

Exploring the Hubbard Brook Experimental Forest

Student Handout #7: Virtual Tour & Introduction Questions.

Student Name(s) _____

Date _____

Use the back of the page if you need more room to answer questions.

List the dates of the whole-watershed treatments. Describe each of the treatments. What were the main results of the Watershed 5 experiment?

If you were studying a certain part of a forest - for example, what types of trees grow best there - how long would you want to conduct your research? Would you be able to learn all about these trees in just one year, or would it take many years? Is it possible that it could even take decades? Explain some reasons why long-term research might help you understand more about these trees.

When precipitation was first measured in the HBEF in 1964, the pH of samples was ~ 4.0 - 4.2. Examine the graph on the Long-Term Example Page 1 (you can get to this page from Introduction Page 10). Does it appear that annual precipitation acidity decreases over the five years represented here? Can you make any conclusions from this graph?

What do the five years represented by the graph on Long-Term Example Page 2 seem to indicate? Does it appear that precipitation acidity is increasing or decreasing? How does this compare with the five years in the previous graph? Can you make any conclusions about long-term precipitation acidity trends at the HBEF based on this and the other graph?

The graph on Long-Term Example Page 3 shows all the available precipitation pH data currently available. What do these data suggest? Does it appear that precipitation acidity is increasing or decreasing at the HBEF? How is this graph different from the two previous graphs? What do these three graphs show about the benefits of long-term research?

What does the graph on Page 11 suggest about the number of birds present in the HBEF? Does it appear that bird abundance has increased or decreased since 1969? What could be some reasons for this apparent trend? Could it be that all species are following this trend, or could some be following a different trend?

Why do you think it might be important to know how much lead is present in soil? Describe what could explain the apparent decline in lead as shown in the graph on Page 11A.

Can you tell from this the graph on Page 11A alone if more snow falls now than in 1956 - or would you need more information? What are some reasons for long-term snowpack monitoring?

Read the top section of Page 14 of the Introduction. Can you think of other questions that would require you to compare other sites to the HBEF?

At the HBEF, some scientists are interested in the growth of fine roots, and are trying to answer questions like: How quickly do they grow? How long do they live? Describe why you think scientists might be interested in these questions.

While long-term research and monitoring are crucial to understanding big ecological questions, it is possible to answer some questions in a few months or years. Describe ecological research that might only take a few months or years to answer.