Letter 15

Charles L. Ciancio
P.O. Box 489
Fort Bragg, Ca. 95437

June 18, 1982

California Board of Forestry
1416 Ninth Street
Sacramento, Ca. 95814

Dear Board Members:

I am writing in regards to the new, proposed stocking rules and procedures (Sections 895.1 and 1070 through 1077) to be reviewed by the Board 7/7/82. There are still a couple subtle points which seem to need clarification and correction.

Under 1072.1, if the Director agrees the last stocked "40" acres has been sampled, then the Director should have to perform the sample as done by the submitter; otherwise, unnecessary disagreement can result, and the required field plot layout work mentioned under 1072.2 would serve no purpose and be a waste of time and money. The Director should have the right to question the work done by the submitter, but to do all the required work and also have two independent studies doesn't make sense. Clarity and/or necessity is involved in the above problems. (1)

Under 1072.4, the use of one acre as the minimum non-operated area having to be eliminated from the sampled area could be a problem. There are areas on which you could find a contiguous, irregular one acre area which is an integral part of a unit which should be counted. I have seen scattered residual areas which have heavy understory stocking and only fingers of scattered trees, and to try and only include sampling at disturbed fingers does not give a true picture or sample of the area and would greatly complicate field and intrepretation procedures. The use of a three acre minimum which matches the minor operation and conversion requirements, would go a long way towards elimination of the above problem, but even this would not completely eliminate the problem. It seems clarity and necessity are involved in the above problem. (2)

Yours,

Charles L. Ciancio

cc: Jack Sweeley

Letter 16

STATE OF CALIFORNIA—RESOURCES AGENCY EDMUND G. BROWN JR., Governor

EPARTMENT OF FORESTRY
16 NINTH STREET
CRAMENTO, CALIFORNIA 95814-5565
6) 322-0176

R 17

June 29, 1982

Dr. Henry J. Vaux
Chairman
California Board of Forestry
1416 Ninth Street, Room 1506-14
Sacramento, CA 95814

Dear Dr. Vaux:

Following distribution of the June 1, 1982 draft hearing language for Stocking Sampling Procedures, the Department staff was asked a question concerning the meaning of 14 CAC 1073(a). Upon evaluation of the question the staff saw where there could be some confusion in applying the rule. Attached for you consideration are some alternatives which clarify application of the rule.

If there are any questions, the staff is available to discuss them.

Sincerely,

DAVID E. PESONEN
Director

fa

cc: Regional Chiefs
Hal Slack

Attachment

State Board of Forestry

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The following are alternatives to clarify the language of 14 CAC 1073(a) found in the draft language of June 1, 1982.

Alternative I is to replace 14 CAC 1073(a) with:

a) Where application of the following gives a number of less than six (6).

$$\frac{(CUP) \times (SA)}{(NPS)} - \frac{(SIP) \times (0.5) \times (SA)}{(NPS)} = \text{less than } 6$$

CUP - Number of contiguous unstocked plots
SA - Acres in sample area
SIP - Number of stocked intermediate plots
NPS - Number of plots in sample, excluding intermediate plots

An intermediate plot is a plot placed halfway between two unstocked plots in the sample.

Alternative II is to define "average plot area" and the "average area of the intermediate plot". The following defines the terms:

"average plot area" means the acres in the sample area divided by the number of plots in the sample (excluding intermediate plots).

"average area of intermediate plot" means the average plot area times one-half.

Alternative III is to include both alternatives I and II in the rules. Both alternatives mean the same thing but provide differing means of explaining what is intended.

Dan 707-822-43

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Letter 17

COLLEGE OF NATURAL RESOURCES
DEPARTMENT OF FORESTRY AND RESOURCE MANAGEMENT
145 Mulford Hall

BERKELEY, CALIFORNIA 94720

June 29, 1982

Henry Vaux, Chairman
Board of Forestry
State of California
1416 Ninth Street
Sacramento, CA 95814

Dear Henry:

Attached is background statements giving some of my motivations in developing the present standardized sampling procedures. These are my thoughts and I cannot speak for the others involved at that time. However, regardless of our motivations, we were in agreement as the record will show.

However, this work was done in 1974-75 when few had experience with either the Act or sampling for stocking levels. At the time, I recommended a complete reevaluation after one year but this was not done. Instead attention has been focused on portions of the Act and regulations other than the sampling procedures. Now several proposed changes in the regulations are before you and generally they have my support. However there are two topics I want to discuss here.

First, as noted in my attached comments, the 5-plot rule is only one of four features of the present procedure that deals with the question of "distribution". The intent here was to ensure that large contiguous areas are not left unstocked, even through the average stocking may be sufficient. However, while I still believe that "large contiguous areas" should not be left unstocked, the 5 plot rule has been incorrectly and inconsistently applied and is ineffective. Rather, it should be sufficient to show that the area surrounding and in between the unstocked plots is not completely unstocked. Observing <u>any</u> countable trees between groups of unstocked plots will ensure that the area is not completely unstocked. If the Board affirms this concept I will work with CDF to draft language to effect this change. (1)

Second, there are very serious problems with the proposal to adopt more than one procedure for a given region. Even though, the forester can use any method for forming his judgement in applying for a waiver, the biggest problems will be with those areas that are only marginally stocked. For this, a single standardized sampling method is needed. Further, training must be given to CDF foresters to ensure that it is understood and applied consistently. (2) con

P. 2&6

The standards, whatever they be, are based upon judgement. Making any change in the plot structure will require that the standards for acceptance be adjusted. For example, consider the following sampling rules and the stocking percentages for one sample area that I studied (data from Jere Melo and Roger Kruger):

Rule	% of plots stocked
1. Existing system	70.7
2. Multiple plots/Multiple counts	76.8
3. 1/50-th acre/Multiple counts	67.7

These figures indicate that the area is less likely to be rejected using rule 2 and more likely to be rejected using rule 3. The relationship between the percentages is a function of how evenly distributed the trees are over the area. Thus there is no simple way of establishing comparable standards for acceptance using the various rules.

I know that there are many questions that I have not addressed here. However, I believe that the proposals before you, and the deletion of the 5-point rule, will go far to meeting the objections of industry without reducing the protection for which the Act was intended.

Sincerely,

Lee C. Wensel

LCW:mlw

cc: Harold Slack, CDF

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BIOMETRICS NOTE

Number 9 June 29, 1983

Comments on the Standardized Sampling Procedures

Introduction

The purpose of this note is to review the motivations that I had during my participation in the development of the "Standardized Sampling Procedures" to determine whether logged areas meet the minimum stocking standards defined in the Forest Practices Act. (See also Notes 3 and 4)

From discussions with industry and CDF foresters, it is clear that there is much misunderstanding about the current system: what it is designed to do and how it is designed to function. Misunderstandings have caused the rules to be applied inconsistently and have made an evaluation of the methods difficult.

Herein, I will attempt to explain the motivations that I had in 1975, detail some of the problems that I see with the existing and other proposed systems, and make a few recommendations. Others were involved at the time and, while I think we were of one mind then, I only speak for myself. Also, as noted later, modifications in the original procedure have been made before and additional modifications are proposed.

Requirements of the Act

As I see it the Act is based upon the promise that, without regulation, many logged areas would be left unstocked (or understocked). The justification for regulation is then to protect the public from the social and economic costs associated with unregulated behavior.

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The Act then sets up "minimum average stocking levels" and requires that the stocking be "well distributed".

Average Stocking

Estimating the average stocking level can be done by any one of a variety of sampling methods. Foresters familiar with sampling realize that locating an unbiased sample of fixed or variable-radius plots can be used to estimate the average number of trees or average basal area on an area. For the purposes of establishing the average stocking level the number of such plots is easily computed using well-established statistical rules.

The error levels used for such computations must, however, take into consideration the costs involved when the sample results in an incorrect decision. In this regard there are two types of error that must be considered, with the following consequences:

	Error	Consequence
(1)	A stocked area is judged unstocked	Unnecessary planting costs incurred by the landowner.
(2)	An unstocked area is judged to be ~~un~~stocked	The "public" experiences a "cost" for which the act was designed to protect them from.

It is important here to recognize that the "costs" experienced by either the landowner or the public are not exactly comparable. For example, even having to unneccesarily plant a few trees still requires the land owner to mount a costly planting effort that is only marginally affected by the number of trees planted.

On the other hand, the "cost" to the public of having the restocking of a logged area "slightly below" the minimum set by the Act is not only impossible to measure, but also "gradual," depending on the degree of understocking.

These considerations were used in setting the sample size and acceptance limits included in the regulations. However, the basic sample unit definition was based entirely on the requirement that the stocking be well distributed.

"Well distributed"

In discussions about the existing and proposed sampling methods, "distribution" has been used in two contexts:

(1) the spatial distribution of trees stocked within the area vs. unstocked area and

(2) the probability distribution, referring to the number of plots with various tree counts.

My interpretation of the intent of the Act is that, regardless of the average stocking level, "large" areas were not to be left unstocked. That is, the intent is to control the spatial distribution, which is not controlled (except at the extremes) by defining the probability distribution.

Spatial Distribution of the stocking is controlled by the following aspects of the present standardized sampling procedures:

(1) the systematic layout of the sample plots.

(2) the size of the expandable plots.

(3) the requirement that acceptance be based upon a minimum proportion of plots being stocked (55%) and

(4) no more than 5 contiguous unstocked plots be allowed.

Comments on each of these aspects follow.

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First, the systematic layout of the plots was intended to ... to it that large parts of the area were not left unsampled. Thus all stocking levels in the area would be sampled equally.

Second, the expandable plot sizes were a direct product of the stocking requirements. Thus, if a point had a countable tree within a radius corresponding to 300 points per acre, the point was judged to be "stocked."

Third, judging the plots as "stocked" or "unstocked" and requiring 55% of the plots to be stocked eliminated the problem of allowing "heavy" stocking on some plots to offset "no" stocking on others for the purpose of judging the distribution of stocking. The 55% requirement was based upon a combination of judgement (cf Note 3) and statistical control of the two types of error (cf Note 4) mentioned above. Further, while an actual count of all trees on the plots might have been required to show an average of at least 300 trees per acre, this extra effort was unnecessary. The distributional requirement had virtually ensured that there would be at least 300 points per acre in all but carefully contrived situations.

Fourth, the requirement that no more than 5 unstocked plots may be contiguous was included in an effort to ensure that the unstocked portion of an area was not all in one location. This requirement, while sounding reasonable to all concerned when it was adopted, has given us the most difficulty. First, the 5-plot rule has been misunderstood and inconsistently applied. And, second, because of an unwillingness of some foresters to take the intermediate plots while they were in the field, thereby requiring a second visit to complete the sampling. While I believe that this requirement is not the hardship that some believe, I

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never-the-less believe that it is ineffective and proposals for this have been made to the Board. Letter to Chairman Vaux, June 29, 1982

Unstocked portions

Since there is some probability that a plot will be stocked in an unstocked area or that an unstocked plot may be found in a stocked area, the practice of using the plots to decide where replanting must be done is indefensible. If the area is judged to be unstocked then a professional evaluation of the planting needs should be made. Once the planting has been done, the area should be subjected to an entirely independent sample. Or, since by this time the forester has an even better idea of what the stocking is, a waiver might be requested.

Waivers

Finally we get to the topic that has been very important to me. Registered professional foresters should be expected to exercise judgement in the cases where the question of stocking is "obvious." However, I would fully expect the forester to walk through the area systematically before making this judgement.

In forming this judgement, the forester may wish to take plots of any variety. Particularly where the Company already has established sampling rules for assessing stocking, these would be very helpful in forming the judgement required for a waiver.

From the beginning I have been a strong proponent of the waiver system. Now that we have more experienced CDF enforcement personnel, the waiver system should be even further encouraged.

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Least stocked 40's

The intention of having the least stocked 40 be sampled was to reduce the amount of actual sampling effort required and to make the results more meaningful. Even though 40 plots were required in any case, they would be spread over a much smaller area. This represents a substitution of professional judgement for the mechanical implementation of a set of rules.

The current reevaluation by the District Technical Advisory Committees (DTAC's) has pointed to some of the difficulties with the present procedure, and I have made recommendations concerning many of them. Most of these recommendations have been incorporated in the proposed changes before you. However, there are still two unresolved questions that are particularly troublesome:

(1) the 5 contiguous unstocked plot rule and

(2) the question of whether more than one sampling procedure should be accepted.

Both of these topics are addressed in my letter to the Board dated June 28, 1982.

Georgia-Pacific Corporation
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Fort Bragg, California 95437
Telephone (707) 964-5651

Letter 18

June 30, 1982

Dr. Henry J. Vaux, Chairman
California State Board of Forestry
1416 Ninth Street
Sacramento, CA 95814

Re: Public Hearing, Stocking Sampling Procedures, July 7, 1982

Dear Dr. Vaux:

We have received the revision for Sampling Procedures, roughly dated 6/1/82. Following are our comments for the upcoming public hearing.

Comments on the Public Report

We wish to refer to our letter of April 26, 1982, for the initial hearing on this matter. Apparently, the Public Report has not been changed, and we observe that the errors pointed out in our April 26 letter still exist. These are related to statements regarding over sampling of small timber tracts and under sampling of large timber tracts, the relationship to silvicultural rules, lack of a quantitative method for sampling after logging and for failing to recognize a change in the law for the 150 stocking points allowed on Sites IV and V. (1)

Comments on the Proposed Rules

We find that most of the changes to the proposed rules are minor, and they do not address changes recommended by Georgia-Pacific, other timber companies and the Coast DTAC. Therefore, we wish to once again refer to our letter of April 26, 1982, and we offer the following comments on the revision dated 6/1/82.

1. Definitions

We agree with the changes made for the definition of "Live and Healthy" that will be included in Section 895.1.

2. 1072 Stocking Sampling Procedures

We have a question: If we use our own quantitative sampling procedure (that is, we count the trees), is it proper to file for the RPF Waiver Request [1072.(4)], if the results of that survey indicate that the stocking requirements of the Act and rules have been met? (2) CONT

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