Conservation Issues

Protection versus Harvest of Old-Growth Forests on Changbai Mountain (China and North Korea): A Remote Sensing Application

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ABSTRACT: Spatial distribution patterns of old-growth forests on Changbai Mountain, an area of 1.13 million ha along the border between China and North Korea, were described using remote-sensing techniques. About three-fourths of the study area is located in China and one-fourth was in North Korea. A biosphere reserve, Changbai Natural Reserve, was included in the study area. A quarter-scene of a Landsat Thematic Mapper satellite image from September 21, 1987 was used to delineate the spatial distribution of five major land cover types: nonforest, mixed broadleaf-conifer forest, evergreen coniferous forest, larch forest, and subalpine vegetation. The dominant cover type (43%) was mixed broadleaf-conifer forest. Large contiguous patches of old-growth forest, visible in the land cover map, extended across the political borders between the reserve and the surrounding area as well as between China and North Korea. Forests at different locations on Changbai Mountain were managed differently: those outside the reserve have been harvested by clearcutting, while those inside the reserve have been preserved but are now isolated from other forest patches. Obvious conflicts exist between conservation goals and clearcutting activities in old-growth forests on Changbai Mountain. Increased international attention could lead to better management and protection of the old-growth forests in this remote area.

Index terms: Changbai Mountain, China, Korea, land cover types, remote sensing

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Figure 1. The Changbai Mountain study area lies at the border between China and North Korea. Changbai Nature Reserve was included in the study area.
Figure 2. Land cover map for the study area derived from Landsat Thematic Mapper satellite imagery.
Figure 3. Spatial pattern of small-area clearcutting on Changbai Mountain. The cutting sites have reached the border of the Changbai Nature Reserve, and the cutting patterns did not achieve the theoretical goals of small-area clearcutting.