**Supplemental Table 4. Morris screening global indices of each ODE parameter omn generalist or specialist predator density.** Results of Morris screening analysis, sorted by the impact of each ODE parameter on generalist or specialist predator density at each timestep or time-averaged. Morris screening outputs provide mu, mu\* and sigma indices. Global indices are calculated as the square root of mu\* squared plus sigma squared.

**Supplemental Table 5. First order (S) and total effect (T) Sobol’ sensitivity indices for ech ODE parameter on generalist or specialist predator density.** Results of Sobol’ sensitivity analysis, sorted by first order and total effect sensitivity indices. Indices indicate the main influence (S) of each ODE parameter or its impact including interactions with other parameters (T) on generalist or specialist predator density at each timestep or time-averaged.

**Supplemental Table 7. pLannotte predications of putative genes in EH7.** pLannotate predictions of putative genes in EH7 strain used for all experiments. Additional investigation of the EH7 genome was completed using NCBI BLAST to verify the lack of putative lysogeny genes (<https://blast.ncbi.nlm.nih.gov/Blast.cgi>; data not included). Sequencing of the lab phage strain was completed by the Microbial Genome Sequencing Center (<https://www.seqcenter.com/>).

**Supplemental Notebook. Mathematica notebook for model fixed point analyses.**