Zach Campbell
BI 471- Spring 2016
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1)

6.1- I find the concept of using mathematical stability to predict stability in populations because it can already be seen that mathematical predictions for population size and growth are fairly accurate, so by testing these functions for stability we see an accurate representation of the population dynamics.

6.3-

Predator-Prey: $(+)\frac{\partial f_1}{\partial N_2}$ $(-)\frac{\partial f_2}{\partial N_1}$

Competition: $(-)\frac{\partial f_1}{\partial N_2}$ $(-)\frac{\partial f_2}{\partial N_1}$

Mutualism: $(+)\frac{\partial f_1}{\partial N_2}$ $(+)\frac{\partial f_2}{\partial N_1}$

2) In Box 6.1 we see:

$$a_{ij} = \frac{dF_i}{dN_j}$$

This is simply an equation for computing the values of matrix A for one species, whereas in Chapter 7 a_{ij} represents interspecific and intraspecific density dependence. I think the best way to alter this to prevent confusion would be to just change the interspecific and intraspecific density dependence form to a_{im}. This allows for minimum change while allowing for the two forms to be distinguished from one another.

3) By manipulating the p parameter we see that the only thing that changes is the equation 1-p. Therefore, as p approaches 1, 1-p approaches 0. This represents the ratio of individuals who choose to stay in New York rather than move to California.

4) https://docs.google.com/document/d/1YSXjSSXRiqh2o9vgEwTCOA9G6vdrIb-mxHA1d62so38/edit?usp=sharing