Antropogenic disturbances analysis of forest ecosystems of Primorsky Krai, Russia using Landsat TM/ETM+ data

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Primorsky Krai hosts one of the most diverse forest ecosystems in Russia. Forest ecosystems here conserve great deal of the regional biodiversity. Mixed broadleaf coniferous forests are the last resort for Fareast leopard and Amur tiger. But historic and current development rates in the region raise questions about its conservation value in future. To understand better conservation strategy for the region, update protected areas system and help identify high conservation value forests (HCVF) a project was initiated for mapping such forests. One of the important steps in this project was mapping of low-fragmented forest territories. It was carried out in several steps. On the first step – topographic information was used for creation of buffer zones and sorting them out from the territory of interest, on the next step remote sensing data was used to identify infrastructure not present on available topographic data, this infrastructure includes logging roads, clearcutted areas, high-grading areas, areas of conversion to agricultural lands, areas of mining and other elements of human caused disturbances. As a separate agent burned areas were also delineated to be excluded to get low-fragmented areas. Image interpretation was carried out using Landsat-7 ETM+ data and Landsat-5 TM data. Results show that most fragmented forest formation in Primorsky Krai is mixed broadleaf formation, mandshurian fir dominated formations also fragmented to high degree particularly in comparison to the relatively small area they occupy.Another step is an identifying and mapping of the HCVF itself. It was implemented using topographic maps, forest inventory data and space images simultaneously. HCVF were identified in all main forest formations of the area, as well as some rare forest communities and some rare plant species stands were mapped. All these kinds of HCVF together if protected can support the biodiversity of forest vegetation in Primorsky krai.