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研究报告

基于竞争和扩散能力的非捕食-被捕食集合种群系统的竞争机制

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摘要 对于非捕食 被捕食(食饵)生态系统，强弱物种之间存在一定的竞争影响.在不考虑栖息地毁坏的情况下，引进双向竞争机制，将Tilman的单向竞争模式推广为*n*集合种群双向竞争模型，并对6-集合种群的竞争动态进行了计算机模拟研究.结果表明,在平衡态，种群竞争共存的条件是其竞争能力与扩散能力呈现指数型负相关关系，竞争的结果使物种的强弱序列发生变化；物种竞争排除与共存受迁移扩散能力和竞争能力影响很大，在局域斑块上竞争排斥的集合种群在广域尺度上可以竞争共存，即逃亡共存.

关键词 扩散能力 竞争能力 集合种群 竞争机制

分类号

Competitive mechanism of non-predator-prey metapopulation system based on competition and dispersal ability

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Abstract

Species competition is one of the important ecological courses that influence the evolvement of ecosystem. To an ecosystem of predator-prey, competition is always bidirectional, that is there is competitive infection on superior species and inferior species. Without regarding to the destruction of habitat, the bidirectional competitive mechanism was introduced, Tilman' unilateral competitive model was extended to bidirectional competitive model of metapopulation. At the same time, the competitive dynamics of the 6-metapopulation species are simulated on computer. The results showed that at the equilibrium, the coexistence condition of population competition is migratory ability and competition ability take on exponential negative correlation, the outcome of competition makes the superior and inferior sequence changed, the exclusion and coexistence of species compet
ition was affected by migratory ability and competition ability, the metapopulations which are excluded in local patches can exist in regional scale, that is escaping coexistence.

Key words Dispersal ability Competition ability Metapopulation Competitive mechanism

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