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Landscape and Urban Planning 70 (2005) 261–270

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# Changes in landscape structure of “yatsu” valleys: a typical Japanese urban fringe landscape

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## Abstract

This study focuses on the ‘yatsu’ landscape of the southern Kanto Region, in central Japan. This agricultural landscape consists of narrow, branching valleys where rice is cultivated in irrigated paddies, and surrounding slopes and uplands devoted to a variety of landscape types, such as dry vegetable field, orchard, bamboo grove and coppice woodland. Two sites were selected, one with a long history of suburban development, and another just in the process of development. Changes in the landscape over a 30-year period, from 1960 to 1990, were identified and analyzed using aerial photographs and Geographical Information Systems (GIS) software. In the more intensively developed site, total forest area decreased while patch size of grassland, residences and bare ground increased together with the total number of patches. These changes in landscape element type were caused primarily by direct conversion of one type to another. In the less developed site, the total area and mean patch size of deciduous broad-leaved forest increased, and the total number of patches did not change. Changes at this site were caused mostly by the abandonment of traditional land management practices. The results of this study indicate that not only landscape element types, but also boundary types are influenced by urbanization. Of particular importance is the finding that the ecological function of boundaries is reduced by human intervention. This means that forest-floor herbaceous plants and woody plants with low dispersal capability will likely be adversely affected as residential development expands.

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*Keywords:* Land use; GIS; Habitat; Urbanization; Traditional land management; Aerial photograph

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