1135-92-1707 **Gregory Roth**, **Paul L. Salceanu** and **Sebastian J. Schreiber*** (sschreiber@ucdavis.edu), Department of Evolution and Ecology, University of California, Davis, CA 95616. *Robust permanence for ecological maps.*

We consider ecological difference equations of the form $x^i_{t+1} = x^i_t A_i(x_t)$, where $x^i_t$ is a vector of densities corresponding to the subpopulations of species $i$ (e.g., subpopulations of different ages or living in different patches), $x_t = (x^1_t, x^2_t, \ldots, x^m_t)$ is the state of the entire community, and $A_i(x_t)$ are matrices determining the update rule for species $i$. These equations are permanent if they are dissipative and the extinction set $\{x : \prod_i \|x^i\| = 0\}$ is repelling. If permanence persists under perturbations of the matrices $A_i(x)$, the equations are robustly permanent. Sufficient and necessary conditions for robust permanence in terms of Lyapunov exponents for invariant measures supported by the extinction set will be given. The methods will be illustrated with applications to ecological, evolutionary, and epidemiological models. (Received September 24, 2017)