Homework 1

Climate Change Ecology, Spring 2015

Due Friday, January 30, 2015

Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please answer the following questions in a different font (**like this**) to help me find your answers. Email me a copy of your homework by the beginning of class. You may work in a group, but your answers and your words must be your own. *When appropriate (here: use of information outside of Hannah textbook or lecture), cite all sources of information. Do not plagiarize.*

1. Climate change ecology
   1. Using your own words, write down the definition of “ecology”. (2 points)
   2. Why might “Climate Change Ecology” be a better name for this course than “Climate Change Biology”? (2 points)
2. Peer review

* 1. Peer-reviewed scientific articles are different from other sources of information about a scientific issue. What are the two key aspects of the peer review process that aid in advancing scientific understanding and are the reason why peer-reviewed articles form the basis for scientific theories? (2 points)
  2. You are presented with a report that addresses issues about climate change. How can you tell if the report can be trusted? (2 points)

1. Climate change science
   1. What is the major greenhouse gas that influences today’s climate change and whose concentration is being affected by human activities? (2 points)
   2. List the two different major human activities that affect this gas. (2 points)

* 1. Consider Figure 2.20 in Hannah’s book (note: from First Edition of Hannah; this is a figure from the IPCC that looks similar to the figure in the latest IPCC report, found here: http://www.climatechange2013.org/images/figures/WGI\_AR5\_FigSPM-6.jpg) . There are three main messages of this figure that aid in understanding climate change.
     1. What is the message related to observations of recent climate change? (2 points)
     2. What is the message related to the confidence we have in global climate model predictions? (2 points)
     3. What is the message related to attributing recent climate change to human activities? (2 points)
  2. For each of the below organisms, describe aspects of physical climate change that may be important (10 points). Please cite your sources (points will be deducted if you don’t).

Example: palms are sensitive to freezing temperatures, so the physical aspect that is important to the distribution of palms is cold season minimum temperature

* + 1. bull trout
    2. cactus
    3. tree in western Washington
    4. polar bear
    5. oysters in Puget Sound
  1. Fine-spatial resolution gridded climate information (historical and projections).
     1. Where on Earth (in general; not specific locations) is such fine-spatial resolution information helpful for understanding climate change impacts to plants or animals? (2 points)
     2. Which two aspects of physical climate are improved with finer spatial resolution information? Why? (2 points)