1176-92-80 **Alexandru Hening*** (`ahening@tamu.edu`). *Harvesting in discrete-time stochastic population models.*

We analyze the long-term behavior of interacting populations which can be controlled through harvesting. The dynamics is assumed to be discrete in time and stochastic due to the effect of environmental fluctuations. We present sharp extinction and coexistence criteria when there are one or two interacting species. We then use these tools in order to see when harvesting leads to extinction or persistence of species, as well as what the optimal harvesting strategies, which maximize the expected long-term yield, look like. For single species systems, we show under certain conditions that the optimal harvesting strategy is of bang-bang type: there is a threshold under which there is no harvesting, while everything above this threshold gets harvested. (Received January 13, 2022)