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*Stochastic difference equations with the Allee effect*

Difference equations can describe population dynamics models, and, if there is no compensation for low population size, i.e. the stock recruitment is lower than mortality, the species goes to extinction, unless the initial size is large enough. This phenomenon is called the Allee effect. For a truncated stochastically perturbed equation  $x_{n+1} = \max\{f(x_n) + l\chi_{n+1}, 0\}$  with  $f(x) < x$  on  $(0, m)$ , which corresponds to the Allee effect, we observe that for very small perturbation amplitude, the eventual behavior is similar to a non-perturbed case: there is extinction for small initial values and persistence for large enough. As the amplitude grows, a sustainability interval of initial values arises and expands, such that with a certain probability,  $x_n$  sustains and possibly eventually stays in a low density area. Lower estimates for these probabilities are presented. If the upper bound of the sustainability interval is large enough, as the amplitude of perturbations grows, the Allee effect disappears: a solution persists for any positive initial value. This is a joint work with A.Rodkina (the University of West Indies, Kingston, Jamaica).