

EEB 5301 Homework 3

Samantha Apgar & Henry Frye

Spring 2017

Problem 1

Part a

Figure 1 shows that interspecific competition dominates the interaction, the cotinga population will go extinct and the fruit dove population is safe.

The y-intercept of the purple dove line is defined by $\frac{k}{\alpha_{dc}}$ and the x-intercept of the orange cotinga line is defined by $\frac{k}{\alpha_{cd}}$. Since $k_c = k_d$, we assume $k=1$ for graphical simplicity.

Part b

In Figure 1, the conclusions based on the intercepts of the axes are constrained by the following be true: $\frac{k_c}{\alpha_{cd}} < k_d$ (x-axis) and $k_c < \frac{k_d}{\alpha_{dc}}$ (y-axis). If the carrying capacity of the Cotingas violates these constraints then the conclusions in Part a would change.

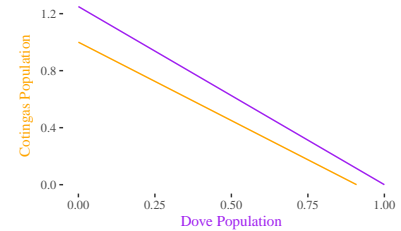


Figure 1: Fruit Dove and Spangled Cotingas Phase Diagram

Problem 3

Part a

To maintain populations at equilibrium, *Astrionella*