Population dynamics of things that eat plants
There are at least a dozen different names that are regularly used to describe phytophagous organisms. Perhaps this vocabulary is mainly historical and capricious or perhaps it reflects biologically meaningful subdivisions within the huge diversity of organisms that consume plant tissue in one way or another. Question #2 challenges you to parse the world of phytophages based on population dynamics.
a. Identify and characterize 3-5 groups of phytophages that are distinguishable based upon how their population dynamics are influenced by food. For each of the groups, write about two pages summarizing how their interactions with plants influence population dynamics. Seek to organize these summaries around appropriate theoretical and empirical questions. A partial list of possible organizing questions includes: Is food limiting? Does the “green world” hypothesis hold for that group? Why or why not? What are the dimensions of plant food quantity and quality in each case? Are spatial and temporal patterns of plant abundance and quality important? How? What if any, are the phenotypic and evolutionary responses of plants to these phytophages, and what are the consequences of those responses for phytophagous populations.
b. In a final two pages, compare and contrast the groups that you have identified and state the most compelling general conclusions that emerge about the effects of plants on populations of phytophages and the attributes of phytophages that determine their demographic responses to plants.