

研究论文

短花针茅草原不同载畜率对植物多样性和草地生产力的影响

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摘要 采用不同载畜率的围栏放牧试验, 研究了内蒙古高原荒漠草原亚带短花针茅 (*Stipa breviflora* Griseb.) 草原群落在不同载畜率水平植物多样性变化规律和对草地生产力的影响。研究表明: 在2a的放牧过程中, 不同载畜率植物多样性指数的均值随年度的增加有降低的趋势, 但年度间差异未达到显著水平; 不同年度内, 植物多样性指数均在载畜率1.027 只羊/(hm²•a)附近出现峰值; 且载畜率为1.027只羊/(hm²•a)时植物补偿性生长最高, 是最理想的载畜率水平。研究结果支持群落物种多样性与生产力相关格局中的负二次函数关系的单峰格局模型, 即中等生产力水平物种多样性最高。

关键词 [植物多样性](#); [载畜率](#); [短花针茅草原](#); [生产力](#)

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Effects of plant species diversity and productivity under different stocking rates in the *Stipa breviflora* Griseb. desert steppe

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Abstract The experiment was conducted in the *Stipa breviflora* Griseb. desert steppe, Inner Mongolia (41°47'17"N, 111°53'46"E, 1450m sea level) from 2002 to 2004. The objectives were to test the integrated influence of different stocking rates on species diversity and productivity with fenced sheep grazing. The results showed that the species diversity changed in the second year under different stocking rates, and the average species diversity decreased with the year, but there was no significance. The maximum species diversity occurred at a stocking rate of 1.027 sheep/(hm²•a). The aboveground net primary productivity of the plant species occurred with equal-compensatory growth when the stocking rate was below 1.027 sheep/(hm²•a), but it decreased rapidly when the stocking rate increased. Therefore, the optimum stocking rate is 1.027 sheep/(hm²•a) in this kind of steppe. The results in this study support the single-peak model with minus quadratic function in the relationship between species biodiversity and productivity of the plant community, that is, that maximum species diversity occurs at the moderate plant productivity.

Key words [plant species diversity](#) _ [stocking rates](#) _ [Stipa breviflora](#) [Griseb](#) _ [desert steppe](#) _ [productivity](#)

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