

Easy-to-do monitoring method for soil erosion risk to maintain high productivity and water and soil conservation functions of forests

Production

Implementation

Item: Forest

Forest conservation

Outline

We have developed a method for visually assessing soil erosion risk in forests in 10% increments based on forest floor cover percentage (the proportion of the forest floor covered by understory vegetation or litter), which is strongly correlated with soil erosion (sediment transport, Fig. 1). By utilizing this indicator, we can effectively implement sustainable forest management to maintain high productivity.

Background/effect/note

Good soil conservation is essential for the fulfillment and maintenance of the multifunctional role of the forests. However, owing to the time-consuming and costly nature of observing soil erosion, monitoring surveys could not be conducted at many sites. In Japan, this method has been incorporated into the soil erosion survey of the Forestry Agency's Forest Resource Monitoring Survey (National Forest Inventory) and is being conducted every five years at more than 13,000 monitoring points. Moreover, the Food and Agriculture Organization (FAO) has verified this method in Vietnam and publicized and promoted it as a low-cost forest conservation survey method.

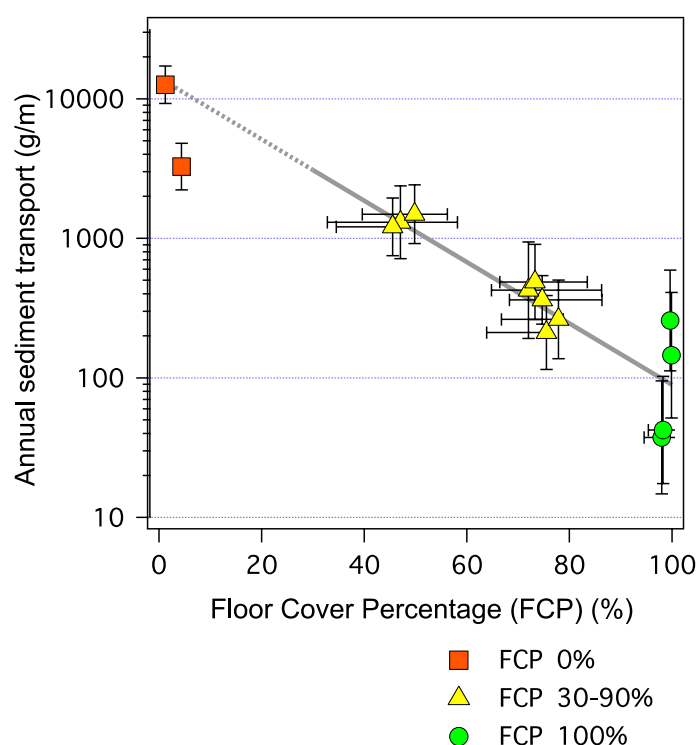


Fig. 1. Relationship between forest floor coverage percentage (FCP) and sediment transport. Error bars indicate standard deviations.

A 10% decrease in forest floor cover results in a 66% increase in fine-grained sediment transport. With minimal experience, it is possible to master the technique of visually determining floor coverage percentage in 10% increments. (Compiled from Miura et al. 2015)

Technical details:



<https://www.rinya.maff.go.jp/j/keikaku/tayouseichousa/> (Forestry Agency)

<https://www.fao.org/3/i4509e/i4509e.pdf> (FAO)

<https://www.fao.org/3/i4498e/i4498e.pdf> (FAO)

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