

PACIFIC SOUTHWEST  
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EXPERIMENT STATION  
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# RESEARCH NOTE

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## BOARD FOOT VOLUMES FOR YOUNG-GROWTH MIXED-CONIFER TIMBER

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Board foot volumes have been determined for ponderosa pine, sugar pine, white fir, and Douglas-fir in 90-year-old mixed-conifer stands on the Challenge Experimental Forest, 1/ near Oroville, California. Productivity is high—site index 140 feet at 100 years. 2/

Following the technique described by Boe, 3/ the scaled volumes of felled trees were plotted on logarithmic graph paper against the volumes for the same species in the Region 5 Volume Tables. 4/

The adjusted volume tables (table 1) extend only through the 30-inch diameter class. Above this size, the standard Region 5 tables appear applicable. Incense-cedar volumes and volumes for 9- and 10-log trees were not adjusted owing to insufficient data; however, they are included in table 1 as copied directly from the Region 5 tables for the convenience of the user.

In the range of diameters where adjustments were made (12-30 inches), the old-growth table averaged 5.3 percent low. The average adjustment was +27 board feet, with a range of -50 to +80.

1/ Operated in cooperation with Soper-Wheeler Company, Strawberry Valley, California.

2/ Meyer, Walter H. Yield of even-aged stands of ponderosa pine. U.S.D.A. Tech. Bul. 630, 60 pp., illus. 1938.

3/ Boe, K. N. Adjustment of regional volume tables for local conditions. Northern Rocky Mt. Forest and Range Expt. Sta. 1949. (Mimeographed report, 7 pp.)

4/ Timber Management Division, U.S. Forest Service, Region 5. 1948. (Based on data gathered in 1909-13 and 1925. These tables are commonly called the "Standard Volume Tables" in California.)

TABLE 1.  
YOUNG-GROWTH MIXED-CONIFER BOARD FOOT VOLUMES

CHALLENGE EXPERIMENTAL FOREST, 1961, SITE INDEX A-200 (140 ft. at 100 yrs.)

Formed by adjusting R-5 volume tables (old-growth) on basis of local tree measurements. 12-inch stump height; 8-inch top d.i.b.; 5-inches trim allowed per 16-ft. log.

Volumes Scribner Decimal C, Board Feet in Tens

| D.b.h.<br>and log<br>height | Volume by species |    |     |    |                  | D.b.h.<br>and log<br>height | Volume by species |     |     |     |                  |
|-----------------------------|-------------------|----|-----|----|------------------|-----------------------------|-------------------|-----|-----|-----|------------------|
|                             | PP                | SP | WF  | DF | IC <sup>1/</sup> |                             | PP                | SP  | WF  | DF  | IC <sup>1/</sup> |
| 12-1                        | 4                 | 3  | 5   | 4  | 3                | 24-2                        | 17                | 16  | 20  | 17  | 19               |
| 2                           | 7                 | 8  | 9   | 7  | 5                | 3                           | 32                | 30  | 36  | 33  | 29               |
| 3                           | 12                | 12 | 13  | 13 | 11               | 4                           | 45                | 44  | 55  | 48  | 39               |
| 4                           | 16                | 17 | 18  | 18 | --               | 5                           | 61                | 60  | 72  | 66  | 51               |
| 5                           | 22                | -- | --  | 24 | --               | 6                           | 74                | 73  | 89  | 80  | --               |
|                             |                   |    |     |    |                  | 7                           | 88                | 88  | 105 | 95  | --               |
| 14-1                        | 5                 | 4  | 6   | 4  | 4                | 1/8                         | 102               | 102 | 121 | 110 | --               |
| 2                           | 9                 | 9  | 10  | 9  | 7                | 1/9                         | 117               | --  | --  | 125 | --               |
| 3                           | 14                | 14 | 16  | 15 | 13               |                             |                   |     |     |     |                  |
| 4                           | 20                | 21 | 22  | 22 | --               | 26-2                        | 20                | 19  | 22  | 19  | 23               |
| 5                           | 26                | -- | 29  | 28 | --               | 3                           | 36                | 34  | 43  | 38  | 34               |
|                             |                   |    |     |    |                  | 4                           | 52                | 50  | 64  | 55  | 45               |
| 16-1                        | 6                 | 4  | 6   | 5  | 5                | 5                           | 70                | 70  | 84  | 76  | 57               |
| 2                           | 11                | 11 | 12  | 10 | 9                | 6                           | 87                | 88  | 104 | 92  | --               |
| 3                           | 16                | 16 | 19  | 18 | 15               | 7                           | 103               | 103 | 125 | 110 | --               |
| 4                           | 24                | 25 | 27  | 26 | --               | 1/8                         | 119               | 118 | 144 | 127 | --               |
| 5                           | 31                | 32 | 34  | 33 | --               | 1/9                         | 136               | 129 | 156 | 144 | --               |
| 6                           | 38                | -- | 42  | 41 | --               |                             |                   |     |     |     |                  |
| 18-1                        | 7                 | 5  | 7   | 5  | 7                | 28-2                        | 23                | 22  | --  | 21  | 27               |
| 2                           | 12                | 12 | 14  | 12 | 11               | 3                           | 42                | 40  | 49  | 42  | 40               |
| 3                           | 20                | 20 | 22  | 22 | 18               | 4                           | 60                | 58  | 73  | 63  | 51               |
| 4                           | 28                | 28 | 32  | 31 | --               | 5                           | 80                | 80  | 97  | 88  | 65               |
| 5                           | 37                | 37 | 42  | 40 | --               | 6                           | 101               | 100 | 120 | 104 | 83               |
| 6                           | 46                | 47 | 54  | 49 | --               | 7                           | 120               | 118 | 144 | 126 | --               |
|                             |                   |    |     |    |                  | 1/8                         | 139               | 138 | 167 | 146 | --               |
| 20-1                        | 9                 | 6  | 9   | 6  | 8                | 1/9                         | 161               | 152 | 182 | 167 | --               |
| 2                           | 13                | 13 | 16  | 13 | 13               | 1/10                        | 181               | --  | --  | 191 | --               |
| 3                           | 24                | 23 | 27  | 25 | 21               |                             |                   |     |     |     |                  |
| 4                           | 33                | 32 | 39  | 36 | 30               | 30-2                        | 27                | 25  | --  | 24  | 33               |
| 5                           | 43                | 43 | 50  | 47 | --               | 3                           | 49                | 46  | 55  | 47  | 46               |
| 6                           | 54                | 54 | 63  | 58 | --               | 4                           | 71                | 68  | 81  | 72  | 59               |
| 7                           | 63                | 64 | 75  | 69 | --               | 5                           | 95                | 91  | 109 | 100 | 73               |
|                             |                   |    |     |    |                  | 6                           | 118               | 113 | 135 | 119 | 92               |
| 22-1                        | 11                | 7  | 11  | 6  | 10               | 7                           | 140               | 136 | 162 | 143 | --               |
| 2                           | 15                | 14 | 18  | 15 | 16               | 1/8                         | 163               | 160 | 189 | 166 | --               |
| 3                           | 28                | 27 | 32  | 29 | 25               | 1/9                         | 192               | 176 | 207 | 190 | --               |
| 4                           | 39                | 37 | 47  | 42 | 34               | 1/10                        | 216               | 198 | 234 | 216 | --               |
| 5                           | 52                | 52 | 62  | 56 | 45               |                             |                   |     |     |     |                  |
| 6                           | 65                | 64 | 76  | 69 | --               |                             |                   |     |     |     |                  |
| 7                           | 75                | 75 | 90  | 81 | --               |                             |                   |     |     |     |                  |
| 8                           | 86                | 86 | 104 | 95 | --               |                             |                   |     |     |     |                  |

Basis: 167 ponderosa pines, 26 sugar pines, 114 Douglas-firs, and 18 white firs.

<sup>1/</sup> Copied directly from R-5 Volume Tables; not adjusted due to insufficient sample.

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