Evolutionary escape and evolutionary suicide in host-pathogen systems

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Can pathogens drive their hosts extinct? Can hosts evolutionarily escape their pathogens? The most basic models answer both questions in the negative. Here I review a number of possibilities how evolution may nevertheless lead to the extinction of the host or of the pathogen. Possible mechanisms driving extinction include Allee effects, population structure and conditional behaviour of the hosts. These models showcase examples of simple models exhibiting rich behaviour and leading to results previously thought to be unlikely.