

毛乌素沙地南缘沙柳灌丛土壤水分及水量平衡

安慧¹, 安钰^{2*}

1宁夏大学西北退化生态系统恢复与重建教育部重点实验室/西部生态与生物资源开发联合研究中心, 银川 750021; 2宁夏农林科学院荒漠化治理研究所, 银川 750002

Soil moisture dynamics and water balance of *Salix psammophila* shrubs in south edge of Mu Us Sandy Land.AN Hui¹, AN Yu²

1Ministry of Education Key Laboratory of Restoration and Reconstruction of Degraded Ecosystem in North-western China/United Center for Ecology Research and Bioresource Exploitation in Western China, Ningxia University, Yinchuan 750021, China; 2Institute of Desertification Control, Ningxia Academy of Agriculture and Forestry Sciences, Yinchuan 750002, China

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摘要 以毛乌素沙地南缘沙柳人工固沙灌丛为研究对象, 对不同栽植密度(0.2、0.6 和0.8 株·m⁻²)沙柳灌丛生长季土壤水分动态和蒸散量变化进行研究。结果表明: 不同栽植密度沙柳灌丛区土壤水分动态和蒸散量存在明显差异, 土壤含水量随着栽植密度增加呈单峰型曲线; 生长季内沙柳灌丛土壤含水量变化呈“S”形曲线, 并与降雨存在密切的关系。蒸散量以栽植密度0.8 株·m⁻²的沙柳灌丛最高(114.5 mm), 占同期降雨量的90.8%; 以0.6 株·m⁻²的沙柳灌丛最低(109.7 mm)。根据生长季土壤水分动态和水分平衡特征, 毛乌素沙地南缘沙柳灌丛适种密度为0.6 株·m⁻²。

关键词: 毛乌素沙地 沙柳 栽植密度 水分平衡

Abstract: Taking the artificial sand-fixing *Salix psammophila* shrubs with different plant density (0.2, 0.6, and 0.8 plants·m⁻²) in Mu Us Sandy Land as test objects, this paper studied the soil moisture dynamics and evapotranspiration during growth season. There existed obvious differences in the soil moisture dynamics and evapotranspiration among the shrubs. The soil moisture content changed in single-hump-shape with the increase of plant density, and in “S” shape during growth season, being closely correlated with precipitation. The evapotranspiration was the highest (114.5 mm) in the shrubs with a density 0.8 plants·m⁻², accounting for 90.8% of the total precipitation during growth season, and the lowest (109.7 mm) in the shrubs with a density 0.6 plants·m⁻². Based on the soil moisture dynamics and water balance characteristics, the appropriate planting density of *S. psammophila* shrubs in Mu Us Sandy Land could be 0.6 plants·m⁻².

Key words: Mu Us Sandy Land *Salix psammophila* planting density water balance

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