

BIOL 416, Ecosystem Ecology and Global Change
Paper assignment
Winter 2010

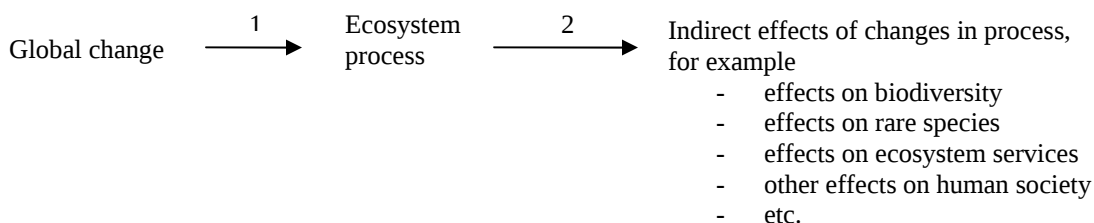
WP: 250 points; non-WP: 100 points

Your assignment is to write a paper on one aspect of global change and how ecosystem ecology applies to that issue. The steps of the paper assignment are as follows:

- 1) Describe your paper topic (10 points). Due Wed., 1/20.
- 2) Write your first draft (60 points; WP only). Due Fri., 2/12
- 3) Peer review of another student's paper (55 points; WP only). Due Fri., 2/19
- 4) First drafts handed back with comments from Hooper: Wed. 2/24
- 5) Final draft (125 points WP, 100 points non-WP) due: Fri., 3/12

1. PAPER TOPIC.

You need to choose a topic that addresses the effects of global change on ecosystem processes, selecting from one of six different aspects of global change: 1) direct effects of elevated CO₂ on ecosystem processes; 2) indirect effects of elevated CO₂ and other greenhouse gases (i.e., via climate change) on ecosystem processes; 3) land-use change (intensification and/or extensification) effects on ecosystem processes; 4) altered nutrient cycles – how they are changing and potential effects on other processes; 5) effects of species invasions on ecosystem processes; or 6) effects of altered biodiversity on ecosystem processes. You can think about a particular global change as the effect variable and one or more ecosystem processes as the response variable(s). Your goal in the paper will be to describe the mechanisms by which a particular global change might affect the process(es) in question and evaluate the scientific evidence for AND against such effects. That is, you need to use the knowledge and tools developed in this class to critically evaluate all sides of a given issue as presented in the scientific literature. Your paper **must** deal with what is known about the topic you choose, as well as what uncertainties remain. To get into an appropriate level of mechanistic detail for this assignment, you will need to be careful to narrow your topic sufficiently. I don't want papers that are "a mile wide and an inch deep". Rather, you should aim for a level of detail that will let you evaluate the key state factor, interactive, and proximal controls on a given process to illustrate how a particular global change may influence that process. All of the global changes above are likely to have important ecological impacts at other scales (e.g., physiological, population, or community effects). For the purposes of this class, I want you to focus primarily on the ecosystem-scale mechanisms and effects (step 1 in the figure below), although if appropriate for a given topic, you can also touch on indirect effects as mediated by that ecosystem process (step 2).



You must clear your topic with me first. To get topic approval, describe your initial ideas for the paper in a paragraph, being clear about what causal variable of global change and what ecosystem response variable you will be researching. Be clear about how you will bound your research to keep the scope tractable. You will need to provide the full reference of at least one paper from the primary literature that will be used as a basis for your research. See proper reference formatting below. Feel free to talk with me beforehand for initial feedback, or if you are having difficulty coming up with a specific topic. For literature searches, I strongly suggest using the Web of Science data base, available on Western's library web site.