

**Pigolotti, S.; Benzi, R.; Perlekar, P.; Jensen, M. H.; Toschi, F.; Nelson, D. R.**

**Growth, competition and cooperation in spatial population genetics.** (English) Zbl 1275.92089  
Theor. Popul. Biol. 84, 72-86 (2013).

Summary: We study an individual based model describing competition in space between two different alleles. Although the model is similar in spirit to classic models of spatial population genetics such as the stepping stone model, here however space is continuous and the total density of competing individuals fluctuates due to demographic stochasticity. By means of analytics and numerical simulations, we study the behavior of fixation probabilities, fixation times, and heterozygosity, in a neutral setting and in cases where the two species can compete or cooperate. By concluding with examples in which individuals are transported by fluid flows, we argue that this model is a natural choice to describe competition in marine environments.

**MSC:**

92D25 Population dynamics (general)  
92D10 Genetics and epigenetics  
92B05 General biology and biomathematics

Cited in 4 Documents

**Keywords:**

stochastic model; neutral theory; stepping stone model; fixation individual based

**Full Text:** [DOI](#)