

Differences in soil properties of dry evergreen and dry deciduous forests
in the Sakaerat Environmental Research Station.

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ABSTRACT

To clarify the soil-plant relationship in the Sakaerat Environmental Research Station (SERS), northeast Thailand, soil survey was conducted in the two major type of forest, i.e., dry evergreen forest (DEF) and dry dipterocarp forest (DDF). In addition, DDF with fire protection treatment since 1967 (FPDDF) was also selected as a study plot to know the effect of protection of land cover during dry season on both soil and vegetation. As a result of the soil analysis, such as soil hardness, soil morphological, physical, chemical, and mineralogical properties, the current vegetation in the SERS seemed to be affected greatly by the strength of the impacts (fire) given to the forest. If no fire protection is attempted in the DDF, soil erosion due to loss of organic matter on the surface soil is easily brought about. Soil properties such as clay content and associated properties (water holding capacity, action exchange capacity, water permeability, and moisture content) become worse easily and shortly, after soil erosion.

The various soil properties of the DFP, DDF can be considered in the intermediate condition between those of DDF and DEF. The stronger the impact of fire is, the more the soil erosion occurs. On the basis of soil properties, the Following mechanism can be suggested to explain the current vegetation; once the original vegetation was destroyed, DEF type forest could not regenerate, i.e., DDF, are found elsewhere in northeast Thailand at present. The extremely dry soil condition currently found in the DDF is not intrinsic property of a forest soil. It is created by the removal of the vegetation which used to be there. The fire protection DDF suggest it.