

鄂尔多斯高原砒砂岩区林草植被承载潜力研究

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摘要: 鄂尔多斯高原是砒砂岩典型分布区, 水土流失严重, 土地退化持续威胁着黄河流域的生态环境安全, 是流域治理必须着重讨论并解决的问题。本研究以鄂尔多斯高原砒砂岩区为研究区, 以 MODIS13Q1 植被指数和数字高程数据为数据源, 将实测的地上生物量样本点与植被覆盖度进行线性模拟得到地上生物量空间分布, 然后将其划分为覆土、覆沙和裸露砒砂岩区三个类型, 以高程、坡度、坡向为指标, 结合植被盖度、地上生物量分析获得不同单位的生态承载力阈值, 进而探究其生态承载潜力。结果表明: 研究区覆土、覆沙、裸露砒砂岩区可承载地上生物量分别为 1099.67 万吨、465.62 万吨、484.47 万吨, 对照实际地上生物量发现各类型已开发量占其开发潜力的 77.71%、74.34%、66.26%, 仍有较大潜力。

关键词: 砒砂岩; 生态承载力; 地上生物量; 植被覆盖度; 生态治理

A Study on the Carrying Potential of Forest and Grass Vegetation in the soft rock area of Erdos Plateau

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Abstract: The Erdos Plateau is a typical distribution area of the soft rock area, with serious soil and water loss. Land degradation continues to threaten the ecological environment security of the Yellow River basin, which must be discussed and solved in watershed management. In this study, the soft rock area of Erdos Plateau was taken as the research area, and the MODIS13Q1 vegetation index and digital elevation data were used as the data source. The measured aboveground biomass sample points and vegetation coverage were linearly simulated to obtain the spatial distribution of aboveground biomass, and then it was divided into three types of soil-covered sandstone area, sand-covered sandstone area and bare sandstone area. Topographic effect analysis is carried out with elevation, slope and slope direction as indicators. Combined with vegetation coverage and aboveground biomass analysis, the ecological carrying capacity thresholds of different units were obtained, and then the ecological carrying potential was explored. The results showed that the above-ground biomass of soil-covered soft rock area, sand-covered soft rock area and bare soft rock area in the study area was 1099.67 million tons, 465.62 million tons, and 484.47 million tons, respectively. Compared with the actual above-ground biomass it was found that the developed amount of each type accounted for 77.71%, 74.34%, and 66.26% of its development potential, which still had great potential.

Keywords: the sandstone area; ecological carrying capacity; above-ground biomass; vegetation coverage; ecological governance