

Habitat Use of Water Snakes
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Dan Corbett

Abstract

The habitat use of water snakes project has run into a number of hurdles in its starting stages. The project is designed to study the habitat usage of two populations of water snakes, one in an urban environment and one in a natural environment. The first and major snag was been the location of the natural setting. The original desired location was found to be almost completely denuded, likely due to flooding. Nor were any snakes seen at this site. The second problem was the use of a GPS to record data. The GPS was found to be extremely unreliable and as such, unusable for this project. There are a number of impediments that must be overcome before this project is in full swing.

Objectives

With the major increases in urbanization during the past decades animals are being forced to adapt to new environmental conditions. While this has been happening, studies on the impact of urban environments on reptiles have largely been nonexistent. This project is designed to view the behavior of two populations of water snakes, one population in an urban environment and one population in a natural environment. The project is trying to discover if the behavior and resource utilization will differ between the two snake populations.

Methods

The first part of the experiment involved selecting the locations for the study. We assembled GIS coverage for the Monocacy and the Saucon creeks using ArcGIS. After completing these files we visited the creeks to determine the exact locations for the study. We would search for snakes visually to location a population sizable for the study. It was a very tedious process looking for the snakes as they blend in quite well to the stream habitat. Unless they were moving it was difficult to spot them.

Once the sites are selected snakes will be captured and implanted with radio-transmitters. The snakes will be located every 48 hours via radio-telemetry. At each locate several variables will be recorded. These variables are land use, ground cover, ground temperature, aquatic features such as water quality, riparian zone condition, stream modifications and in-stream habitat; biological features, including snake population density, snake physical features, fish community composition and predator abundance; and human-influenced factors including volume of human traffic and disturbance and the presence of impervious surfaces. The two populations will be compared for habitat use with statistical classification techniques.

The snakes will have to be recaptured every few months to have the batteries on the transmitters replaced. While this will undoubtedly affect the snakes' behavior it is a necessity to keep the project running.

Results

Very little data has been gathered at this time. The site for the urban population has been selected but a viable natural site has yet to be found. The urban site is located next to manufacturing plants with foot trails along the stream that are heavily traveled by fisherman and runners. No snakes have yet been captured.

Discussion

The project has been held up by the trouble in selecting a usable natural location. Numerous potential sites have been visited, none with the characteristics desired for the project. The Saucon had limited cover and no snakes were seen. An area upstream on the Monocacy has a decent population of snakes but is heavily used by fisherman and runners. Additional sites that were visited we found to be too close to roads and shops.

Once snakes were located the original plan was to use a GPS to mark their position and all the environmental variables. After using the GPS on many trips it became clear that this was not a viable option. The GPS was extremely inconsistent in its performance. It was very difficult to acquire satellites to get a location. The project has been modified to use detailed USGS topographical maps to plot locations and then a manual written method to record the environmental variables.

Conclusion

There is a lot of work left to be done for this project. Foremost is the selection of a natural habitat site. After the site is selected snakes can be captured and have transmitters implanted. Once that is accomplished the project will be in excellent shape. One area that will need some consideration is how to store the gathered data. The snake locations can easily be recorded on a map but the environmental variables will have to use a different method. Excel would be an excellent tool for this. An Access program can be written for easy entry and viewing of all the data. The only major hurdle is the selection of the natural habitat location.