

Human-disturbed topography formed by past charcoal production in valley-head hollows in the Ohmatsuzawa Hills, Sendai, northeastern Japan

*KIYOSHI SAIJO¹, Takahisa Furuichi²

1. Miyagi University of Education, 2. Graduate School of Agriculture, Hokkaido University

Charcoal production had been a major traditional forest use in the hilly areas of Japan before the late 1950's when common fuel drastically changed from firewood or charcoal to fossil fuel. Even though charcoal production in Japan ceased about half a century ago, we can still recognize many remnants of man-made topography related to past charcoal production ("human-disturbed topography" in below) in the hills. Such topography is expected to be significant evidence suggesting relationship between physical environment and human activity in charcoal production. This study evaluates the effects of the past charcoal production on geomorphological processes in hills on the basis of the characteristics of human-disturbed topography. The study area is the Ohmatsuzawa Hills located between the Naruse and Yoshida River lowlands, about 25 km north of Sendai, northeastern Japan.

A few kinds of human-disturbed topography are distributed at two valley heads. The area and relief of the topography are about maximum 50 square meter and less than 2 meters respectively, which are widely smaller than those of natural micro-landforms composing the valley heads. Although humus layer is lacking in the soil profile on the human-disturbed topography, the A-horizon of over 10 centimeters thick, containing less inorganic material and charcoal fragments, is developed in the downslope. The characteristics of the human-disturbed topography indicate that the activity for charcoal production in a valley head have neither caused remarkable changes on natural micro-landforms nor accelerated surficial slope processes.

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