

The Effects of Grazing Step Terracettes on Soil Erosion in Two Grasslands in Mongolia

Hiroaki Kato[1]; Yuichi Onda[1]; Yukiya Tanaka[2]

[1] School of Life&Envirom. Sci., Univ. of Tsukuba; [2] Department of Geography, Kyung Hee Univ.

Mongolia is located in northeastern Asia, and approximately 75% of its total land area consists of cold, semiarid grassland that is subjected to grazing throughout the year. The flights of closely spaced terracettes marked on the steeper hillslopes (greater than 20 degrees) are common feature throughout the sloping grasslands in Mongolia. The treads of grazing-step terracettes are typically 0.2-0.5 m in width. These landforms, known as grazing-step terracettes, may be erosive trails made by livestock tramping. In this study, the analysis of Cs-137 inventories in surface soil was conducted within two small grass watersheds with different grazing conditions. In addition to this, the critical slope gradients for the occurrence of grazing step terracettes were investigated in both the study sites. The analysis of Cs-137 indicated that net soil loss has occurred along the hillslope with grazing-step terracettes. The terracettes on the moderately grazed site occupy the slopes steeper than 20 degrees, whereas those on the overgrazed site were found on the gentler slopes (greater than 10 degrees). These differences may reflect the critical slope gradient of soil erosion. Although further investigation on the origin of the terracettes is required, the grazing-step terracettes on hillslopes may help to identify geomorphological indicator of overgrazing and associated intensive soil erosion on the grazing grassland.