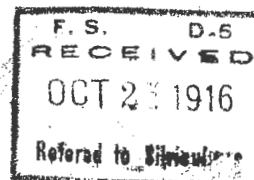


UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ELDORADO NATIONAL FOREST



ADDRESS REPLY TO
FOREST SUPERVISOR
AND REFER TO:

PLACERVILLE, CALIFORNIA

S
Eldorado-Timber Surveys

October 24, 1916.

District Forester,
San Francisco, Calif.

Dear Sir:

Reference is made to your circular of August 31, 1916, "S-Timber Surveys":

I have the following comments to offer on the mimeographed copy of the Timber Survey Manual:

Under "Estimating" on Page 18: In making a 10% estimate of areas containing commercially important species, two one-chain wide strips through the forty should be made rather than one two-chain strip. By using the two strips, not only a more accurate map is obtained, but the chances of error in the width of strip is greatly reduced. In checking over 10% estimates by the strip method two chains wide, once through the forty, of reconnaissance work on the Shasta, we found, invariably, very low estimates, due entirely to under-estimating the width of the strip. Where the one-chain width was used, this error was considerably smaller.

10/24/16

In estimating isolated forties, or areas less than 640 acres, and where such estimating is to be used for timber appraisal, I believe that a 100% estimate should be made. Forty acre units which have large parks or brush openings, should likewise be estimated by 100% estimate.

The results on the Shasta show that intelligent use of correction factors based on area by the ordinary field assistant, was valueless. Even in the hands of a successful estimator, this method proved difficult.

On Page 24, under "Errors most liable to occur, etc.", should be added -

Errors in length of strip.

Corrections should be made at the end of every mile for each forty cruised, because of the final differences, shortage or increase, in the paced mile strip.

On Page 38--

How can taper tables be ordinarily prepared by a reconnaissance party in the field, if working in standing timber?

Very truly yours,



Forest Supervisor.

S T
DISTRICT - RECONNAISSANCE.

10/11/11

REPORT ON THE RESULTS OF RECONNAISSANCE CHECKING.

DISTRICT 5.

BY

WILLIAM C. HODGE,

EXPERT.

*See Hodge's letter
11-24-11.
See letter to Forester
10-16-11*

OCTOBER 11, 1911.

W.C.H.

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10/10/74

a very wide strip should be tallied where the trees though scattered are very large. Where these large trees are scattered amongst a stand of small trees, the trees below a certain diameter may be taken on a one chain strip, those above this diameter being tallied on the wider strip.

Theoretically, of course, it is true that the wider the strip the better the result, provided the work in both cases can be performed with equal accuracy. It happens, however, that in many cases a one-chain strip gives more accurate results than a two-chain strip. There are two very practical reasons for this:

(1) It is much easier to estimate a distance of 33 feet on each side of the line than it is to estimate a distance of 66 feet.

(2) It is much easier to estimate diameters correctly at an extreme distance of 33 feet than it is at a distance of 66 feet.

Consequently, the smaller area though it is not so representative of the forty as the larger area, yet is more correctly cruised and where the stand is at all homogeneous will give the best results. Unless work is constantly checked by pacing out to doubtful trees and estimating their diameters both before and after pacing out to them, errors are bound

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to creep in . The tendency is strong to tally doubtful trees if they are large and to leave them out if they are small. And trees at a greater distance than 33 feet are very generally underestimated. The estimator of course learns to allow for this, but the mental effort involved interferes with the routine of his work and so adds to the fatigue that is always likely to impair his judgment toward the end of the day's work. Even in measuring a one-chain strip, occasional trees should be estimated from a distance and then measured accurately for a check, and the width of the strip should be settled by pacing.

For the reasons given above, a one-chain strip is recommended unless variations are obviously necessary.

Instruments:

Considering the inexperience of most of the men engaged on reconnaissance work, it would be theoretically preferable to eliminate the personal equation by relying wholly upon instrumental instead of personal measurements, and in all cases where this does not affect the speed or cheapness of the work this should be done. But, with the exception of running compass lines and calculating elevations, it is possible to do fairly accurate work without instruments, provided frequent checks are made. Some sys-

10/11/11

long shots. Chiefs of parties should drill their compassmen so that they instinctively select suitable objects. I believe that this matter is one not sufficiently borne in mind.

The hand compass can be slung on a strap without a case and is ready for instant use. The staff compass, on the other hand, requires the following operations: The staff must first be set, and in certain regions of shallow soil may be very difficult. The compass is then taken from its case, screwed on the staff head, leveled, allowed to settle, adjusted to the zero point, and finally a sight is taken. All of these operations except the settling of the needle, require the full attention of the compassman and take time that might be devoted to note taking.

An error of one degree in reading produces an error of 92 feet at the distance of a mile. Errors of 3 degrees and 5 degrees makes respectively differences of 277 feet and 462 feet at the same distance.

Measuring distances:

Unless there are special reasons for accuracy, the use of the tape or chain for measuring distances is unnecessary. Where corners are to be reset or where a base line is to be run out and stations established on it, accurate methods should, of course, be employed, but for the purpose of running a strip through

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10/10/10

the middle of a tier of forties, pacing is sufficiently accurate. Preliminary practice in pacing, of course, is necessary. The tests should cover the different slopes and surfaces likely to be encountered in the work itself and the test distances should be measured on the level. Since both compass work and pacing are tied in at the end of each day's work, a daily check on these operations is thus furnished. Some parties made a practice of chaining the line out, of setting and pacing the line back. This in my judgment is unnecessary and wastes too much time. While the compassman is going forward, the estimator must stop tallying trees in order to watch the chain, and after he has been stopped, the compassman must be practically idle until the estimator tallies his trees. Under this scheme the men do not work together, but alternately, and the extra accuracy gained is not justified considering the loss of time involved.

Pacing is less accurate the rougher the country and is least accurate in tall dense brush such as often occurs in the bottoms of canyons. I believe that instead of trying to pace through such places it would be more accurate for the compassman to estimate short distances (up to 100 yards say) by the eye and then take the easiest course to the object sighted, rather than attempt to pace a straight line through