

BIOL 370L—Natural History  
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*"To a person uninstructed in natural history, his country- or sea-side stroll is a walk through a gallery with wonderful works of art, nine-tenths of which have their faces turned to the wall."*

Thomas Huxley

The scientific method begins with observations about the natural world—its patterns and processes, and then thinking of testable questions to explain the observations. Ecology is no different, as most ecological science is grounded in careful examination of the environment before any experiments are undertaken. Furthermore, the science of ecology has its roots in natural history: the study of how organisms are influenced by climate, soils, predators, competitors, evolutionary history, etc. Today we will explore a portion of the Waccamaw National Wildlife Refuge. You will record observations about the natural history of the area while in the field, and then develop hypotheses to explain your field observations in the ecology castle.

To do:

- 1) Work either by yourself or in a group of two.
- 2) **Examine the natural history of a forested watershed.** You should study all of the available habitats: trees, soils, stream, and forest canopy. Spend at least **20 minutes** making **detailed** observations.
- 3) **Write down your observations.** Use LEGIBLE handwriting. Some questions to consider: 1) What are the physical characteristics (e.g., brightness, temperature, humidity, smell) of your area? 2) What do you hear? 3) Who (plants, animals, fungi, etc.) lives there? 4) What are the organisms doing? *Strive to help the reader 'see' the environment in their head based on your detailed observations.*
- 4) While you observe, **think about what you are seeing and why it is occurring.** For example, how are the organisms adapted to their environment? Try to put yourself in the 'shoes' of the organisms you are observing—what would you be concerned with if you were that organism? What are your resources (e.g., food, shelter)? Is something about to eat you? Are there potential competitors present?
- 5) After returning to the ecology castle, think about what it would be like for organisms to live in the environment you just observed *if all of the trees were cut down and removed from the area.* You will need to **develop six hypotheses—three about how some aspects of the abiotic environment will change after logging, and three about how organisms respond to this disturbed environment.** For the latter three hypotheses, focus on plants and animals living in the now disturbed area. Which organisms would be more or less abundant? Why? Addressing the 'why' component will allow you to link changes in the environment to your expectations of how organisms will respond to the loss of trees.
- 6) Remember, any good hypothesis includes both a tentative guess (or prediction) AND a 'because clause' that can be tested in some way. So, be sure to include both the prediction and the underlying testable mechanism.
- 7) **Turn in** your hand-written observations and hypotheses when you're done.