

## Observations and Hypotheses

Due March 24, 2016

**IMPORTANT NOTE:** Please start work on this assignment as soon as you can. This assignment requires work over several days to complete. You will NOT be able to sufficiently complete this assignment if you wait until the night before it is due to start working on it!

The purpose of this assignment is to get a feel for how animal behaviorists generate research questions, think about the behaviors they observe, and collect behavioral data. For this assignment, you are ideally expected to get outside to observe and then critically evaluate the behavior of wild animals. However, if you give it a good try (i.e., at least three separate attempts to find an animal in its natural habitat), then it is also possible to conduct this assignment using captive or domesticated animals. As part of this assignment, you will keep a field notebook detailing your behavioral observation sessions, so if you do end up using captive or domesticated animals, I will still expect to see your three attempts to find a wild animal detailed in your notebook.

Follow these steps in the order below:

1. Get outside and find some non-human, and ideally, non-domesticated, animals you can observe. These animals can be anything you can reliably see. For example, some great animals to watch are ducks, crows, ravens, birds at feeders, squirrels, deer, antelope, etc.
2. When you find animals to observe, approach to a distance that allows you to observe them without disturbing their behavior. You want animals to exhibit their normal behavior, and not simply to be staring at you, or worse, running away from you!
3. Start out by simply watching the animals. Think about what they're doing and why they are doing it.
4. Take notes about the behaviors you observe, how many animals are exhibiting each behavior, and your thoughts on these behaviors in your field notebook. See below for a more detailed description of what I expect to see in your field notebook. Feel free to be creative here, for example, if drawings help illustrate your point, feel free to include them.
5. Compile an ethogram of the behaviors that you observed. I expect to see at least five, and ideally, ten behaviors defined in the ethogram. For more detailed instructions on how to build an ethogram, see the Ethograms.pdf on the course website. Additionally, there is an example ethogram, labeled Hyena Ethogram.pdf, on the course website as well.
6. Think about the behaviors you observed and generate two questions about those behaviors. For example:
  - a. Question: Why are certain bird species more prevalent at feeders than others?
7. For each question that you generate, come up with two explanatory hypotheses, or possible answers to these questions. For example:

- a. Hypothesis 1: Some bird species are more prevalent at feeders because these species are more prevalent in Laramie in general. That is, the composition of birds at feeders accurately reflects the local population sizes of different bird species.
  - b. Hypothesis 2: Some bird species are more prevalent at feeders because they differ in their diet and the extent to which they depend on birdseed for survival over the winter.
8. For each hypothesis, generate two predictions of results you would expect to find if your hypothesis is correct. For example:
- a. Hypothesis 1, Prediction 1: If the composition of birds at feeders reflects the local population sizes of those bird species, then we should find the same species composition at other, non-feeder sites.
  - b. Hypothesis 1, Prediction 2: If we remove the feeder from the main observation site, the species composition of birds found at that site should not change.
9. For one of your questions, design an experiment that would allow you to test your hypotheses. Describe your proposed experiment in enough detail that someone else could implement your idea. State the results you would expect to find and how those results would support, or refute, your hypotheses.

For this assignment, you will need to complete and turn in the following items:

1. A field notebook detailing the date, time, and location of each observation, the number of individuals of each species present, the behavioral data you collected, your thoughts or questions about the behaviors you observe, and any other notes you think are worth writing down (such as your interpretations of the behavior you observe, if something disturbed the animals, etc.). – 10 points
2. An ethogram of the behaviors you observed. - 10 points
3. A document detailing your two questions about behaviors you observed, your two hypotheses for each question, and your two predictions for each hypothesis. In total, you should submit 2 questions, 4 hypotheses, and 8 predictions. - 15 points
4. For one of your questions, submit a paragraph detailing an experiment you have designed to test whether your hypotheses are correct. - 10 points