1077-92-1571 **Stephen P Ellner**, Cornell University, and **Sebastian J Schreiber***
(sschreiber@ucdavis.edu), University of California, Davis. *Temporally variable dispersal and demography can accelerate the spread of invading species.*

Invasive organisms are altering natural communities at an unprecedented rate. Since climate models predict greater temporal variability in environmental conditions in the foreseeable future, future management of invasive species requires understanding the joint effects of temporal fluctuations in demography and dispersal on their rates of spatial spread. To address this issue, our model combines state-structured local demography (specified by an integral or matrix projection model) with general dispersal kernels, and stationary temporal variation in both local demography and dispersal kernels. We derive analytic expressions for the asymptotic spread rate and its sensitivity to parameters. Using these results, we show that random temporal variability in dispersal can accelerate population spread. Demographic variability can further accelerate spread if it is positively correlated with dispersal variability. A simple model for an invasive plant, perennial pepperweed, illustrates these effects and shows that they can have substantial impacts on the predicted speed of an invasion wave. Temporal variability in dispersal has gotten very little attention in both the theoretical and empirical literatures on invasive species spread. Our results suggest that this needs to change. (Received September 21, 2011)