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Alan Hastings* (amhastings@ucdavis.edu), Department of Environmental Science & Policy, University of California, One Shields Avenue, Davis, CA 95616. *Role of time scales in the response of ecological populations to time varying resources.*

Temporally and spatially varying resource levels are key features of ecological systems. Simple models based on delay equations incorporating the key features of temporally varying resources and specific descriptions of survivorship for consumer species show the overriding importance of the time dependence of available resources and the role that subsidies play in allowing species to persist. Persistence of species with lifetimes short relative to the timescale of resource variability is determined by the geometric mean of resource levels, while the persistence of species where resources vary on a much shorter time scale (or with exponential survivorship) are determined by the arithmetic mean of resource levels. Models incorporating both time-varying resources and explicit life histories dramatically change our understanding of how fluctuations in resource availability through time and space will affect population persistence and community dynamics. (Received September 20, 2012)