不同恢复演替阶段糙隐子草种群的点格局分析

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Cleistogenes squarrosa population at different restorative succession stages in Inner Mongolia of China: A point pattern analysis.

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摘要
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摘要

采用摄影定位法测定了羊草+大针茅草原不同恢复演替群落中糙隐子草种群的空间格局,并应用完全空间随机模型、泊松聚块模型和嵌套双聚块模型对其格局进行分析.结果表明: 在严重退化的群落中,糙隐子草种群格局表现为嵌套双聚块结构,即在大聚块中分布着较高密度的小聚块;在恢复5年、8年和21年的群落中,则为以母体为中心的泊松聚块结构,即在糙隐子草种群空间格局的聚块中不存在较高密度的小聚块. 这说明在严重退化的群落中正相互作用居主导,而在恢复演替群落中负相互作用居主导. 糙隐子草种群在恢复演替过程中的格局变化主要是由于伴随放牧胁迫的消失,种群正相互作用(易化)向负相互作用(竞争)转化所致.

关键词: 糙隐子草 恢复演替 点格局 完全空间随机模型 泊松聚块模型 嵌套双聚块模型

Abstract:

In this paper, the spatial pattern of *Cleistogenes squarrosa* population in different restorative succession communities of the typical steppe dominated by *Stipa grandis* and *Leymus chinensis* in Inner Mongolia was measured by photography orientation, and analyzed by complete spatial randomness model, Poisson cluster process, and nested double-cluster process. In severely degraded community, *C. squarrosa* population fitted well nested double-cluster process for all scales, *i.e* ., high density small clusters existed at the centers of large clusters; whereas in 5-, 8-, and 21-year-old restored communities, *C. squarrosa* population fitted well Poisson cluster process for all scales, *i.e* ., high density small clusters did not exist at the centers of the clusters. It was suggested that facilitation was the dominant interaction in severely degraded community, while competition dominated in restored communities. The differences in the spatial pattern of *C. squarrosa* population during the restorative succession could be induced by the shift from facilitation to competition along the gradient of grazing stress.

Key words: *Cleistogenes squarrosa* restorative succession point pattern complete spatial randomness model Poisson cluster process nested double-cluster process.

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