ACS-SDE Internship Proposal

Clark's Run Watershed Research and Community Outreach

Introduction

This internship is designed as a partnership between Centre College and the local community of Danville, Kentucky. The research and education achieved during the completion of this internship project will ultimately produce benefits to the local environment, as well as the quality of life for both Centre College students and community residents. Although Centre College faculty and staff have worked on related initiatives in the Clark's Run watershed, the college has not previously received funding for a related student internship.

Project Description

This environmental intern will engage in environmental assessment and community outreach related to the local waterway of Clark's Run. This stream is wholly located within Boyle County, Kentucky and flows directly through the city of Danville. Over the past 15 years, there have been various efforts to improve the water quality of the stream and make it a more attractive focal point for the community.

In 2005, Centre faculty and students worked with community residents to form a grassroots organization to more actively address these issues. This organization, called CREEC, has ambitious goals, but its members have limited time to devote to some of its critical, initial activities.

Environmental Assessment:
This intern will assist Centre faculty in conducting an environmental assessment of the creek and its riparian (streamside) habitat using GIS technology. This assessment will include a semi-quantitative plant species inventory of both native and invasive species along the entire length of this 12-mile stream. The results of this inventory will provide assistance in detecting areas where additional vegetation is needed or where non-native, invasive plants should be removed.

The student will also identify areas where future stream restoration efforts should be targeted, including areas of significant streambank erosion and other areas detrimentally impacted by human activities. CREEC and other local partners will then work toward the further development and funding of appropriate stream restoration projects.

The selected intern will provide assistance in evaluating segments of the creek for extension of an existing creekside pathway. In the 1990's, a one-mile trail was created along Clark's Run, and CREEC members hope to extend this trail to make it more useful as an educational and recreational resource for the community. CREEC members have

begun this process by identifying three potential streamside segments for extending the trail and acquiring landowner maps and contact information. These and other segments will be assessed by the student intern for feasibility of path construction, visual appeal, ease of access, and other related criteria. In addition, areas along the creek may be noted as ideal for future preservation as passive parklands or outdoor classrooms.

Community Outreach:
In order to better inform the public about this local, natural resource and ways to protect and preserve it, the selected intern will assist CREEC with informational outreach to landowners adjacent to Clark's Run. An informational mailing to the landowners will include educational resources describing practices that will protect and enhance the water quality and habitat of the creek. The mailing will also encourage the landowner's participation in CREEC activities.

In addition, a CREEC website and brochure have been developed to promote the group's activities and provide educational information to local residents. Both of these resources are in need of updates and improvements. The intern will also assist with revisions to these outreach tools in an effort to make them more attractive, current and informative.

Budget

We are requesting a student stipend of $1,500/8 weeks. Materials (i.e. GIS equipment) required for completion of this internship will be provided by Centre College Biology and Chemistry Departments.

Intern Supervisor

Rose-Marie Roessler, Visiting Instructor of Biology/Biology Lab Coordinator, Centre College, Danville, Kentucky, 859-238-5311.
Ms Roessler received her BS in biology from University of Kentucky in 1975 and her MS degree in aquatic biology in 2005. She is vice-president of CREEC, a member of the steering committee of Kentucky River Watershed Watch and has involved Centre College students in water quality research on Clark's Run.

Background and Justification

Clark's Run is a fourth order perennial stream, that flows through agricultural portions of Boyle County and the city of Danville and flows directly into Herrington Lake, which is Danville's source of drinking water and a regional recreation destination.

By the middle of the twentieth century, Clark Run had suffered a fate similar to that of many streams. Adjacent landowners dumped construction and other debris at several locations. Unregulated agricultural and domestic sewage entered the stream, increasing nutrient levels. And most significantly, two poorly designed and supervised public landfills allowed trash and toxic leachate to enter the stream.

In the 1970's and 1980's, as public and governmental attention was focused on environmental issues, the landfills were closed and capped. Municipal sewerage systems were extended, dramatically reducing domestic sewage insults. Community activists and the local solid waste department cooperated in cleaning some of the worst areas of trash and debris. The Danville wastewater treatment facility was dramatically improved, significantly reducing nutrient loads along the lower section of the stream.

In 1993, the city developed a Clark's Run Corridor and Trails Plan for creating a recreational and educational trail along the stream. In accordance with this plan, a paved trail of approximately 1 mile in length has been created along a section of the stream as it flows through downtown Danville.

Studies of the plant and animal life in Clark's Run have been conducted by Professors Christine Barton (1998) and more extensively by Rose-Marie Roessler (2004). Those data serve as a baseline for the improvements we pursue.

In 2005, after several years of informal activities, the Clark's Run Environmental and Educational Corporation (CREEC) was formed. This organization is dedicated to protecting and enhancing Clark's Run as a community resource for Boyle County.

In a very positive coincidence, the Dix River watershed, of which Clark's Run is the second largest flow component, was selected by the Kentucky Division of Water in 2005 for intense study and remediation. Approximately, $300,000 will be directed to analysis of water quality and development and implementation of remediation programs.

Even with these advances, Clark's Run has continually been rated as "impaired (not supporting aquatic life)" by the Kentucky Division of Water since 1987.

Clark's Run, with its historic, economic, environmental, and recreational dimensions has great potential to become an appealing resource for the Danville and Boyle County community. It is hoped that the collaborative efforts of this student intern and the local CREEC organization will serve as a model for other communities. Several levels of participation – local government, local community activists, scientific researchers, regional land use and community planners—will all be involved in this project.

Evaluation and Dissemination

A complete report will be prepared and submitted to ACS SDE within 60 days of the completion of the project. This report will form the basis from which oral presentations will be prepared for the 2006 Kentucky Academy of Sciences meeting and the ACS Environmental Workshop. Additionally, the student intern will present reports to the Boyle County Fiscal Court and the Danville City Commission during fall 2006. Finally, the improved web-site and brochure for CREEC will be concrete outcomes of this project that will enhance the efforts of this organization to extend environmental justice through community partnership.