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Role of fluctuations in front propagation the insect outbreak model

Propagating fronts arising from bistable reaction diffusion equations are a purely deterministic effect. Stochastic reaction diffusion processes also show front propagation which coincides with the deterministic effect in the limit of small fluctuations (usually, large populations). However, for larger fluctuations propagation can be affected. We give an example, based on the classic spruce-budworm model, where the direction of wave propagation, i.e., the relative stability of two phases, can be reversed by fluctuations.