

# Appendix C:

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## Stocking Charts for Selected Tree Species and Forest Types

**S**tocking charts are useful thinning guides. If you know the square feet of basal area and number of trees per acre in a stand, you can refer to a stocking chart for the species of interest and determine whether the stand is overstocked, fully stocked, or understocked. Stands above the A level on a stocking chart are overstocked and should be thinned back to near the B level to increase tree growth rate.

For example, refer to Appendix C-2. If your stand had a basal area of 110 square feet and 200 trees per acre, it would be at the A level where it is nearly overstocked. Trees in the stand would grow faster if the stand were thinned. Trees in this sample stand have an average stand diameter of 10 inches. Follow the line for 10 inches diameter down to the B-level curve. It intersects the B-level curve where the basal area is 68 square feet and there are 125 trees per acre. The residual trees would grow best if the stand were thinned back to this stocking level.

However, a stand that is heavily thinned may be subject to windthrow and epicormic branching. As a rule of thumb, do not remove more than one-third of the basal area from a stand at any one time. Applying this principle to the example above, the stand should be thinned down to 74 square feet of basal area and approximately 135 trees per acre.

**C-1.** Even-Aged Spruce-Balsam Fir Stands

**C-2.** Elm-Ash-Cottonwood

**C-3.** Nearly Pure Even-Aged Eastern White Pine

**C-4.** Jack Pine

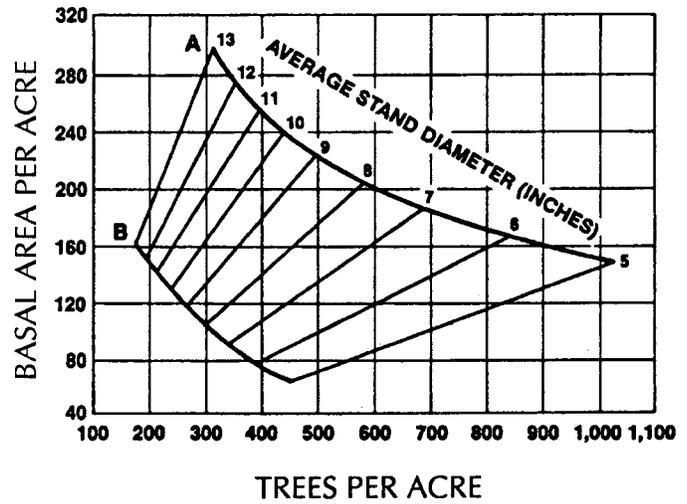
**C-5.** Even-Aged Management of Northern Hardwoods

**C-6.** Red Pine

**C-7.** Upland Central Hardwoods

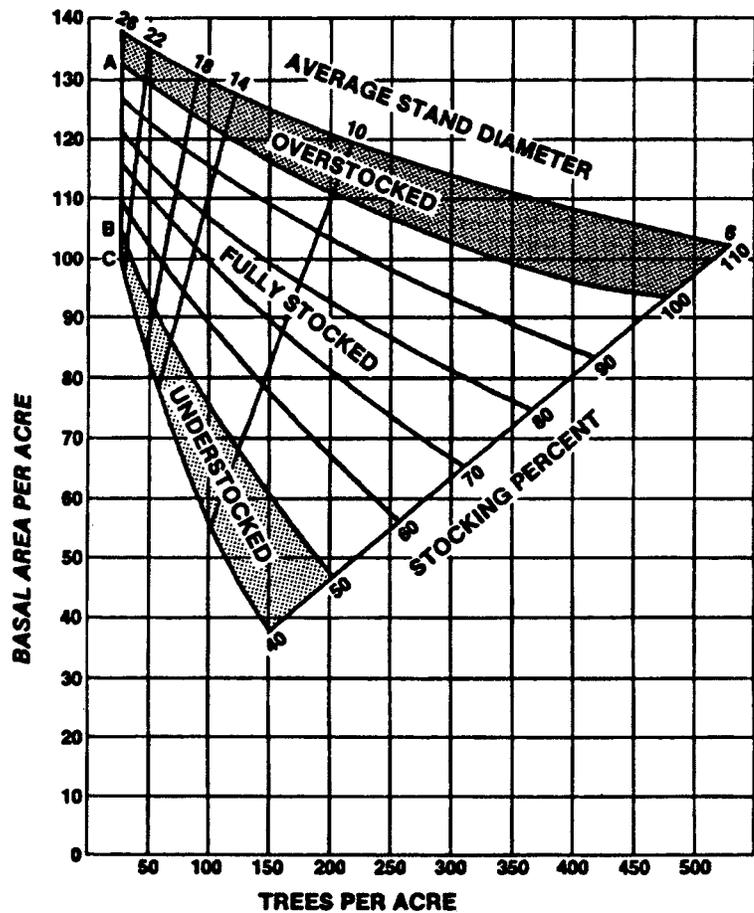
## C-1: Even-Aged Spruce-Balsam Fir Stands

**Source:** Johnston, W. F. 1986. *Manager's Handbook for Balsam Fir in the North Central States* (General Technical Report NC-111). USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, MN 55108. p. 8.



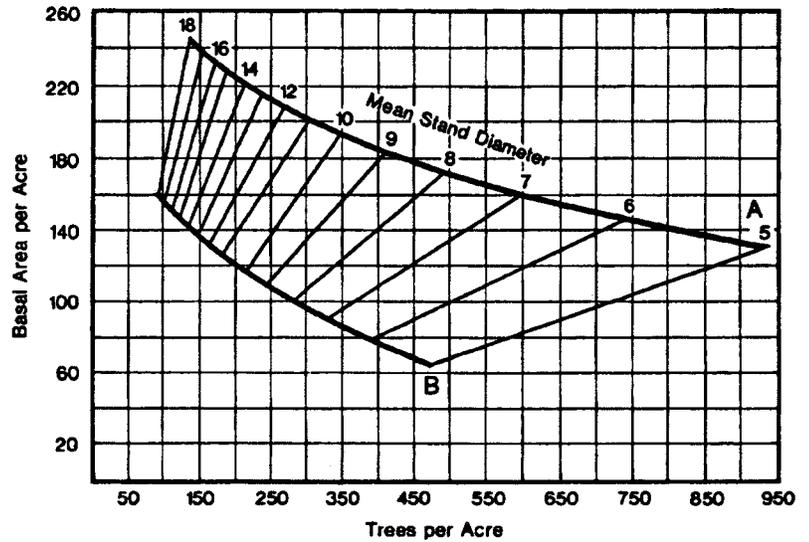
## C-2: Elm-Ash-Cottonwood

**Source:** Myers, C. C. and R. G. Buchman. 1984. *Manager's Handbook for Elm-Ash-Cottonwood in the North Central States* (General Technical Report NC-98). USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, MN 55108. p. 9.



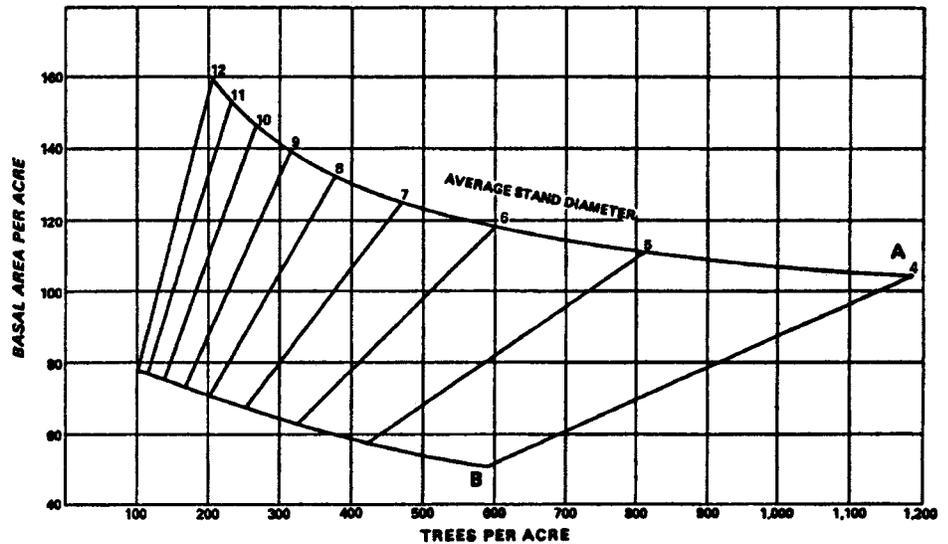
### C-3: Nearly Pure Even-Aged Eastern White Pine

**Source:** U.S. Department of Agriculture, Forest Service. 1990. *Silvics of North America, Volume I Conifers (Agricultural Handbook No. 654)*. U.S. Government Printing Office, Washington, DC 20402. p. 482.



### C-4: Jack Pine

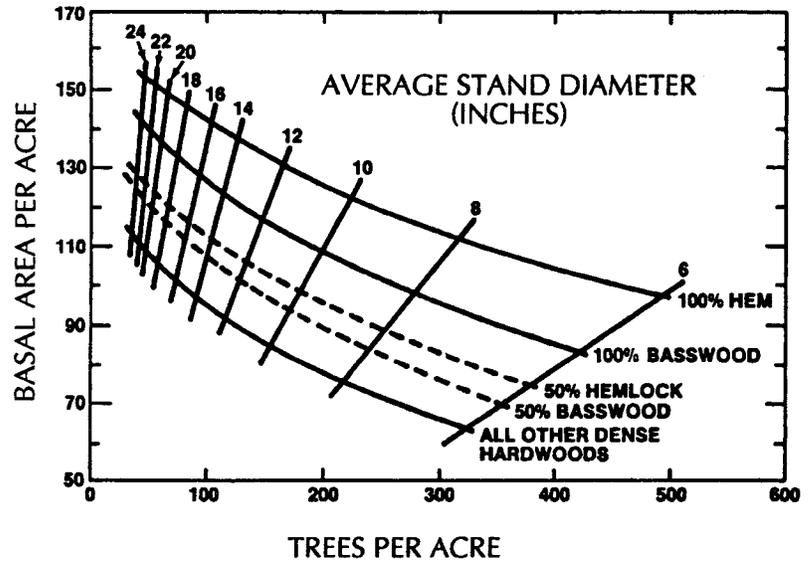
**Source:** Benzie, J. W. 1977. *Manager's Handbook for Jack Pine in the North Central States (General Technical Report NC-32)*. USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, MN 55108. p. 11.



### C-5: Even-Aged Management of Northern Hardwoods

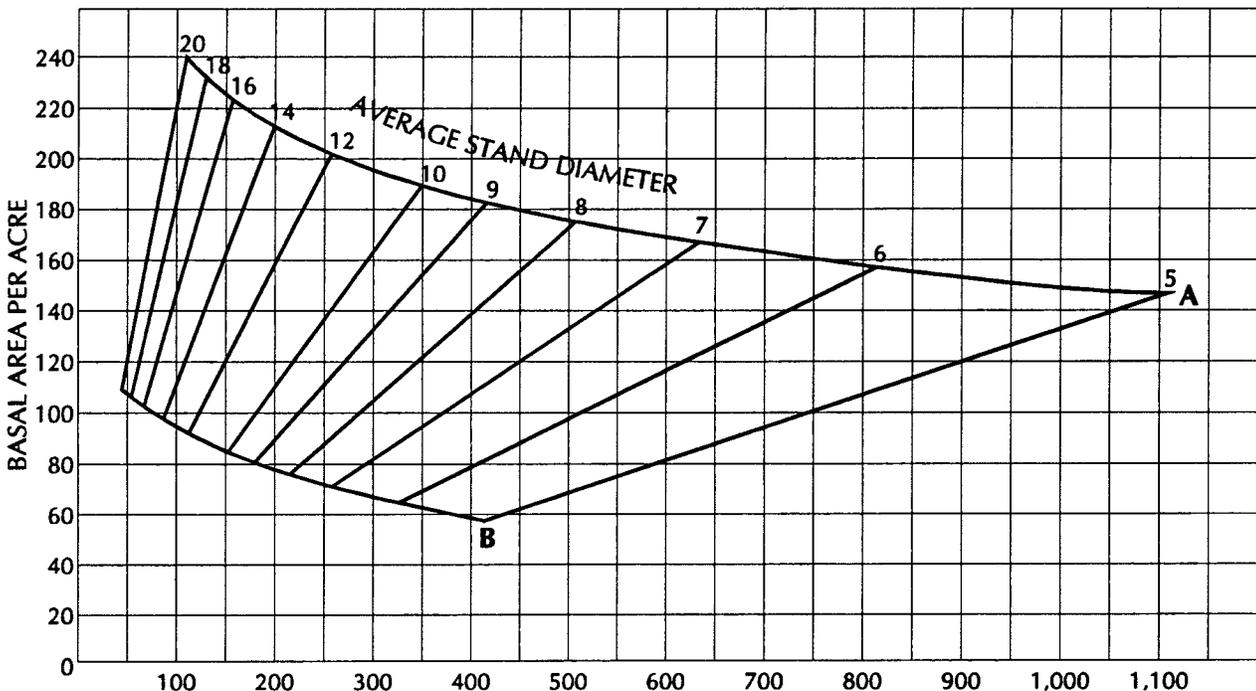
**Source:** U.S. Department of Agriculture, Forest Service. 1985. *Northern Hardwood Notes (Note 4.03)*. U.S. Government Printing Office, Washington, DC 20402.

**Note:** Find the current basal area per acre of your stand on the vertical axis and the number of trees per acre on the horizontal axis. Where these lines meet is the average tree diameter. Next extend a line paralleling the average tree diameter line to the appropriate specie curve. (Use the hemlock and basswood curves labeled 100 percent only if the stand you are thinning is at least 80 percent stocked with that particular species. Use the dashed curves for stands that are about 50 percent stocked with that particular species.) Go horizontally from the intersection of the average tree diameter line and species curve to the vertical axis and read the residual basal area that is optimum for that stand.



### C-6: Red Pine

**Source:** Benzie, J. W. 1976. *Manager's Handbook for Red Pine in the North Central States (General Technical Report NC-33)*. USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, MN 55108. p. 13.



## C-7: Upland Central Hardwoods

**Note:** For average tree diameters of 7 to 15 inches, use Chart A.  
 For average tree diameters of 3 to 7 inches, use Chart B.

**Source:** Sandler, I. L. 1977. *Manager's Handbook for Oaks in the North Central States (General Technical Report NC-37)*. USDA Forest Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, MN 55108. p. 29.

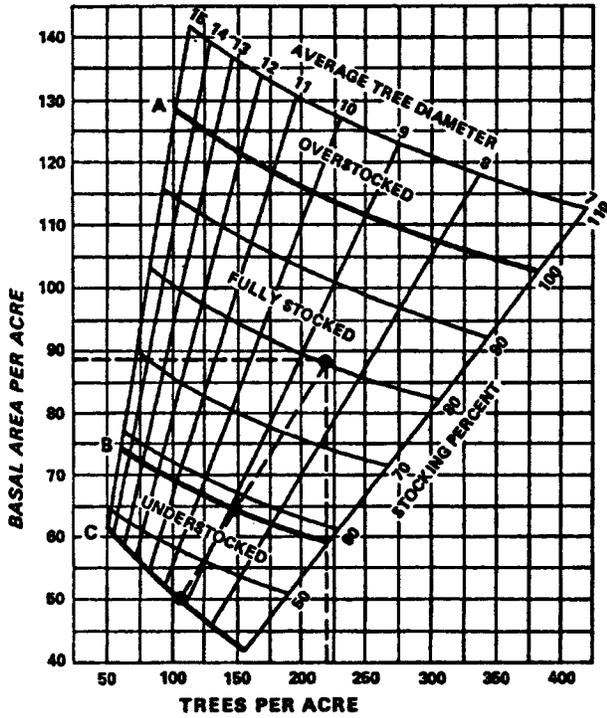


CHART A

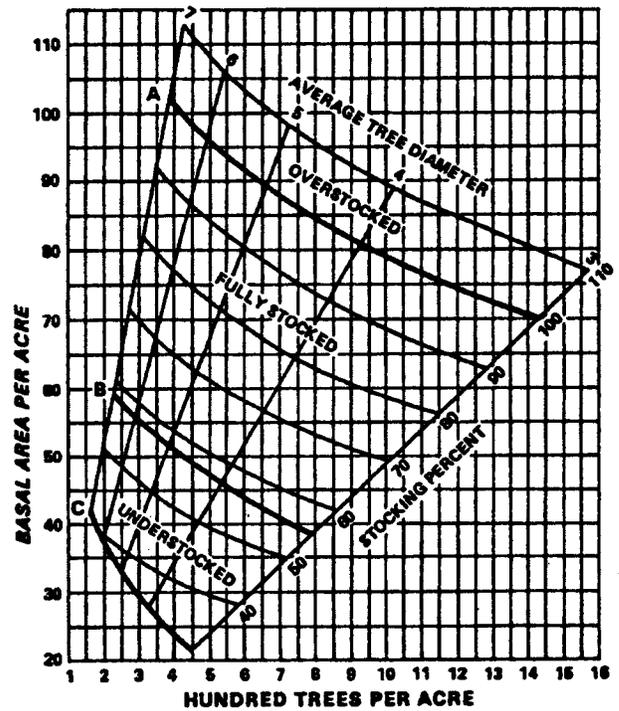


CHART B

