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Faina Berezovskaya* (fberezovskaya@howard.edu), 6-th str., Washington, DC 20059. *Models of two-patch predator-prey community dynamics.*

We explore the population dynamics of two-patch communities, prey – predator-prey and two predator-prey systems. The patch interactions are mediated by Allee-type prey populations; differences in prey abundance are the drivers of prey dispersal. The considering models are 3D- and 4D- ODE systems depending on parameters. The goal consists of the description and interpretations of the bifurcation diagrams of the models. In fact, we showed that considering communities can coexist with such parameter values for which a separate system get extinction and had analyzed the modes of coexistence. The 3D-model shows that as dispersal between habitats increase, the community experiences transitions from extinction, to stable oscillatory co-existence, to non-oscillatory co-existence with the outcomes depending on initial values. The possibility of bi- and tri- stability all leading to distinct outcomes is discussed. The 4D-model demonstrates two types of 4D-stable oscillations for the same parameter values from wide range domains. With parameter changing, oscillations of the first type disappear by an unlimited growth of period whereas those of the second type disappear chaotically. Note, that 4D-model demonstrates all stable regimes of the 3D- model at corresponding initial values. (Received September 22, 2009)