

THE CHARACTERISTICS OF LAND COVER AND MACROSCOPICAL ECOLOGY CHANGES IN THE SOURCE REGION OF THREE RIVERS IN QINGHAI-TIBET PLATEAU DURING LAST 30 YEARS

SHAO Quanqin¹, ZHAO Zhiping^{1,2}, LIU Jiyan¹, FAN Jiangwen¹

(1 Institute of Geographic Sciences and Natural Resources Research, CAS, Beijing 100101, China;

2 Graduate University of the Chinese Academy of Sciences, Beijing 100039, China)

Abstract: Land resource is the basis of human survival and development. The variation of Human environment coupling system can be reflected directly on regional land use/cover change. In this article, we obtained four phase land cover spatial data sets by interpreting MSS images of middle and late 1970s and three phase TM images of late 1980s, 2004 and 2008 based on field investigation in Three River's Source Regions. We defined the relation between land cover type and ecological grade, land cover change index and land cover condition index to characterize the trends of land cover and macroscopical ecological changes in this region. By calculating the direction and extent of land cover change, land cover change index and land cover condition index, we analyzed temporal and spatial characteristics of land cover change and macro ecological condition change in the source region of three rivers in Qinghai-Tibet plateau since middle and late 1970s. The results showed that the average land cover condition index of the Three Rivers' Source Region was 38.20, fourth grade in last 30 years. The Yellow River basin possessed the best land cover condition, followed by the Lancang River basin, and the Yangtze River basin possessed the worst. Land cover type with high ecological grade transforming to that with low grade was the mainly phenomena during 1970s to 1990s and 1990s to 2004. Land cover with low grade transforming to that with high grade was the mainly phenomena during 2004 to 2008. Indicated by land cover condition index change rate and land cover change index, land cover and macro ecological condition degenerated (7090 period Z_c -0.63, LCCI -0.58)-obviously degenerated (9004 period, Z_c -0.94, LCCI -1.76)-slightly meliorated (0408 period, Z_c 0.06, LCCI 0.33). This course was jointly driven by climate change, grassland stocking pressure and implement of ecological construction project.

Key words: Land cover condition index; Land cover condition change index; Direction and extent of land cover change; Source region of three rivers

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