be counted, using the average stump diameter at 1 foot above the average ground level of the original stump, counting 1 sprout for each foot of stump diameter to a maximum of 6 per stump.

(2) The average residual basal area measured in stems 1 inch or larger in diameter, is at least 85 square ft. per acre on Site I lands, and 50 square ft. per acre on lands of Site II classification or lower. Site classification shall be determined by the RPF who prepared the plan.

(3) To the extent basal area standards are specified in the rules in excess of 14 CCR § 912.7(b)(2) [932.7(b)(2), 952.7(b)(2)], up to 15 square feet of basal area of those standards higher than the minimum may be met by counting snags, and decadent or deformed trees of value to wildlife in the following sizes:

(A) 30 inches or greater dbh and 50 feet or greater in height on site I and II lands;

(B) 24 inches or greater dbh and 30 feet or greater in height on site III lands; and

(C) 20 inches or greater dbh and 20 feet or greater in height on site IV and V lands.

(c) The substitution provided for in 14 CCR § 912.7(b)(3) [932.7(b)(2), 952.7(b)(2)] may only be done when the potential spread of insects and diseases will not have a significantly adverse impact on long term productivity or forest health.

(d) The resource conservation standards of the rules may be met with Group A and/or B commercial species. The percentage of the stocking requirements met with Group A species shall be no less than the percentage of the stand basal area they comprised before harvesting. The site occupancy provided by Group A species shall not be reduced relative to Group B species. When considering site occupancy, the Director shall consider the potential long term effects of relative site occupancy of Group A species versus Group B species as a result of harvest. If Group A species will likely recapture the site after harvest, Group B species do not need to be reduced. The time frames for recapturing the site shall be consistent with achieving MSP. The Director may prohibit the use of Group A and/or B commercial species which are non-indigenous or are not physiologically suited to the area involved. Exceptions may be approved by the Director if the THP provides the following information and those exceptions are agreed to by the timberland owner:

(1) Explain and justify with clear and convincing evidence how using Group A nonindigenous, or Group B species to meet the resource conservation standards will meet the intent of the Forest Practice Act as described in PRC § 4513. The discussion shall include at least:

(A) The management objectives of the post-harvest stand;

(B) A description of the current stand, including species composition and current stocking levels within the area of Group B species. The percentage can be measured by using point-count, basal area, stocked plot, or other method agreed to by the Director.

(C) The percentage of the post-harvest stocking to be met with Group B species. Post-harvest percentages will be determined on the basis of stocked plots. Only the methods provided by 14 CCR §§ 1070-1075 shall be used in determining if the standards of PRC § 4561 have been met.

(D) A description of what will constitute a countable tree, as defined by PRC § 4528 for a Group B species and how such a tree will meet the management objectives of the post-harvest stand.

The Director, after an initial inspection pursuant to PRC § 4604, shall approve use of Group B species, as exceptions to the pre-harvest basal area percentage standard, if in his judgment the intent of the Act will be met, and there will not be an immediate significant and long-term harm to the natural resources of the state.

913.2, 933.2, 953.2 Regeneration Methods Used in Unevenaged Management [All Districts, Note variations by District in (a)(2)(A)(1)]

Unevenaged management is utilized to establish and maintain an unevenaged stand structure. Unevenaged management attributes include the establishment and/or maintenance of a multi-aged, balanced stand structure, promotion of growth on leave trees throughout a broad range of diameter classes, and encouragement of natural reproduction.

(a) Selection Under the selection regeneration method, the trees are removed individually or in small groups sized from .25 acres to 2.5 acres.

(1) Trees to be harvested or trees to be retained shall be marked by or under the supervision of the RPF prior to felling operations. When openings greater than .25 acres will be created, the boundaries of the small group(s) may be designated in lieu of marking individual trees within the small group areas. A sample area must be marked prior to a preharvest inspection for evaluation. The sample area shall include at least 10% of the harvest area up to a maximum of 20 acres per stand type which is representative of the range of conditions present in the area.

(2) Post-harvest stand stocking levels shall be stated in the THP. The level of residual stocking shall be consistent with maximum sustained production of high quality timber products. In no case shall stocking be reduced below the following standards:

(A) Selection System...

(B) Group Selection.

1. At least 80% of the stocked plots must meet the Basal Area stocking standards of 14 CCR § 913.2(a)(2)(A), [933.2(a)(2)(A); 953.2(a)(2)(A)].
2. Not more than 20% of the stocked plots may meet stocking standards utilizing the 300 100 point count standard with trees that are at least 10 (ten) years old...

913.4, 933.4, 953.4 Special Prescriptions

The following special harvesting methods are appropriate under certain conditions...

(b) Rehabilitation of Understocked Area Prescription. For the purposes of restoring and enhancing the productivity of commercial Timberlands which do not meet the stocking standards defined in 14 CCR 912.7 [932.7, 952.7] prior to any Timber Operations on such lands, an area may be harvested provided it is restocked in accordance with Subsections (1) or (2). To facilitate restocking, a regeneration plan must be included in the THP. The regeneration plan shall include Site Preparation, method of regeneration, and other information appropriate to evaluate the plan...

(2) On understocked Timberlands where no countable conifer trees are to be harvested and the broadleaf species are not designated for management, the area shall be planted to equal or exceed the stocking standards of 14 CCR 912.7(b)(1) [932.7(b)(1), 952.7(b)(1)] and shall be considered acceptably stocked if within five years of completion of Timber

Operations it contains at least an average point count of ~~150~~ 100 of Group A species on all site classifications.

913.8 Special Harvesting Methods for Southern Subdistrict [Coast]

Only the following regeneration methods and stocking requirements shall apply in the Southern Subdistrict of the Coast Forest District. Timber operations shall be conducted in accordance with subsections (a), (b), (c), or (d) below. If the provisions of more than one subsection will be used within any individual timber operation or logging area, a line separating the areas to be cut under provisions of each shall be shown in the plan and clearly defined on the ground by paint or other means prior to filing the plan and so as to be readily identifiable during and after completion of logging.

(a) Leave uncut a well-distributed timber stand after timber operations have been completed on the logging area that is at least 40% by number of those trees 45.7 cm (18 in.) and more d.b.h. present prior to commencement of current timber operations and at least 50% by number of those trees over 30.5 cm (12 in.) d.b.h., but less than 45.7 cm (18 in.) d.b.h. Leave trees shall be thrifty coniferous trees which were dominant or codominant in crown class prior to timber harvesting or which have crowns typical of such dominant or codominant trees. They shall be free from significant damage caused by the timber operations. No conifer shall be cut which is more than 22.9 m (75 ft.) from a leave tree 30.5 cm (12 in.) d.b.h. or larger located within the logging area. Average top stump diameter, outside bark, shall be considered 2.5 cm (1 in.) greater than d.b.h. No area may be cut in excess of the leave tree standards of this rule in any 10 year period. Upon completion of timber operations one of the following stocking standards for coniferous trees shall be met:

(1) Basal Area. The average residual basal area, measured in stems 2.5 cm (1 in.) or larger in diameter at least 27.6 m sq./ha (120 sq. ft. per acre) on Site I lands, and at least 22.7 m sq./ha (100 sq. ft. per acre) on Site II lands, and 17.22 m sq./ha (75 sq. ft. per acre) on Site III lands, and 11.48 m sq. sq./ha (50 square feet per acre) on Sites IV and V lands.

(2) Countable Trees. The area contains a well-distributed stand of trees with an average of at least ~~1112-742~~ countable trees per ha (~~450 300 point count per acre~~) as determined by using the following countable tree equivalents:

(A) ~~1112 741~~ countable trees per ha (~~450 300 countable trees per acre~~) not more than 10.2 cm (4 in.) d.b.h.; each tree to count as one toward meeting stocking requirements.

(B) ~~371 247~~ countable trees per ha (150 countable trees per acre) over 10.2 cm (4 in.) d.b.h. and not more than 30.5 cm (12 in.) d.b.h.; each tree to count as 3 toward meeting stocking requirements.

(C) ~~185-124~~ countable trees per ha (75 countable trees per acre) over 30.5 cm (12 in.) d.b.h. and not more than 45.7 cm (18 in.) d.b.h.; each tree to count as 6 toward meeting stocking requirements.

(D) ~~124 86~~ countable trees per ha (50 countable trees per acre) over 45.7 cm (18 in.) d.b.h.; and not more than 61 cm (24 in.) d.b.h.; each tree to count as 9 toward meeting stocking requirements.

(E) ~~74 50~~ countable trees per ha (30 countable trees per acre) over 61 cm (24 in.) d.b.h.; each tree to count as 15 toward meeting stocking requirements.

(F) Redwood root crown sprouts over .3 m (1 ft.) in height will be counted using the average stump diameter .3 m (1 ft.) above average ground level of the original stump from which the redwood root crown sprouts originate counting 1 sprout for each .3

m (1 ft.) of stump diameter to a maximum of 6 per stump. Any countable redwood root crown sprout over .3 m (1 ft.) in height but less than 10.2 cm (4 in.) d.b.h. shall count as one toward meeting stocking requirements...

916.9, 936.9, 956.9 Protection and Restoration of the Beneficial Functions of the Riparian Zone in Watersheds with Listed Anadromous Salmonids. [All Districts]

In addition to all other district Forest Practice Rules, the following requirements shall apply in any watershed with listed anadromous salmonids. Requirements of 14 CCR § 916.9 [936.9, 956.9] precede other sections of the FPRs...

(s) Exemption notices - No timber operations are allowed in a WLPZ, or within any ELZ or EEZ designated for watercourse or lake protection, under exemption notices except for...

(7) The harvest of dead or dying conifer trees subject to the following conditions...

(D) Within the WLPZ or ELZ/EEZ, if the stocking standards of 14 CCR § 912 [932, 952].7 are not met upon completion of timber operations, unless the area meets the definition of substantially damaged timberlands, at least ten trees shall be planted for each tree harvested but need not exceed an average point count of **300-200** trees per acre...

921.4, 961.4 Stocking Requirements [Coast, Southern, STA]

The stocking standards for understocked timberlands and substantially damaged timberlands as provided for by 14 CCR 1080 through 1081.1 and 1085 through 1085.6 are not applicable in Coastal Commission Special Treatment Areas in the Coast [Southern] Forest District. After completion of timber operations one of the following stocking standards must be met:

(a) Basal Area. The average residual basal area, (measured in stems 1 in. (2.5 cm) or larger in diameter Coast) shall be at least 125 sq. ft. per acre (28.69 sq. m per ha) on Site I lands, at least 100 sq. ft. per acre (22.96 sq. m per ha) on Site II and Site III lands and at least 75 sq. ft. per acre (17.22 sq. m per ha) on Site IV and V lands, or

(b) Point Count. The area contains an average point count as specified below:

(1) On Site I and II lands, the area contains an average point count of **450 300** per acre (~~1111.9 741~~ per ha) to be computed as follows:

(A) **450 300** countable trees per acre (~~1111.9 741~~ per ha) not more than 4 in. (10.2 cm) d.b.h.; each tree to count as 1 towards meeting stocking requirements.

(B) **150 100** countable trees per acre (~~370.6 247~~ per ha) over 4 in. (10.2 cm) d.b.h. and not more than 12 in. (30.5 cm) d.b.h.; each tree to count as 3 toward meeting stocking requirements.

(C) **75 50** countable trees per acre (~~185.3 124~~ per ha) over 12 in. (30.5 cm) d.b.h.; each tree to count as 6 toward meeting stocking requirements.

(2) On Site III, IV, and V lands the area contains an average point count of **of 300-200** per acre (~~741.3 494~~ per ha) to be computed as follows:

(A) **300-200** countable trees per acre (~~741.3 494~~ per ha) not more than 4 in. (10.2 cm) d.b.h.; each tree to count as one toward meeting stocking requirements.

(B) **100 67** countable trees per acre (~~247.1 165~~ per ha) over 4 in. (10.2 cm) d.b.h. and not more than 12 inches (30.5 cm) d.b.h.; each tree to count as three toward meeting stocking requirements.

(C) **50 35** countable trees per acre (~~123.5 86~~ per ha) over 12 in. (30.5 cm) d.b.h.; each tree to count as six toward meeting stocking requirements.

Redwood root crown sprouts will be counted using the average stump diameter 1 ft. (.305 m) above average ground level of the original stump from which the redwood root crown sprouts

originate, counting one sprout for each 1 ft. (.305 m) of stump diameter to a maximum of six per stump.

Site classification shall be determined by the RPF who prepared the plan. Rock outcroppings, meadows, wet areas, or other areas not normally bearing timber shall not be considered as requiring stocking and are exempt from such provisions.

927.10 Stocking Requirements [Marin County]

The stocking standards for understocked timberlands and substantially damaged timberlands as provided for by 14 CCR 1080 through 1081.1 and 1085 through 1085.6 are not applicable in the County. After completion of timber operations one of the following stocking standards must be met:

- (a) Basal Area:** The average residual basal area, measured in stems 1 in. or larger in diameter shall be at least 125 sq. ft. per acre on Site I lands, at least 100 sq. ft. per acre on Site II and Site III lands and at least 75 sq. ft. per acre on Site IV and V lands, or
- (b) Point Count:** The area contains an average point count as specified below:
 - (1) On Site I and II lands,** the area contains an average point count of ~~450~~ 300 per acre to be computed as follows:
 - (A) 450 300** countable trees per acre not more than 4 inches d.b.h.; each tree to count as one towards meeting stocking requirements.
 - (B) 150 100** countable trees per acre over 4 in. d.b.h. and not more than 12 in. d.b.h.; each tree to count as three toward meeting stocking requirements.
 - (C) 75 50** countable trees per acre over 12 in. d.b.h.; each tree to count as six toward meeting stocking requirements.
 - (2) On Site III, IV and V lands** the area contains an average point count of ~~300~~ 200 per acre to be computed as follows:
 - (A) 300 200** countable trees per acre not more than 4 inches d.b.h.; each tree to count as one toward meeting stocking requirements.
 - (B) 100 67** countable trees per acre over 4 inches d.b.h. and not more than 12 inches d.b.h.; each tree to count as 3 towards meeting stocking requirements.
 - (C) 50 35** countable trees per acre over 12 in. d.b.h.; each tree to count as six toward meeting stocking requirements.

Redwood root crown sprouts will be counted using the average stump diameter 1 ft. above average ground level of the original stump from which the redwood root crown sprouts originate, counting one sprout for each 1 ft. of stump diameter to a maximum of six per stump. Site classification shall be determined by the forester (RPF) who prepared the plan. Rock outcroppings, meadows, wet areas, or other areas not normally bearing timber shall not be considered as requiring stocking and are exempt from such provisions.

Article 5 Standardized Stocking Sampling Procedures

1071 Minimum Stocking Standards

Within five years after the completion of timber operations or as otherwise specified in the rules, a report of stocking on the entire area logged under the plan and shown on a revised map shall be filed with the Director by the timber owner or the agent thereof. If stocking is required to be met upon completion of timber operations the stocking report shall be submitted within

six months of the completion of operations.

The minimum acceptable stocking standards on logged areas which were acceptably stocked prior to harvest are those specified in the Coast, Northern, and Southern Forest District rules. If not otherwise specified, the following minimum standards apply:

- (a) On Site I timberlands as defined by the Board, the average residual basal area, measured in stems one inch or larger in diameter shall be at least 85 square feet per acre; or on Site II or lower shall be at least 50 sq. ft. per acre; or
- (b) The area contains an average point count of 300-125 per acre on Site I, II, and III lands or 150-100 on Site IV and V lands as specified in PRC 4561.

See 14 CCR 912.7, 932.7 and 952.7 for information for the point count values of various size trees and for determining how sprouts will be counted toward meeting stocking requirements.

1072.6 Point Count Stocking Sampling Procedure

The silvicultural rules of each forest district and the Act contain point count stocking standards to be met following the completion of a timber operation. The following procedure shall be used to determine if these stocking standards have been met.

Since there are separate values for three different size classes, three circular concentric plots may be needed at each plot center. The following standards are for a 300 point count:

- (a) For trees counted as one point each, a plot with a 6.80 foot radius is used (1/300th of an acre). If a countable tree of a value of at least one point is found in the plot, it is stocked, so recorded, and the timber owner or agent thereof moves on to the next plot center. If no countable tree is found, the next concentric plot is measured.
- (b) For trees counted as three points each, a plot with a 11.78 foot radius is used (1/100th of an acre). If a countable tree of a value of at least three points is found in the plot, it is stocked, so recorded, and the timber owner or the agent thereof moves on to the next plot center. If no countable tree is found, the next larger concentric plot is measured.
- (c) For trees counted as six points each, a plot with a 16.65 foot radius is used (1/50th of an acre). If a countable tree of a value of at least six points is found in the plot, it is stocked. If no countable trees of the required sizes are found in the three concentric plots, the plot center is recorded as being unstocked and the timber owner or agent thereof moves on to the next plot center. For point counts of 200 per acre, the three concentric circular plot radius sizes are: 8.33 feet (1/200th of an acre), 14.42 feet (1/66.7th of an acre), and 20.4 feet (1/33.3th of an acre). For point counts of 150 per acre, the three concentric circular plot radius sizes are: 9.61 feet (1/150th of an acre), 16.65 feet (1/50th of an acre), 23.55 feet (1/25th of an acre). For point counts of 125 per acre, the three concentric circular plot radius sizes are: 10.53 feet (1/125th of an acre), 18.24 feet (1/41.7th of an acre), 25.80 feet (1/20.8th of an acre). For point counts of 100 per acre, the three concentric circular plot radius sizes are: 11.78 feet (1/100th of an acre), 20.4 feet (1/33.3th of an acre), and 28.84 feet (1/16.7th of an acre).

The point count values of various size trees and for determining how sprouts will be counted is found in 14 CCR 912.7, 932.7 and 952.7.

Article 6 Stocking Standards for Substantially Damaged Timberlands

1080.1 Stocking Requirements for Substantially Damaged Timberlands

- (a) The stocking standards to be maintained or established where substantial damage has occurred prior to the start of timber operations, or where such damage has occurred

following the start of timber operations but before a stocking report has been submitted or approved by the Director, are:

- (1) On Sites III and better, the stocking shall consist of at least ten countable trees planted for each live tree harvested during conduct of salvage operations following the substantial damage, but need not exceed an average point count of ~~300~~ 200 per acre (494 per ha). The number of live trees harvested shall be determined by stump count or by an equivalent procedure proposed by the RPF and approved by the Department...

Article 6.95 Working Forest Management Plan Administration

1094.27 Stocking Report and Minimum Stocking Standards

(a) Within five (5) years after the completion of timber operations or as otherwise specified in the regulations, a report of stocking on the entire area logged under a Working Forest Harvest Notice and shown on a revised map shall be filed with the Director by the timber owner(s) or the Designated Agent. If stocking is required to be met upon completion of timber operations the stocking report shall be submitted within six (6) months of the completion of operations. The minimum acceptable stocking standards on logged areas which were acceptably stocked prior to harvest are those specified in the Coast, Northern, and Southern Forest District Rules. If not otherwise specified, the following minimum standards apply:

- (1) On Site I timberlands as defined by the Board, the average residual basal area, measured in stems one inch or larger in diameter shall be at least 85 square feet per acre; or on Site II or lower shall be at least 50 sq. ft. per acre; or
- (2) The area contains an average point count of ~~300~~ 125 per acre on Site I, II, and III lands or ~~150~~ 100 on Site IV and V lands as specified in PRC § 4561. See 14 CCR §§ 912.7, 932.7 and 952.7 for information for the point count values of various size trees and for determining how sprouts will be counted toward meeting stocking requirements...

Z'BERG-NEJEDLY FOREST PRACTICE ACT

Article 5. Resource Conservation Standards.

4561. Stocking standards; management; exemption. It is the purpose of this section to set forth resource conservation standards for timber operations, and to ensure that a cover of trees of commercial species, sufficient to utilize adequately the suitable and available growing space, is maintained or established after timber operations.

To that end, the following resource conservation standards define minimum acceptable stocking, and an area covered by a timber harvesting plan shall be classified as acceptably stocked if either of the following conditions exist within five years after completion of timber operations:

- (a) The area contains an average point count of ~~300~~ 200 per acre with Site I or II classification in the Coast District, 125 per acre on Site III in the Coast District and on Site I or II or III in the Northern or Southern Districts, except that in areas which the registered professional forester who prepares the timber harvesting plan has determined are site IV classification or lower, the minimum average point count shall be ~~150~~ 100 per acre. Point count shall be computed as follows:

(1) A countable tree that is not more than four inches in diameter at breast height to count as one.

(2) A countable tree over four inches and not more than 12 inches in diameter at breast height to count as three.

(3) A countable tree over 12 inches in diameter at breast height to count as six.

(b) The average residual basal area, measured in stems one inch or larger in diameter is at least 85 square feet per acre, except that in areas that the registered professional forester who prepares the timber harvesting plan has determined are site II classification or lower, the minimum average residual basal area shall be 50 square feet per acre.

The board, on a finding that it is in furtherance of the purposes of this chapter, may encourage selection, shelterwood, or other types of management of timber if consistent with the biological requirements of the tree species and may regulate the size and shape of areas in which even-age management of timber is utilized.

Rock outcroppings and other areas not normally bearing timber shall not be considered as requiring stocking and are exempt from the stocking provisions.