



LSU FORESTRY NOTES

AGRICULTURAL EXPERIMENT STATION RESEARCH RELEASE
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Baton Rouge, La.

Note #15

June, 1957

STAND TABLE CONSTRUCTION FROM RELASCOPE PLOTS

When timber is cruised using a relascope^{1/}, basal area and volume figures are obtained without constructing a stand table, through the use of appropriate conversion factors. Although this saving in time is very desirable for most inventories, certain management purposes require stand tables.

In making the standard fixed-plot cruise, it is not uncommon to vary the size plot with tree size; for example, all trees 12" Dbh and larger may be tallied on 1/5-acre, trees 5" to 11" may be tallied on 1/10-acre, and smaller trees tallied on 1/100-acre. In computing trees per acre, the number of large trees per plot is multiplied by 5, the number of medium trees per plot by 10, and the number of small trees per plot by 100. This is exactly what is done in constructing stand tables from relascope plots because relascope cruising is actually not "plotless," but is multi-plot; every diameter has its own size plot. Therefore, in order to construct stand tables from relascope data it is necessary to tally the trees on the relascope plots by diameter; the relascope serves only to select plot trees.

The plot size on which any given diameter class is tallied may then be calculated by dividing the basal area of the tree of average diameter in that class by the relascope factor. For example if the tree of average diameter in the 14-inch diameter class is 14.0 inches, it has a basal area of 1.07 square feet; for a relascope factor of 10, the trees in the 14-inch class are counted on a plot of $\frac{1.07}{10}$, or 0.107 acres. Once the plot size is established the

data for each diameter class are treated as for the conventional plot cruise. A complete example is shown on page 2. Note that for any particular relascope the conversion factor for a given diameter class need be calculated only the first time it is used; thereafter, the same factors are used.

The principal advantages to be gained at the expense of the slight extra office work are probably three: (1) there are no plot boundaries to establish, since plot trees are selected with the relascope; (2) the "management" plots (those on which trees are tallied by diameter class) may be incorporated into a more intensive inventory of relascope plots; and (3) the larger, more valuable trees are sampled more intensively than the smaller, less valuable trees. As tree diameter is doubled, sampling intensity is increased four times; plot size is automatically adjusted to tree value.

^{1/} Grosenbaugh, L. R. 1952. Shortcuts for cruisers and scalars. Southern Forest Experiment Station Occ. Paper 126. pp 2-8.

Computational Form
Relascope Management Plots

No. Points: 100

Relascope Factor: 10

Dbh Class	Number of Trees						Basal Area Per Tree	No. Plots ^{3/} Per Acre	Number of Trees			Total
	Total ^{1/}			Per Point ^{2/}					Per Acre ^{4/}			
	1-log	2-log	3-log	1-log	2-log	3-log			1-log	2-log	3-log	
10	136	136	--	1.36	1.36	--	0.545	18.349	25	25	--	50
12	785	628	157	7.85	6.28	1.57	0.785	12.739	100	80	20	200
14	428	534	107	4.28	5.34	1.07	1.069	9.355	40	50	10	100
16	140	419	140	1.40	4.19	1.40	1.396	7.163	10	30	10	50
												Total 400

1/ Summary of field tally.

2/ Total divided by the number of sampling points.

3/ No. plots per acre = reciprocal of plot acreage = $\frac{\text{Relascope Factor}}{\text{Basal Area per Tree}}$

4/ Number of trees per plot times number of plots per acre.

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