Maladaptation of a sexual population to a changing environment

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Résumé

The adaptation of a population to a changing environment can be modeled by a birth and death process. Two natural questions can be studied: the existence of stationary states and the concentration in the phenotypic variable. Sexual reproduction can be modeled using Fisher's infinitesimal operator, which is nor linear nor monotone. Thus, the existence of principal eigenelements cannot be treated using the classical Krein-Rutman theory. The methodology of the WKB expansion can be adapted to this context to quantify maladaptation in a specific regime.

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