

Community Closure in Competitive Communities

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Abstract

Local extinction of a species might not seem like a problem; if the species exist somewhere else it could easily re-invade. But even a local extinction may be final. When a species is removed, its community will change and a re-introduction may not be possible. This phenomenon is called community closure. The disturbance of losing and/or re-introducing a species may also cause further species to go extinct, which is called cascading extinction.

The purpose of this project was to investigate the probability of community closure in competitive model communities under different circumstances (the size of the community, the strength and distribution of interactions between species and how common the extinct species is), and to compare different removal procedures.

Species loss in a community with many species or strongly interacting species has the largest probability of giving cascading extinctions and causing community closure. Cascading extinction is more likely when a common species goes extinct, but the risk of community closure is higher for extinction of a rare species.

Learning more about ecological systems can help us decrease our impact on nature. With greater knowledge about the effects of species loss, it is easier to take preventive actions to avoid losing species permanently.

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Lund University, spring 2005