

Formation and development of wetlands in response to development of large-scale landslides in the Ou Mountains

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Quaternary volcanoes in the Ou Mountains are being denuded by landslides while leaving gentle volcanic surfaces widely. Many wetlands formed on the original volcanic surfaces with heavy snow and the landslide areas create their rich ecosystems (Sasaki and Sugai, 2016). Large-scale landslides with huge mass markedly contribute to the formation of mountain wetlands. This study aims to reconstruct the development of wetlands in large-scale landslides in the Sengan and Funagata volcanic areas with sediment analysis, and to interpret that landslide activities and their subsequent geomorphic changes formed and developed wetlands. In this study, we use “wetland” for natural lakes and peatlands.

Oyachi wetland in the Komonomori landslide in the Sengan volcanic area, appeared as a large lake about 5,500 years ago and developed into a peatland about 3300 years ago. These could be caused by geomorphic changes. The south Chausu-dake landslide with intensively dissected landslide masses has a lake in their upper part. The lake could have survived for more than several thousand years, longer than the lifetime of Oyachi wetland. In the Sugenuma landslide in the Funagata volcanic area, the initial slide of about 40,000 years ago, the re-activation after 10,000 years ago (Yagi, 1990) and the subsequent geomorphic changes formed wetlands one after another.

The period of landslide activity was estimated to be 10–100 thousand years (Yokoyama, 2004), and disappearance time of landslide was also estimated to be about one million years (Yanagida and Hasegawa, 1993). While wetlands formed by initial landsliding remain as lakes or peatlands for over thousands of years, landslide reactivities and other geomorphic changes added new wetlands. This situation could potentially continue for almost one million years, which is longer than the glacial-interglacial cycle. Wetlands exist successively in the large-scale landslides to preserve rich ecosystems for a long period.

Reference

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