Take Home Worksheet: Species Interactions

To practice with the concepts you learned in class today, answer the following questions. One good strategy for working with these questions is to answer them on your own to the best of your ability, then compare your answers with a fellow student. Together you will be able to create good answers to the questions. In all cases, be prepared to explain your reasoning clearly and succinctly.

You were just hired as a wildlife biologist for the United States government to work in the upper Midwest. It has recently been brought to your attention that central Wisconsin deer populations are growing at an incredibly rapid rate in contrast to what has been the usual case over the past 50 years. You are not an expert on the local ecology but you have experience elucidating species interactions for marine sea floor communities. The only thing you know for sure is that it is *not* because of decreased hunting by humans.

(1) What would be your first guess as to why the deer population has recently experienced explosive growth?

(2) Calculate five generations of exponential growth for the deer population where $N_t = 45$ and $r = 1.3$.

(3) Calculate five generations of logistic population growth with the same $N_t$ and $r$, and with $K = 450$.

(4) If the deer population continues to grow unchecked, what consequences would you expect for other species? Why?

(5) What policy would you recommend to keep the deer population in check, if any? Assume you were asked to justify your policy. Respond with an 'if-then' predictive statement that you believe is true of this situation and could be evaluated once your policy is enacted.