

### **Short Paper #2**

The Finger Lakes Hikers Association is an outdoor recreation and conservation group. They have recently been discussing the implications of global warming for the forest ecosystems in upstate New York. They have read ecologists' predictions that if global warming occurs, many species of plants and animals will have to migrate if they are to survive, though some organisms may also be able to stay in their current ranges if they are able to acclimate and/or to adapt to the new conditions. The Association has asked you, as an esteemed Cornell ecologist, to prepare a short paper for them in which you discuss the specifics of what determines how a tree species' range will change in a warmer world. In particular, what determines whether a tree species will be able to acclimate or adapt in its

current range, and what determines whether a tree species @@ be able to migrate to new locations?

You should incorporate material from the lectures, discussions, and discussion section readings in this paper where appropriate. Any specific information taken from the discussion section readings should be cited properly. I suggest looking over the lecture material on evolution by natural selection, physiological ecology, and life history strategies and reproductive ecology before you start to write. Be specific about how different factors may affect acclimation, adaptation, or migration -- for example, it's not enough just to say that an organism's life history traits will determine whether it can migrate to new locations. Which life history traits, in particular, would make it more or less able to migrate (or adapt, or acclimate)?

**Limit your essay to 3-5 double-spaced, typed pages.**

**DEADLINE: 3:00pm on Friday, October 9** (in the box outside my office if I'm not there).

**METHOD OF GRADING:** Numerical system.

\* More examples of scientific citation format \*  
(note how citations . are listed within the paper)

In reviewing the role of disturbance in lotic ecosystems, Resh et al. (1988) discussed three hypotheses: the equilibrium model based on Lotka-Volterra population dynamics (McIntosh 1985), the intermediate disturbance hypothesis (Grime 1973, Connell 1975) and the dynamic equilibrium hypothesis (Minshall and Peterson 1985).

- Minshall, G. W. and R. C. Peterson. 1985. Towards a theory of macroinvertebrate community structure in stream ecosystems. *Archiv fur Hydrobiologie* 104:49-76.
- Resh, V. H., A. V. Brown, and A. P. Covich. 1988. The role of disturbance in stream ecology. *Journal of the North American Benthological Society* 7:433-455.