

BIOL 370
Scientific Paper Review #1
Fall 2019
35 pts

Reading: Young, H.S., R. Dirzo, K.M. Helgen, D.J. McCauley, S.A. Billeter, M.Y. Kosoy, L.M. Osikowicz, D.J. Salkeld, T.P. Young, and K. Dittmar. 2014. Declines in large wildlife increase landscape-level prevalence of rodent-borne disease in Africa. *Proceeding of the National Academy of Sciences* 111:7036-7041.

Human diseases often have an ecological component. One such disease, bartonellosis, occurs primarily in Africa. This paper describes some recent research examining how the incidence of bartonellosis can be related to the presence of large animals interacting with the biological community.

The reading is available on the class website (<http://ww2.coastal.edu/jjhutche/bio370.htm>).

After reading the paper, please answer the questions below. **Some rules to follow:**

- Answers must be typed.
- You do **not** need to include the questions; just provide the answers.
- If you refer to organisms using their scientific name, you **must** italicize the genus and species names (e.g., *Homo sapiens*, not Homo sapiens).
- Points also will be taken away for errors in spelling and grammar, so **proofread!**
- When writing your answers, **USE YOUR OWN WORDS**. For example, do not just copy the figure captions to interpret the graphs or slightly change the order of wording found in the text.
- Your answers must be your own. You can talk to other students about the assignment but you must write all answers by yourself.

This assignment is **due Friday, 6 September 2019**; turn in a printed copy (you'll give a job to a tree planter!).

Questions:

- 1) What is the major hypothesis being tested? My view of a hypothesis is that it is a prediction coupled with an explicit underlying mechanism, so include both aspects.
- 2) What questions or hypotheses are the authors addressing with each of the three graphs in **Figure 1**? What conclusions do the authors draw from these data shown in each graph? As a critical reader, do you agree that the data support these conclusions? Explain why. In your answer, also explain how these graphs go together.
- 3) What questions or hypotheses are the authors addressing with each of the three graphs shown in **Figure 3**? In 3A, what does infection prevalence refer to? What conclusions do the authors draw from these data in each graph? As a critical reader, do you agree that the data support these conclusions? Explain why. In your answer, explain how these graphs go together.
- 4) Based on this reading, why is the distinction between per capita effects and effects due to abundance important? In your answer, define what each of these terms mean and then describe what the authors are talking about for each of these effects.