

Aaron Nelson

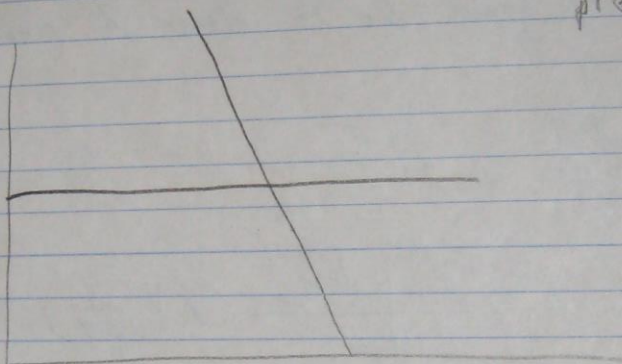
Homework 5.

8.1 (a)  $\frac{dH}{dt} = m \left[ 1 - \frac{H}{K} - bHP \right]$

$\frac{dP}{dt} = cHP - kp(P)$

modified for predator affect on predator.

(b)  
(c)  
pred



prey (b)

as it depends on the number of prey since prey will decrease more as prey decrease.

signs of terms:

$\begin{bmatrix} + & 0 \\ 0 & 0 \end{bmatrix}$

$(+)(0) = +$

(c) sign of determinant is positive so the equilibrium is unstable.

(+) It makes sense in that when predators reach a certain size of pop. they act cooperatively to achieve a greater gain/individual which is what allows mutations to happen ← a runaway feedback that is positive.

$$\boxed{8.3} \quad \frac{dH}{dt} = rH \left[ 1 - \frac{H}{K} \right] - bHP \times (\text{pesticide})_{\text{qty}}$$

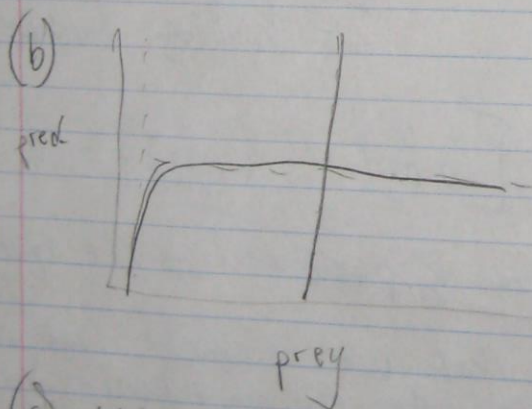
$$\frac{dP}{dt} = cHP - kP \left( \frac{1}{\text{pesticide}} \right)$$

The pesticide affects both species, but not equally and when the predator is affected more, it allows the prey population to grow due to release of predation pressure.

$$\boxed{8.4} \quad (a) \quad \frac{dH}{dt} = rH \left[ 1 - \frac{H}{K} \right] - cHP - kP \left( \frac{1}{P_0} \right)$$

$$\frac{rH \left[ 1 - \frac{H}{K} \right]}{cHP} \left( \frac{1}{kP \left( \frac{1}{P_0} \right)} \right)$$

$$\left[ \frac{cP}{\frac{dH}{dt}} \quad \frac{P_0}{\frac{dP}{dt}} \right] = kP$$



(c) stability is increased by refuges since the  $\frac{d\text{prey}}{dt}$  increases before the predators can respond to the lack of prey.



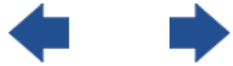
## About this Orientation...

The program has been divided into three key modules, each sharing a piece of the Wikipedia experience:

**1 Core:** The core policies and guidelines that govern content development on Wikipedia.

**2 Editing:** The technical skills you'll need to edit Wikipedia. You will also be introduced to the Wikipedia Community: a vital part of your editing experience.

**3 Advanced:** More details on editing, including advice on picking a good topic.

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## Wikipedia:Training/For students/valuable contribution

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“ With a traditional assignment, your only audience is often your professor, or at most your professor and your classmates. I really liked the fact that this assignment gave me an opportunity to write for a broader audience and make a valuable contribution to a resource that I often use myself. ”

— *Joseph Lapka, San Francisco State University*

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# Wikipedia:Training/For students/Topic-specific modules

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## Heading text

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**Wikipedia Training**

**Editing**

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## Topic-specific advice

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If you plan to contribute in health- or medicine-related topic areas (including psychology), please go through this additional section.

**I will be working on medical or health-related topics.**

If you are working in other topic areas, you can continue on to the final section.

**I will be working in other areas.**

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