

# **The North Carolina State University Bioblitz**

## **Understanding the Ecosystem Around Us**

### **1) Project Description**

The first step to achieving environmental sustainability is recognizing the environment that you are trying to sustain and why it is worth protecting. Our campus here at North Carolina State University is a dynamic, urban ecosystem that is home to far more than just undergraduates. Red-tailed hawks, coyotes, green sunfish, and broadheaded skinks all frequent campus yet are rarely noticed by the majority of the NCSU student body. Too often, people believe that you have to travel to the Amazon to see wildlife and are unaware of the biodiversity that is present even in cities. The NCSU Bioblitz will bring together the school's many student wildlife groups to spread awareness and foster appreciation for the wildlife here on campus. Over a one year period, we will conduct four bird counts, survey the aquatic fauna of both Rocky Branch creek and Lake Raleigh, and plant camera traps throughout the campus' wooded areas. These events will be open to the entire student body and will serve as a way for graduate students to share their knowledge and expertise with the community. At the end of the year, we will have generated the first survey of where, when and what kind of wildlife can be found on campus. We will use this information to create educational placards throughout campus that will inform the public about the wildlife that can be seen here daily. Our end goal is to remind the student body that they are part of an active ecosystem and to inspire everyone to care for the environment around them.

The NCSU Bioblitz will be run by a coalition of graduate students representing many of the professional groups on campus and will bring together students with backgrounds in forestry, fisheries and mammalogy. Among the graduate students already involved are representatives from the Zoology Graduate Student Association, the Student Fisheries Society, the International Society of Tropical Foresters, and the International Association for Society and Natural Resources. Not only will the Bioblitz forester collaboration across graduate groups, but it will also provide a much needed link between graduate level biologists and the rest of the student body. Each point count and survey will be led by a core group of experienced graduate students and will invite members of the NC State Community to participate as volunteers. These events, which will reward participants with pizza and beverages, will serve as a fun way for non-biologists to engage wildlife and to learn from scientists in a stress-free environment. Leading these events will also provide graduate students with invaluable outreach and teaching experience. It should be noted that, though many scientists will be involved, this is not a purely scientific effort. The Bioblitz will serve as a way for NCSU's scientists to engage the community and to provide information on local wildlife without any pressure to follow exacting standards or to squeeze out a scientific paper.

The surveying conducted by the Bioblitz will not be exhaustive but should give us an excellent idea about the biotic community on campus. NCSU's bird community will be surveyed with point counts, which are simply measured periods of observation during which time the number and species of all birds sighted is recorded. One point count will be performed each season in order to determine which migratory birds are utilizing campus. Additionally, two of these bird counts will be timed to align with the Audubon Society and Cornell Ornithology Lab annual bird counts so that we can make a contribution to national citizen-science efforts. The Bioblitz will join up with the Student Fisheries Society to conduct an electrofishing survey of the campus' aquatic animals. In this process, trained graduate students will use backpack electrofishers, a common and humane aquatic scientific sampling method, to temporarily stun and capture fish in Rocky Branch creek which volunteers will then identify. Lastly, the school's mammal population will mainly be surveyed with the use of camera traps. Camera traps are an excellent, non-invasive tool which simply takes a photograph every time an animal passes in front of them. Camera traps will be left out for one week periods in vegetated patches throughout campus. The photos collected by these traps will then give us an excellent idea of where and when animals can be found on campus. All of these methods are commonly used by biologists and our graduate body is more than capable of performing these surveys without the need of any further professional assistance.

The NCSU Bioblitz will promote environmental sustainability by educating the student body about the wildlife that shares our campus. At the moment, the streams and forests on campus host an impressive amount of garbage- a clear sign that these areas are not being viewed as wildlife habitat by the student body. By raising awareness of the wildlife that utilize these spaces, we hope to encourage people to reduce their littering. When we perform our survey of the Rocky Branch stream, we will also be performing a garbage clean up and weighing the collected garbage. The next year, after the Bioblitz is completed and educational placards have been installed, the Student Fisheries Society will conduct another stream clean up and again weigh the collected garbage. We hope to see a reduction in garbage present as students become aware that the stream is viable wildlife habitat and not just a useless culvert. We also wholeheartedly believe that the messages spread by the NCSU Bioblitz will promote environmentally sustainable practices in all aspects of the participants' lives. It is hard to motivate oneself to go the extra mile and become environmentally sustainable for the diffuse idea of protecting ecosystems in far off lands. However, when one realizes that wildlife is around us no matter where you are, it is much easier to find reasons to reduce your environmental impact.

The culmination of the NCSU Bioblitz will be the installation of ten educational placards throughout campus. These placards will be placed in highly visible areas and will summarize the findings of the Bioblitz. The placards will point out where and when different species can be found around campus and will highlight the biodiversity that can be found on a daily basis.

Lastly, I would like to highlight the fact that the BCSU Bioblitz has huge potential for impact at a very low investment by the NC State Sustainability Fund. We have a great number of skilled and enthusiastic graduate students here at State that are always looking for ways to reach out to the community. By providing the basic funds for equipment and educational materials, the Sustainability Fund will create a unique opportunity for graduate students to spread environmental awareness across campus.

## **2) Anticipated Outcomes/Impact**

Our aim is to create a lasting change in environmental awareness throughout campus. While the Bioblitz itself will only occur over the course of one year, the educational placards placed throughout campus will have a much longer lifespan. By cuing the student body into the biodiversity that is around them every day, we will foster a school-wide admiration for nature and reaffirm every student's belief that the environment is worth protecting. Other environmentally friendly acts- like recycling or reducing food waste- are much easier to support when the environment you are benefitting is around you every day!

## **3) Project Benchmarking & Innovation**

Bioblitzes are a relatively new activity that are gaining traction throughout the country. At the moment, several bioblitzes have been conducted on university and high school campuses throughout the country with great success. However, every location is biologically different and requires its own sampling effort. In Raleigh, there is currently an annual bioblitz conducted by the park system, but no such efforts have ever been made on campus before. As such, the NCSU Bioblitz will be the first effort to directly bring a holistic ecosystem awareness to the NCSU student body. Our main benchmarks will be our five public events (four bird counts and one stream survey) and the implementation of our final educational placards.

## **4) Metrics for Assessment**

Our greatest metric of success will come from the Student Fisheries Society's annual Rocky Branch creek clean up. We will weigh the amount of trash collected during the Bioblitz with trash collected in subsequent years. Rocky Branch creek will receive several educational placards encouraging passersby to view the creek as wildlife habitat and not to litter. If these placards, in addition to the Bioblitz events are successful, we will hopefully see a drop in the amount of trash collected. Additionally, we will collect feedback from volunteers at every event to see how the events are affecting their perception of the campus as an ecosystem.

## **5) Cost Savings**

Will the project result in cost savings?  Yes  No

This project is aimed at education and will not incorporate any immediate cost saving aspects.

## **6) Broader Vision**

The educational placards produced by the NCSU Bioblitz present the greatest opportunity for long term affect here on campus. Even after all of the Bioblitz's participants have graduated, the placards will continue to inform students about the biodiversity present on campus. Most importantly, the lessons taught by the Bioblitz- that diverse wildlife can be found in unexpected places- will be carried by individuals past their time at NCSU.

## **7) Project Milestone**

Bird Count 1- 07/2015

Camera Trapping Begins- 07/2015

Bird Count 2- 10/2015

Bird Count 3- 12/2015

Bird Count 4- 03/2016

Stream Survey- 04/2016

Camera Trapping Concludes- 04/2016

Educational Placards Installed and Project Concludes- 05/2016

## **8) Project Budget & Justification**

All personnel will be NCSU graduate students and undergraduate volunteers. Personnel will be needed for periodic camera trap set up/take down, photo analysis, four bird point counts, and one Rocky Branch clean up/survey day. The camera traps budgeted are a reliable, but affordable, model and will be chained up due to their use in an urban area. The field scale will be used to weigh trash collected in Rocky Branch creek and is a standard field model. Pizza and beverages will be served at each event to increase volunteer turn out and to ensure that everyone's having fun. Plastic plaques will be installed at several high traffic locations to promote environmental awareness. The plaques are customizable and designed to last outside. Events will be promoted via fliers, listserv e-mails and announcements at group meetings.

If needed, the budget can be reduced by up to 50% and still allow for a successful project. If the budget is reduced, the number of events and equipment used will be reduced proportionately. I must stress one more time that this is an extremely low cost project that has a huge potential impact on environmental awareness and education. The NCSU Bioblitz will provide a unique environment for the school's graduate students to share their expertise and enthusiasm for the environment with the rest of the student body. However, to get this project off of the ground, we need to overcome a small funding threshold