1145-VF-2524 **Brooks K Emerick*** (bemerick@kutztown.edu), 15200 Kutztown Rd, Kutztown, PA 19530.

Stabilizing effects of patch-use and migration in semi-discrete host-parasitoid models.

Extensive work has been done on analyzing host-parasitoid interactions using discrete-time models, the most notable of which is the Nicholson-Bailey model. Recent work on host-parasitoid modeling incorporates a continuous feature in the traditional discrete-time system. We use this semi-discrete approach to study the effects of parasitoid migration between two sites, both of which contain a proportion of the entire host population. We find that in the simplest case, when the migration and parasitism rates are constant, a stability region exists. This suggests that parasitoid migration to and from host sites has a stabilizing effect that depends on the distribution of the host population among each site at the beginning of the vulnerable period. The stability of the system is characterized by relatively lopsided migration rates in the sense that parasitoids will likely not revisit a patch previously parasitized. In this work, we present analytic and numerical results that describe the region in parameter space in which coexistence among the two species is possible. This parameter space is characterized by two factors: the number of viable larvae per adult host and the fraction of host larvae present at the initial location each year. (Received September 25, 2018)