

研究论文

浑善达克沙地无芒雀麦 (*Bromus inermis*) 空间分布格局

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摘要 通过西北-东南和东北-西南方向两条宽5m×长3 km的样带和一块4m×4m的样方调查, 研究了浑善达克沙地无芒雀麦、植被、土壤水分及土壤盐分的空间变异特点及其相互关系。结果表明, 样带内植被盖度、无芒雀麦盖度、土壤水分和土壤盐分的空间变化格局相似, 然而, 在不同的空间方向上, 它们具有不同的空间变化; 样方内无芒雀麦地上部生物量、分株数和土壤盐分具有相似的空间变化格局, 但却不同于植被地上部总生物量和土壤水分的空间变化格局。相关分析表明, 样带内植被盖度、无芒雀麦盖度与土壤水分和土壤盐分之间均具有显著的正相关关系。土壤水分和土壤盐分也具有显著的正相关。样方内无芒雀麦地上部生物量、分株数及植被地上部总生物量与土壤水分均具有显著的正相关关系, 但与土壤盐分没有显著的相关关系。无芒雀麦地上部生物量、分株数和植被地上部总生物量三者之间, 以及土壤水分和土壤盐分之间也均具有显著的正相关关系。研究结果表明了植被与土壤之间的相互关系依赖于空间尺度。

关键词 [浑善达克沙地](#) [无芒雀麦](#) [土壤水分](#) [土壤盐分](#) [空间分布格局](#)

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Spatial pattern of *Bromus inermis* (poaceae) in Otindag Sandland, China

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Abstract *Bromus inermis* Leys. is a dominant perennial grass in Othidag Sandland. Spatial patterns of *B. inermis* plants, soil water content, soil salinity and their interaction were analyzed at different scales. At a large scale, *B. inermis* cover, soil water content and soil salinity were monitored along two 5 m×3 km transects. Transect I was perpendicular to II, and each transect had 600 plots. For a transect, spatial patterns were similar among *B. inermis* cover, soil water content and soil salinity. However, these patterns differed between the two transects. *Bromus inermis* cover, soil water content and soil salinity were significantly positively correlated ($P<0.05$). At a small scale, similar things were monitored in the *B. inermis* community, using a 4m×4m sampling site, which consisted of 400 plots, each 20 cm×20 cm. Spatial patterns among aboveground biomass, number of ramets and soil salinity were similar, but they differed from the spatial pattern of soil water content. There were significant positive correlations between number of ramets and aboveground biomass of *B. inermis* ($P <0.01$) and between soil water content and soil salinity ($P<0.05$). Moreover, number of ramets and aboveground biomass of *B. inermis* were significantly positively correlated with soil water content ($P<0.05$), but not with soil salinity. These results demonstrate a spatial relationship between vegetation characteristics and soil properties.

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