

Board of Forestry and Fire Protection

INITIAL STATEMENT OF REASONS

“STOCKING AND SILVICULTURAL STANDARDS AMENDMENTS, 2019”

**Title 14 of the California Code of Regulations (14 CCR),
Division 1.5, Chapter 4
Subchapter 4, 5 & 6
Article 2, 3, 6
Subchapter 7
Article 7**

**Amend: § 912.7, 932.7, 952.7
§ 913.2, 933.2, 953.2
§ 913.3, 933.3, 953.3
§ 913.4, 933.4, 953.4
§ 916.9, 936.9, 956.9
§1072.6
§1080.1**

Adopt: § 912.7(e), 932.7(e), 952.7(e)

INTRODUCTION INCLUDING PUBLIC PROBLEM, ADMINISTRATIVE REQUIREMENT, OR OTHER CONDITION OR CIRCUMSTANCE THE REGULATION IS INTENDED TO ADDRESS (pursuant to GC § 11346.2(b)(1))...NECESSITY (pursuant to GC § 11346.2(b)(1) and 11349(a))....BENEFITS (pursuant to GC § 11346.2(b)(1))

The Z'berg-Nejedly Forest Practice Act of 1973 (FPA) describes many of the broad forest management goals and policies of the state, including Public Resources Code (PRC) § 4512(c), which states “The Legislature finds and declares that it is the policy of this state to encourage prudent and responsible forest resource management calculated to serve the public's need for timber and other forest products, while giving consideration to the public's need for watershed protection, fisheries and wildlife, sequestration of carbon dioxide, and recreational opportunities alike in this and future generations.”

The FPA further describes the relationship between forest management and atmospheric sequestration of carbon dioxide through PRC § 4512.5(d), which states “..there is increasing evidence that climate change has and will continue to stress forest ecosystems, which underscores the importance of proactively managing forests so that they can adapt to these stressors and remain a net sequesterer of carbon dioxide.”

PRC § 4551 describes the mechanism through which forest policy is implemented through the authorization of the Board to “...adopt district forest practice rules and regulations for each district in accordance with the policies set forth in Article 1 (commencing with Section 4511) of this chapter and pursuant to Chapter 3.5

(commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code to ensure the continuous growing and harvesting of commercial forest tree species and to protect the soil, air, fish, wildlife, and water resources, including, but not limited to, streams, lakes, and estuaries.”

Additionally included in the FPA is PRC § 4561, which sets forth “resource conservation standards”, which are minimum standards intended 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.” The section goes on to outline various prescriptive standards for minimum tree occupancy required under described site-specific conditions.

PRC § 4561.2 authorizes the Board to “... adopt alternative stocking standards that meet the purposes of Section 4561 if those alternative standards reasonably address the variables in forest characteristics, achieve suitable resource conservation, and contribute to specific forest health and ecological goals as defined by the board.”

Since the initial creation of the regulatory stocking standards, several factors have significantly influenced forest health and management practices throughout the state. When the minimum resource conservation regulations were initially adopted, planted seedling survival rates were extremely poor, often resulting in extremely high failure rates and driving a need to plant trees at greater densities in order to ensure adequate site occupancy and survival of seedlings. Before 1953, only 31 percent of the plantings in the state successfully became established¹, whereas today, a combination of improved nursery and planting technology and practices, have resulted in seedling establishment rates of as high as 95 percent. Additionally, since the initial adoption of these regulations, the socioecological goals of forest management have significantly expanded and have influenced forest stocking and planting procedures. Issues surrounding atmospheric carbon sequestration, the risk and threat of loss and damage from wildfires, growing forest pest conditions, ongoing and potentially long-term drought conditions, climate change, and forest heterogeneity and diversity all serve to influence forest management practices and will impact associated stocking and planting procedures. The problem that the proposed action seeks to address is that current regulations do not address any of these changing conditions and do not provide for optimal stocking conditions in light of those conditions. The proposed action was developed in response to these changing ecological conditions and improved seedling survival rates. This proposal will allow for new point count Resource Conservation Standards for Minimum Stocking by Forest District and new point count standards for various regeneration methods, intermediate treatments, special prescriptions, riparian zones in watersheds with listed anadromous salmonids, and substantially damaged timberlands. The proposed action also revises the existing stocking sampling methods to reflect those quantitative changes to the point count standards. Furthermore, the proposed action creates a performance-based option for basal area stocking standards

¹ Zillgitt, Walter M. Forest Tree Planting, U.S. Forest Service., Forest Resource Report 14; 273-286, illus. 1958

where a Registered Professional Forester (RPF) may provide site specific forest stand and timberland conditions, then explain and justify how the proposed alternative stocking standard contributes to the forest health and ecological goals defined by the board as contained in this proposal. The Director may then inspect the area of the proposed alternative to determine that the alternative achieves suitable resource conservation.

Additionally, several of the regulatory silvicultural methods, as specified in 14 CCR § 913, 933, and 953 *et. seq.*, which are similarly intended to implement the goals of PRC §§ 4512 and 4513 and which specify prescriptive requirements for the harvesting and retention of trees, do not currently provide prescriptive standards which address these changing ecological conditions or otherwise align with the ecological goals intended to promote the state's policies related to healthy forest management in light of changing conditions. Furthermore, there are some clarity issues within these regulations.

The amendments and adoption help to address the specific forest health and ecological goals identified by the Board and clarify how those goals will achieve suitable resource conservation. **The forest health and ecological goals identified by the Board include:**

- Increased carbon sequestration
- Reduction in fire risk, fuels loading
- Increased resilience to forest pests
- Increased resilience to drought / increased water yield
- Appropriate stocking for resilient forests in a changing climate
- Avoidance of large-scale disturbances which promote homogeneity in forests

SPECIFIC PURPOSE OF EACH ADOPTION, AMENDMENT OR REPEAL (pursuant to GOV § 11346.2(b)(1)) AND THE RATIONALE FOR THE AGENCY'S DETERMINATION THAT EACH ADOPTION, AMENDMENT OR REPEAL IS REASONABLY NECESSARY TO CARRY OUT THE PURPOSE(S) OF THE STATUTE(S) OR OTHER PROVISIONS OF LAW THAT THE ACTION IS IMPLEMENTING, INTERPRETING OR MAKING SPECIFIC AND TO ADDRESS THE PROBLEM FOR WHICH IT IS PROPOSED (pursuant to GOV §§ 11346.2(b)(1) and 11349(a) and 1 CCR § 10(b)). *Note: For each adoption, amendment, or repeal provide the problem, purpose and necessity.*

The Board is proposing action to amend 14 CCR § 912.7 [932.7, 952.7], § 913.2, [933.2, 953.2], § 913.3, [933.3, 953.3], § 913.4, [933.4, 953.4], § 916.9, [936.9, 956.9], § 1072.6, & §1080.1

The **purpose** of the proposed action is:

- 1) To address the specific forest health and ecological goals identified by the Board to improve forest resilience to drought, fire, forest pests and diseases and increase carbon sequestration rates to defend against global climate change. This is accomplished primarily by amending the point count minimums in the Resource Conservation Standards to a lower standard. The proposed lower

standards provided for suitable resource conservation by reducing competition between trees for the essential resources of sunlight, water and nutrients needed for photosynthesis, and eliminates the need for expensive pre-commercial thinning treatments and resulting fuel buildup that can contribute to wildfire risk and carbon release. The proposal also allows site specific basal area stocking levels to be proposed if existing stocking standard minimums could lead to reduced forest health. Contemporary research indicates the following (see *citation and source references below*).

- Less competition between trees planted at lower, more appropriate densities may result in lower mortality rates and hence faster net growth of trees that can sequester more carbon.
 - It is important to reduce the densities of smaller diameter trees, as they can be associated with high severity, large-scale fires that result in the vast majority of carbon storage loss and greenhouse gas emissions on forested land.
 - A reduction in overall forest density helps create forests less susceptible to forest pest and disease outbreaks, reducing the amount of forest carbon stored in the dead pool.
 - The current stocking standard encourages overplanting in many areas, exacerbating conditions that can lead to extensive and severe wildfires that result in loss of life, structures, critical habitat and productive forestland.
 - The current stocking standard encourages overplanting in many areas, helping create conditions that are susceptible to forest pest and disease outbreaks far beyond those associated with normal, cyclical outbreaks.
 - The current stocking standard encourages overplanting in many areas, helping to create conditions that increase inter-tree competition for water, reduce tree vigor and limit forest-water yield.
 - The current stocking standard requires planting at densities that will be unsustainable for future forests in a changing climate. Effects of climate change on California forests include increased competition for water, longer fire seasons with more severe behavior, and greater susceptibility to insect and disease outbreaks.
 - Appropriately stocked forests are more resilient and resistant to a variety of stressors, which may help prevent large-scale, extreme disturbances that create large, homogenous patches of forest type, age and structure.
- 2) To align the prescriptive requirements of specific silvicultural prescriptions with the above stated ecological goals in order to address the state's changing ecological conditions and promote the state's forest policy goals.
 - 3) To address clarity issues, where they exist within the silvicultural methods.

The **effect** of the proposed action is to provide for increased forest resilience and suitable resource conservation by adjusting point count standards to a level that

reduces competition between trees for the essential resources of sunlight, water and nutrients needed for photosynthesis and requisite for forest resilience to natural stressors. The proposed action would eliminate the need for expensive pre-commercial thinning treatments and the resulting fuel buildup created by such treatments which can contribute to wildfire risk and carbon release. The proposal would also allow an RPF to propose site specific basal area stocking levels down to the current minimum Resource Conservation Standards, if the existing standards for the various regeneration methods, intermediate treatments, or special prescriptions would lead to reduced forest health, increase in fire risk, or reduced rates of carbon sequestration. Implementation of the proposed action will help to increase rates of carbon sequestration and reduce the long-term probabilities of large-scale wildfire that can result in homogeneous forest structure across the landscape by reducing tree mortality from drought, insect, and disease. The proposed action is consistent with the legislature's findings and declaration in PRC § 4512.5(d) for "proactively managing forests so that they can adapt to these stressors and remain a net sequesterer of carbon dioxide."

The proposed action will also have the effect producing prescriptive silvicultural methods which are clear and which accurately reflect those standards which are intended to promote the state's forest policy goals and achieve improved forest and environmental quality.

The **benefit** of the proposed action is to provide a mechanism pursuant to PRC § 4512.5(d) to proactively manage forest stocking, so that forests can adapt to these stressors and become more resilient while increasing rates of carbon sequestration to help offset climate change that contributes to these stressors. This revised regulatory mechanism is also likely to yield a economic benefit to the state as reduced seed and seedling planting requirements will reduce costs associated with transportation, storage, labor, and additional treatments necessary to plant and manage seedlings of higher densities.

Aggregated Explanation

The proposed amendment of Title 14 CCR § 912.7, [932.7, 952.7], § 913.2, [933.2, 953.2], § 913.3, [933.3, 953.3], § 913.4, [933.4, 953.4], § 916.9, [936.9, 956.9], §1080.1 do the following:

- Creates new Resource Conservation Standards for Minimum Stocking for point count by Forest District, and by various Regeneration Methods, Intermediate Treatments, Special Prescriptions, Riparian Areas in Watersheds with Listed Salmonids, and Substantially Damaged Timberlands.
- Addresses forest health and ecological conditions as defined by the Board 4561.2 per PRC.
- Provides for suitable resource conservation per PRC § 4561.2.

The proposed adoption of Title 14 CCR § 912.7(e) [932.7(e), 952.7(e)]

- b. A forest comprised of fewer, larger trees (vs. smaller, more densely stocked trees) is less susceptible to unusually large high-severity fires and pest / disease outbreaks.
 - i. Citation: North, M., Hurteau, M., & Innes, J. 2009. Fire suppression and fuels treatment effects on mixed-conifer carbon stocks and emissions. *Ecological applications*, 19(6), 1385-1396. doi:10.1890/08-1173.1
 - ii. Citation: Collins, B. M., Everett, R. G., Stephens, S. L. 2011. Impacts of fire exclusion and recent managed fire on forest structure in old growth Sierra Nevada mixed-conifer forests. *Ecosphere*, 2(4): Article 51. 14 p.
 - iii. Citation: Lydersen, J.M., Collins, B.M., Brooks, M.L., Matchett, J.R., Shive, K.L., Povak, N.A., Kane, V.R. & Smith, D.F. 2017. Evidence of fuels management and fire weather influencing fire severity in an extreme fire event. *Ecological Applications*, 27(7), pp.2013-2030.
 - iv. Citation: Forest Climate Action Team. 2018. California Forest Carbon Plan: Managing Our Forest Landscapes in a Changing Climate. Sacramento, CA. 178p.
 - v. Citation: Jenkins, M. J., Runyon, J. B., Fettig, C. J., Page, W. G., & Bentz, B. J. 2013. Interactions among the mountain pine beetle, fires, and fuels. *Forest Science*, 60(3), 489-501.
- c. Forests impacted by unnatural levels of pest and disease outbreaks pose a greater threat for large-scale high severity fire.
 - i. Citation: Jenkins, M. J., Runyon, J. B., Fettig, C. J., Page, W. G., & Bentz, B. J. 2013. Interactions among the mountain pine beetle, fires, and fuels. *Forest Science*, 60(3), 489-501.
 - ii. Citation: Jenkins, M. J., Page, W. G., Hebertson, E. G., & Alexander, M. E. 2012. Fuels and fire behavior dynamics in bark beetle-attacked forests in Western North America and implications for fire management. *Forest Ecology and Management*, 275, 23-34.
 - iii. Citation: Jenkins, M. J., Hebertson, E., Page, W., & Jorgensen, C. A. 2008. Bark beetles, fuels, fires and implications for forest management in the Intermountain West. *Forest Ecology and Management*, 254(1), 16-34.
- d. Large-scale, high severity fires and other disturbances often result in large, homogenous patches of forest type, age and structure.
 - i. Citation: Millar, C. I., & Stephenson, N. L. 2015. Temperate forest health in an era of emerging megadisturbance. *Science*, 349(6250), 823-826.
 - ii. Citation: Stephens, S. L., Burrows, N., Buyantuyev, A., Gray, R. W., Keane, R. E., Kubian, R., Liu, S. Seijo, F., Shu, L., Tolhurst, K.G., & Van Wagendonk, J. W. 2014. Temperate and boreal forest mega-fires: characteristics and challenges. *Frontiers in Ecology and the Environment*, 12(2), 115-122.

- iii. Citation: Williams, J. 2013. Exploring the onset of high-impact mega-fires through a forest land management prism. *Forest Ecology and Management*, 294, 4-10.

POSSIBLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS AND MITIGATIONS CEQA

CEQA requires review, evaluation and environmental documentation of potential significant environmental impacts for a qualified Project. Pursuant to case law, the development of Timber Harvest Plans (THP) has been found to be the functional equivalent to an Environmental Impact Report (EIR) under CEQA. Additionally, the Board's rulemaking process is a certified regulatory program having been certified by the Secretary of Resources as meeting the requirements of PRC § 21080.5.

While certified regulatory programs are excused from certain procedural requirements of CEQA, they must nevertheless follow CEQA's substantive requirements, including PRC § 21081. Under PRC § 21081, a decision-making agency is prohibited from approving a Project for which significant environmental effects have been identified unless it makes specific findings about alternatives and mitigation measures

Further, pursuant to PRC § 21080.5(d)(2)(B), guidelines for the orderly evaluation of proposed activities and the preparation of THPs or other written documentation in a manner consistent with the environmental protection purposes of the regulatory program are required by the proposed action and existing rules.

The proposed action will change the point count Resource Conservation Standards for Minimum Stocking by Forest District and provide new point count standards for compliance sampling and for various regeneration methods, intermediate treatments, special prescriptions, riparian zones in watersheds with listed anadromous salmonids, and substantially damaged timberlands. Additionally, the proposed action creates a performance-based option for basal area stocking standards where a Registered Professional Forester (RPF) may provide site specific forest stand and timberland conditions, then explain and justify how the proposed alternative stocking standard contributes to the forest health and ecological goals defined by the board as contained in this proposal.

The proposed action addresses concern for forest health and resilience to environmental "stressors" defined by the Board and as aligned with the legislature's findings and declaration in PRC § 4512.5(d) for "proactively managing forests so that they can adapt to these stressors and remain a net sequesterer of carbon dioxide."

Historic forest development in California was episodic in nature whereby frequent, low to moderate intensity fire would kill few of the overstory trees but would clear the understory of fuels and thin the forests naturally. The cleared understory would provide a bed for seed released from serotinous cones which can result in a great quantity of naturally regenerated seedlings. Initial densities of emerging seedlings could be 1,000 seedlings per acre or more often leading to overstocked conditions. Likewise, the

current stocking standards developed in 1972 lead to overstocking of forests because at that time, nursery practices for tree seedlings were in their infancy and mortality rates for planted seedlings could be as high as fifty percent (50%). This necessitated planting at higher densities to secure the desired stocking levels. Unfortunately, on many timber sites, this also requires a precommercial thinning 7 to 10 years later to ensure planted trees are “free to grow” and not competing with neighboring trees until another harvest can be undertaken. For some plantations, if a PCT treatment does not occur, it can often lead to stagnating stand growth and overstocked, unhealthy forests.

The proposed action recognizes the advances in nursery practices, tree genetics and vegetation treatments over the past 45 years, where ninety-five percent (95%) or better seedling survival is the normal result. This increase in seedling survival allows trees to be planted at appropriate stocking densities to be free to grow while foregoing expensive PCT treatments that add additional amounts of surface fuel accumulation, fire risk and timber owner expense. The reduced inter tree competition for the necessary resources in photosynthesis improves tree resilience to forest health and ecological stressors defined by the Board. The proposed action also provides a performance-based option whereby an RPF can propose a site specific, alternative basal area standard not to fall below the current Resource Conservation minimum basal area standards. The above provisions will have a positive effect on forest health in an environment of increasing stressors resulting from fire exclusion, overstocked forests and climate change and is not anticipated to have a significant adverse environmental effect whatsoever.