

Project Outline, Big Picture Version

The goal of the project is to better understand the effects of different kinds of land use on amphibian species in the Eastern and Central United States. In particular, we want to determine the distances over which different land uses most affect amphibians. Are roads harmful to amphibians only if they're very close to breeding ponds or do more distant roads also have an effect? Do forest-dependent species need a lot of forest close by, or is some forest scattered across the landscape sufficient? See the PROJECT INTRODUCTION for a more thorough explanation of the specific questions we'll be asking and for the scientific background for the project.

Here are the nuts and bolts of how the project works:

1. You will be assigned several survey ROUTES by your instructor. For each ROUTE, we'll be compiling data from one randomly chosen STOP where people have gone out to listen to frog calls in order to determine which species are present.
2. Given any assigned route, job number one is to summarize the frog call data from the route in order to determine how many species (and which species) are present at each stop. See the protocol: "summarizing frog and toad call data from each stop" for details on how to do this.
3. Then, Job number two is to put together information on land use, wetlands, and roads within several different distances from each stop. This will be done using Geographic Information Systems software (qGIS or arcGIS). You will create a map using this software and then use the map that you create to make several calculations, including things like the total length of road surface and the total forest area within a given distance from each stop.
4. Each route has been independently assigned to at least two students in order to validate the data. When you have completed steps 2 and 3 for a route, you will meet with the other student who had the same assigned route and compare your results. Where you came up with different results, you can work with each other, your instructor, and/or me to try to resolve the discrepancy. When everyone agrees on the results for a route, they can be entered into a database for your class.
5. When your class has finished all its assigned routes (usually, a few weeks), your class will work together to analyze the data and determine how the landscape variables you measured in steps 3 and 4 affect the amphibian variables that you summarized in step 2.
6. Representatives from each participating class will travel to NCEAS in April to present the results for their state(s). We will then work to compile and analyze the data from all the classes put together. Those who come to the meeting can then present these results to the rest of your class.