1046-92-1053 **Joan P. Lubben*** (s-jlubben1@math.unl.edu), Department of Mathematics, University of Nebraska-Lincoln, 203 Avery Hall, Lincoln, NE 68588-0130, and **Brigitte Tenhumberg** and **Richard Rebarber**. *The effect of temperature on transient population dynamics: A case study using the pea aphid (Acyrthosiphon pisum).* Preliminary report.

Studies of structured population dynamics often focus on asymptotic population growth rates, which assume that the population has reached the stable stage distribution. For many populations this assumption is not justified and the population is better described by short term or transient dynamics. Transient dynamics can be important for estimating invasion speed of non-indigenous species, population establishment after releasing biocontrol agents, or population management after a disturbance like fire. For ecothermal species like insects, temperature plays an important role in their developmental rate. We developed two different models to explore the effect of temperature on the transient population growth rate, using pea aphids as a case study. We estimated model parameters (survivorship and fecundity) at two different temperatures, and then scrutinized both model predictions by comparing observed and predicted transient population growth rates and the projection of population size over 20 days. We defined "transient amplification" and explored how temperature influences the transient amplification in this system. Both models predict that an increasing temperature produces earlier and higher peak transient growth rates, resulting in a larger transient amplification. (Received September 14, 2008)