
Journal of Environmental Hydrology

ISSN 1058-3912

Quarterly electronic journal of the International Association for Environmental Hydrology

On the World Wide Web at <http://www.hydroweb.com>

JEH VOLUME 4 (1996)

RAINFALL PARTITIONING IN A MIXED WHITE OAK FOREST WITH DWARF BAMBOO UNDERGROWTH

Israel Cant-Silva

Department of Agroforestry Management, Faculty of Forest Sciences, Autonomous University of Nuevo Laredo, Mexico

Takenobu Okumura

Environmental Science Department Faculty of Agriculture, Tottori University, Japan

Throughfall measurements in a 60-year-old white oak (Konara) stand (Quercus serrata THUNB.) with undergrowing dwarf bamboo (Sasa paniculata) were carried out during two periods totaling eleven months, from August to November 1993 and from May to November 1994, in order to clarify the role of Sasa on interception loss and rainfall partitioning in this forest. Eight troughs and spiral-type stemflow gauges connected to tipping bucket-gauges were used for Konara throughfall and stemflow measurements. Ten troughs were used for throughfall measurements under the Sasa canopy. Analyses of seventy-five individual storms showed that partitioning of net rainfall in Konara throughfall, Sasa throughfall and stemflow represent 72%, 68% and 10% of the gross rainfall respectively. The stemflow delivered to the trunk base area represented on average 3.5 times more precipitation than any other place below the canopies of the Konara trees. Also, it was determined that maximum rain intensity was highly correlated with stemflow and this variable explained a further 5.5% of the stemflow variation. The interception loss from the forest canopy was estimated at 18% and the total interception loss of forest vegetation (Konara + Sasa) accounted for 31.7%. Sasa interception loss contribution (13.6% of the gross rainfall) was relatively high accounting for 40% of the total interception of the two canopy layers. The canopy saturation of Konara and Sasa were estimated from continuous storms and showed a value of 0.62 mm and 0.37 mm respectively. The trunk storage capacity was estimated at a value of 0.2 mm. The total amount of water stored in both canopies (Konara + Sasa) was assessed to be 1.2 mm. The results indicate that Sasa vegetation plays an important role in the water balance of this kind of forest and possibly in other types of forests where Sasa is widely distributed.

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