Fire behavior of dry dipterocarp forest at Sakaerat, Amphoe

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ABSTRACT

A fire behavior study was conducted in Dry Dipterocarp forest at Sakaerat, Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima during 1986-1987. The purposes of the study were to construct fuel model of undergrowth, consisting mainly of *Arundinaria pusilla,* Cheval. & A. camus, the bamboo like grass, of the dry dipterocarp forest, to predict fire behavior in the dry dipterocarp forest by using Rothermel 's (1972) mathematical model, and to test predicted Values of fires. The input parameter 's set required by the Rothermel 's spread model, so called fuel model, were sought and analyzed including particle heat content, surface area – to – volume ratio, fuel moisture content, fuel moisture content of extinction, fuel bed depth, wind speed and slope of terrain. These data were used variables to predict rate of fire spread, fire intensity and flame length by using Rothermel 's fire spread model via BASIC computer program called FIRE SPREAD which was modified from the original FORTRAN IV computer program, FIREMODS, written by Albini (1976).

The fire behavior prediction were attempted in various condition of wind speeds ranged form 0 to 10 mile per hour, slope range from 9 to 18 percent. The program outs were predicted rate of fire spread range from 1.0-35.1 metres per minute, the predicted fire line intensities ranged from 79-3,154 kilowatts per metre, and the predicted flame length ranges from 0.5-3.1 metres. Three experimental fires were conducted to test against the predicted fire behaviors. All observed values of fire behavior were within the accurate ranges of predicted values under the same environmental conditions. Regarding to fire hazard, the fire behavior in the dry dipterocarp forest were ranged from low to medium fire hazard. However the results of the study would be very useful to forest fire ecology study and forest fire management planning in the future.