**BIONB 4200: Writing assignment 3**

**Due Friday Nov 6th before midnight via email (jld276@cornell.edu)**

Appropriate length: 5-7 paragraphs

This writing assignment will assess your understanding of the concepts presented in class 9, acoustic signal function, and class 10, sexually selected signals. Use your notes from class, the powerpoint slides from lectures (<http://www.jenelledowling.com/#!writing-assignment-3/qpg5e>) and the readings that were assigned for each class. Meeting with me after class or during office hours to go over your outline/draft in the weeks before it is due will very likely improve your grade. Be sure to meet with me far enough ahead of the due date.

Animals that use vocal signals to communicate often have a large repertoire of different signals that serve different functions. Regardless of the specific function, all of these signals (and the communications they are part of) evolved because they increase the signaler’s total fitness, either through increasing their chance of survival or their reproductive success.

1. For this assignment, you will again use one animal as an example. This time, consider one individual of a vocal animal species. Starting with when they are first born/hatched, describe the different vocal signals they could use throughout their lives to help them survive and reproduce. Describe whether your individual is male or female, and do some research to determine a few details about the mating system, e.g. monogamous, polygamous, etc. and whether males compete for access to females or females for males (note that the latter is rare). List one example of a signal that they use for each of the five major signal functions we discussed in class (see Searcy and Nowicki book chapter scan from class 9 for review). Since there are very few species where researchers have determined how each signal in their repertoire functions, and how each evolved, you can make the assumption here that your species has a representative signal for each of the five functions, without researching the specifics for your species.
	1. For each, describe how that signal might have evolved, i.e. how might the communication the signal is part of increase the fitness of the sender and the receiver? How could honesty be maintained so that they both continue to benefit? See lecture 10 slides for review.
	2. When describing your five signals, include one example that could have evolved via the intra-sexual mechanism of sexual selection and one for the inter-sexual mechanism. Describe in detail how each signal helps the individual to increase their mating success.
2. Research on sexual selection and how it operates is active and ongoing. Find an example of a recent research paper on sexual selection. Describe briefly the question the paper aimed to answer, the results, and the implications for the field of sexual selection.