

Pitcher, Paula J. & Hession, Cully W., 2002. **Hydrologic Investigation and Monitoring Design of a Vermont Kettlehole Bog.** For submission to Hydrology.

Paula's paper presents and discusses groundwater movement and water chemistry data collected from Molly Bog, an ombrotrophic bog located between Stowe and Morristown, Vermont. Because it has been recognized as an 'absolutely unspoiled cold northern bog,' which is currently being encroached upon by human development, Molly bog was listed as a threatened National Natural Landmark by the National Parks Service in 1998. The study design aims to 'predict the variability associated with water and chemical movement within the small bog and to evaluate interactions between major hydraulic barriers at the site. As the paper currently stands, there are no real conclusions to the study, ie- what does all this mean for Molly bog and for northern bogs in general.

In this form, Paula's paper needs serious work before submission. This is a first draft, so that's fine. My major comments are listed below under the appropriate headings.

Overall Significance:

Need to state up front, in the abstract and introduction, what the overall significance of this study is. How can bogs be used as indicators of human disturbance and/or why are bogs and wetlands sensitive to disturbance and what is special about Molly bog? Some of these questions are touched upon in later sections, but they need to be concisely stated at the beginning. State what exactly your overall aims and questions are and explain how your methods address these. On page three you state that Molly bog is an example of an unspoiled Northern Bog and that it is listed as a 'threatened National Natural Landmark.' Is this your reason for studying it? Is the overall aim to quantify anthropogenic effects or provide a baseline assessment of a healthy northern bog?

Section Headings:

Minor point...wouldn't be a bad idea to make you headings more obvious...so the reader knows which section they are in (ie-methods/results etc.)

Figures and Captions:

Can't read the writing on most of the maps. Figure 5: I assume that the independent variable on your rainfall plot is date, but nothing is there. And why are they plotted in reverse? Evapotranspiration and water table position plot looks a bit messy. Figure 6 & 7: Need to make you site numbers stand out from your contour labels.

Organization:

You have some interpretation mixed up in your results section. Pull em' and lead off your discussion section with a detailed breakdown of what your data and plots mean.

Discussion:

As stated above, maybe start this section with a more detailed explanation of what all your data mean. Then address what all this means in a larger sense. What conclusions can you draw from this study concerning Molly bog and northern bogs and wetlands in general.

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References:

There are none.

Specific comments keyed to numbers in manuscript:

- 1) What is the 'profound' effect?
- 2) State how the obrotrophicness changes from bog to bog...refer to manuscript.
- 3) Describe what the floating mat is before telling us what species dominate it.
- 4) 0.01 KCl solution: is this normality or molarity or what?
- 5) Why is this method good?
- 6) Put interpretations in your discussion.
- 7) Reword this...refer to manuscript.