Teaching Notes

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**Course Information**

Department: **Biology**

Level: **Lower Undergraduate**

Course type: **Lecture**

Students: **Non-majors** (select one)

Number of Students: **30**

**Module Information**

Original Module Name: Terrestrial Trophic Cascades & Population Structure

Link to Original: <https://qubeshub.org/qubesresources/publications/430/1>

Modified Module Name: same

Files associated: (ie. Class Worksheet, Summative Quiz, Lecture Powerpoint, etc)

* Powerpoint of cards
* Lecture powerpoint
* Class handout

Modification Learning Goals:

* Create and use community interaction diagrams to explain how species interact both directly and indirectly
* Explain how predators have strong influences on communities

**Teaching Notes**

*(Think about what you would like to read about this activity if you came back to it in 2 years)*

Suggestions for this section (not all required, and extras always welcome):

* What did you change and why?
  + I started the class with them making up interactions for different communities followed by going into detail about the different types of interaction. Then I used the HHMI cards from “Modeling Trophic Cascades” to show them how we diagram interactions and what indirect effects are. Then I used this module.
  + Because of time constraints and the level of students I drastically reduced the material covered. I only kept in 2 sections of the original (Terrestrial food webs, the 1st section and Trophic Cascades & Community Biodiversity)
  + I changed the direction of the interactions to match the HHMI activity better. I also added interactions that weren’t in the original, such as competition between the beaver and the deer and between the types of plants and mutualism between butterflies and wildflowers.
  + I created cards for the riparian food web
* How did the activity go?
  + What went well and why?
    - The students had a better understanding of the complexity of community interactions after the activity.
    - They liked the “which of these are pictures of a deer browsed area”. At first, they had no idea what they were looking for, but they all figured it out and seemed to be proud of themselves.
    - The switch from a simple diagram to the more complex one was difficult for them. Several of them said that it was just too many interactions, especially if including indirect effects. They also didn’t know how to organize the interactions is a useful way. I think this initial difficulty helped them better understand the complexity of communities.
  + What went wrong and why?
    - The age distribution graph was too hard for them to understand. This was basically the first graph they had seen all semester, so that was one of the issues. The other issue was confusion about the x-axis – they thought that it showed the number of trees at that date rather than the age of the trees sampled.
    - From their exams it is clear that there was some confusion about what producers vs consumers are. I don’t know why this issue exists, but a more structured approach to the more complex food web might help with this – first figure out what type each species is, then put the consumers on the bottom, then the herbivores, then the predators.
* What was the prep like?
  + How much time went into prep?
    - 10 min – cutting out cards.
  + Did you have to do any prep (i.e. grow cultures, grow seeds, order supplies) ahead of implementation?
    - No
* Would you do this activity again?
  + I think I might use this activity again. I like that it has them do scientific activities (observing, making predictions) but in a non-experimental way that mimics what we do in real-life.
* What would you change in the future?
  + Explain the age structure graph better – how the data was collected, what the axes mean
  + Add structure for the more complex food web – remove the producer/consumer labels so they have to figure it out, make sure they add non-predation types of interactions
* What do you wish you’d known before you ran the activity?
  + Nothing
* Is there anything else you would like to make note of?