

Slope revegetation using forest topsoil

MATSUE Masahiko, Head KUBO Masako, Researcher
Landscape and Ecology Division, Environment Department

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1. Introduction

Given the problems of genetic disturbance and proliferation of alien species when introducing plants for revegetation, local character needs to be taken into account when selecting plants for public revegetation works. Meanwhile, buried seeds in forest topsoil include many of a local character, and are thought fairly easy to collect. In light of this, revegetation works using forest topsoil (forest topsoil utilization works) are thought to present a viable substitute for revegetation using alien plants. In public revegetation works, it is of paramount importance to predict the initial state of growth when judging whether to carry out revegetation using this method. In this study, therefore, we studied the initial state of plant establishment achieved in forest topsoil utilization works.



Fig. 1 A hillside treated with forest topsoil utilization works, and examples of plant seedlings

2. Types of buried seeds

Buried seeds mainly exist in around the upper 10cm of forest topsoil; the topsoil of secondary forests is known to contain many seeds of sumac, mallotus, clethra and others. Although present as buried seeds, however, clethra and others have a known tendency not to become established on slopes, depending on the installation conditions.

3. Examples of forest topsoil utilization works

We carried out installation experiments on slopes in three national parks, using forest topsoil utilization

works with topsoil mixture ratios of 10%, 20% and 30%. On slopes 1 and 2, fewer individual plants grew. This was thought to be because the installation took place in summer, when not enough germination was achieved, and also because the topsoil contained a large quantity of clethra. On slope 3, conversely, the number of individual plants was large in the first year of installation but had decreased by the third year. This was thought to result from compression by goldenrod and other herbaceous plants. Therefore, when wishing to establish plant colonies quickly, this method may be unsuitable for use in summer installation and in locations where there are many alien species nearby.

Vegetation established through revegetation with forest topsoil is influenced by the slope attributes of the installation site and the season of installation, among others. We plan to produce guidelines for this installation method, in which we clarify the relationship between slope attributes and vegetation based on numerous case examples. In this way, the suitability or unsuitability of use can be judged from the conditions of land scheduled for installation in public works projects.

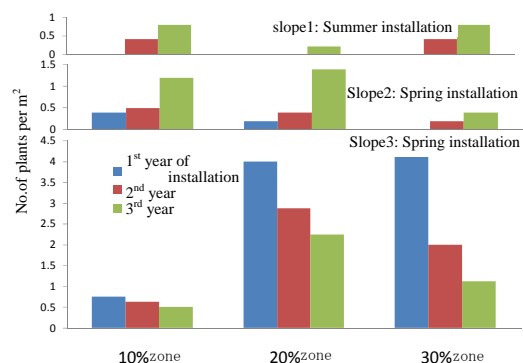


Fig. 2 Number of plants growing on each experimental slope

[Bibliography]

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