Tanasin Yimnoi 2007: Analysis of Trail Resistance to Trampling: A Case Study of Khao Yai National Park. Master of Science (Parks and Recreation), Major Field: Parks and Recreation, Department of Conservation. Thesis Advisor: Assistant Professor Noppawan Tanakanjana, Ph.D. 200 pages.

The objectives of this research were to study the influence of forest type, slope, and trampling to changes in soil and ground vegetation along the nature trails in Khao Yai National Park and to assess natural resistance of the trails to trampling. It was an experimental research in natural area using the split-plot design. The main plots were in randomized complete block design (RCBD) with 2 treatments for the main unit treatments: an interaction between forest types and slope percentage. The sub-unit treatments were tramping and without trampling. This research included two forest types: dry evergreen forest and hill evergreen forest. Slope percentages were divided into four ranges. Change indicators were soil resistance to trampling, soil shear strength, soil permeability, and decrease of saplings. Trail resistance was evaluated through the average change in each indicator.

The study found that forest types and number of trampling significantly influenced changes in soil and ground vegetation in most indicators while slope percentage had influence within only few trampling rounds and had no influence in the decrease of saplings. In hill evergreen forest, it was found that area with low slope percentage had higher soil resistance to trampling, higher soil shear strength, and higher soil permeability than the area with high slope percentage. On the contrary, the area with high slope percentage had higher percentage of decrease of saplings than low slope area. In dry evergreen forest, it was found that area with low slope percentage had higher soil resistance to trampling, higher soil shear strength, and higher percentage of decrease of saplings than the area with high slope percentage but had lower soil permeability than the high slope area. The increase in number of trampling affected greatly to soil resistance to trampling and soil shear strength at the beginning. Its impact dropped down a little bit after soil surface disturbed and increased again afterward. Soil permeability decreased as number of trampling increased. This change was fluctuated in dry evergreen forest. Number of saplings rapidly decreased within only few trampling rounds and almost no sapling left after 60 rounds. In evaluating trail resistance to trampling, it was found that, for the dry evergreen forest area, trail with 10-20% of slope had highest resistance compared to other slope ranges. While in the hill evergreen forest area, trail with < 10% of slope had the highest resistance.

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