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A METHOD OF MEASURING WATER USE  
BY FORESTS ON SLOWLY PERMEABLE SOILS

Walter M. Broadfoot <sup>1/</sup>  
Southern Forest Experiment Station  
Forest Service, U. S. Department of Agriculture

A unique method for measuring consumptive use and transpiration of water by forests was devised for a study near Stoneville, Mississippi.

A 30-acre drainage area of Sharkey clay soil was dammed in January 1956 and 2 feet of winter rainfall impounded. Forest cover was a well stocked 50- to 60-year-old stand of hardwoods. The daily drop in lake level was measured during the spring and summer growing season and designated consumptive use or evapotranspiration. Evaporation loss measured from a pan anchored in the lake was subtracted from the total drop in water level of the lake. The difference was that used by the forest stand, as soil seepage through an impermeable clay like Sharkey was deemed negligible during the period of study.

Water use as measured by this method was consistently near 0.20 inch per day in May and June, averaged 0.35 inch per day in July, and during August rose to 0.50 inch daily. While the data are from preliminary tests, and are in no way considered conclusive, the rates for May and June corroborate those obtained elsewhere. The rates for July and August are higher and therefore must be investigated further.

The method offers advantages over other laborious and time-consuming procedures wherever impervious or even slowly permeable soils are present.

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