

Spatial changes of land-use as affected by farming traditions in farming-pastoral mountains, northern China: a case study of the middle Yinshan Mountains

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Between agriculture area and stockbreeding area in northern China are the Yinshan Mountains. Farmers in this region mostly transferred from nomadic peoples with their own habits in farming. Then the Spatio-temporal pattern of Land-use in the Mountains of farming-pastoral region has a special characteristic in the effects of the farming traditions. Taking the middle Yinshan Mts. as an example, this paper analyzes land-use patterns in mountains of farming-pastoral region with Landsat-TM and Landsat-ETM images for 1990 and 2000. The emphasis is put on the relationships between cultivation traditions and spatial changes of farmland, grassland and woodland. It is found that the main land use change is the mutual conversion of farmland and grassland. The main conversion of woodland is also toward grassland. The conversion of grassland to farmland chiefly occurs in the northern foot of Yinshan Mts, and that of woodland to grassland in the southern parts of Yinshan Mts. Land use changes little in the upper parts of the Yinshan Mts. Farmland conversion to other types appears largely on elevations of 1500m to 1600m and 1700m to 1850m, while the conversion of non-farmland to farmland occurs mainly on elevations of 1700m and 1900m. Between 1600m and 1800m are the altitudes where most of the conversion of grassland to farmland happens. Grassland area increases on elevations of 1450m to 1600m and decreases between 1650m and 1800m. Woodland declines almost in all the mountain areas except the altitudes between 2000m and 2200m where the conversion of woodland to other types and other types to woodland is just the same. Near the altitudes of 1800m and 2100m are the areas where the most intensive land use change can be seen in the mountain regions of farming-pastoral zone. All the spatial changes in land-use pattern are the results of the potential drive of farming traditions.