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## The Black Belt Environmental Science and Arts Program

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## **The Black Belt Environmental Science and Arts Program**

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**Abstract:** The goal of the Black Belt Environmental Science and Arts Program (BBSEAP) is to enhance classroom instruction in the environmental sciences for students in grades 5-8 of selected counties in Alabama's Black Belt region. BBSEAP differs from traditional outreach activities in that public school students come to off-campus, outdoor sites for instruction. The Auburn University Environmental Institute (AUEI) administers the program with support from local Alabama Cooperative Extension System (ACES) representatives. Since 2005, more than 2,000 students have participated in the program. Funding for BBSEAP comes from government and corporate grants.

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### **Introduction**

The Black Belt is a crescent-shaped area of very fertile black soil extending from Texas to Maryland. Beginning in the 1830s, Alabama's Black Belt was the South's most prosperous cotton-producing region and its greatest source of wealth. The latter half of the 20th century saw the decline of cotton farming. Unemployment and poverty continued to plague the region despite the introduction of livestock and diversified farming. The region is one of the state's poorest and one of its most historic. Many of the Civil Rights Movement's iconic events occurred in this region. Among them were the Montgomery Bus Boycott of 1955-1956 and the Selma to Montgomery Voting Rights March of 1965 (Jeffries, 2008).

According to the United States Census (2000), more than 37% of Alabama's Black Belt children under the age of 18 live in poverty. That means that more than one-third of the state's children are subject to insufficient healthcare, sub-standard education, and all the other problems poverty brings. During the 2006-2007 school year, 51.2% of Alabama's public school students qualified for free or reduced lunches; 82.4% of the students living in Black Belt counties met the requirements. In four of these counties, more than 90% of the students met the requirements. Eligibility for the free and reduced lunch program is considered to be an indicator of poverty. Economic and social factors limit the resources and opportunities for students to study environmental issues beyond the basics (Alabama State Department of Education, 2008).

### **Program Development and Budget Information**

In early 2003, Auburn University Environmental Institute (AUEI) personnel invited faculty and staff from various campus units (Colleges of Agriculture, Science and Mathematics, Veterinary Medicine, the Center

for Arts and Humanities, and the University Libraries) to join them in developing a program with the goal of increasing the appreciation, knowledge, and conservation of nature resources among the teachers and students of the Black Belt region. The Black Belt Environmental Science and Arts Program (BBESAP) is the result of this collaboration. It targets students (grades 5-8) and provides them with hands-on educational opportunities and career development exposure in non-traditional settings. The off-campus teaching sites include an Agriculture Extension Service Research Center, a nature center, and two parks. Usually, eight field days with three or four modules are offered each semester.

Auburn's Office of University Outreach provided the grant funding for the first year of the program (2004-2005). Grants from various state agencies and corporate partners allow the continuation of the program. Grant funds and in-kind services cover supplies and refreshments (an average of \$250 per day) and honoraria for module leaders. Two private, professional environmental educators are paid \$225 per day to lead modules. Of the remaining adults involved in the modules, two are Environmental Institute staff members; the faculty members and graduate students who are affiliated with the university provide in-kind services. Transportation costs include \$200 per field day for a school bus to transport children to the site and \$400 for vehicle rental or mileage reimbursement. Some of the grants allowed the purchase and donation of materials to schools. The items donated to the schools include display cases, microscopes and books.

BBSEAP incurs no cost for the use of the field day sites. Either Auburn University owns the facilities, owning agencies waive fees, or owners donate the use of private facilities. Among the non-university sites are Roland Cooper State Park, the Wehle Nature Center, and the Lawler Timber TREASURE Forest. Among the other agencies providing volunteers are the Alabama Department of Conservation and Natural Resources, the U. S. Geological Survey, and the Alabama Forestry Commission. Typically, two adults lead each module; AUEI staff members serve as event coordinators and assist with modules as needed.

The planning process for the activities begins at least 3-4 months prior to the event, when AUEI staff contacts schools and county Extension agents to determine the actual dates. Coordination around school testing periods, holidays, and other school-sponsored events is critical. Once the dates are determined, potential module leaders are contacted. In some cases, ongoing research projects at Auburn University may have an outreach component that works well with the field day modules. Professors are eager to engage their students in the field day modules because it gives the students a broader perspective on the impact their work can have on a community.

After the module topics are established, classroom teachers are informed of the topics. This allows them to preview the topics with their students. AUEI staff and module leaders assemble handouts and follow-up activities related to each module. Two to 3 weeks prior to each event, AUEI contacts each school to insure that the school has arranged for bus transportation and to remind the school to provide lunches for the students. (Stone, 2005, 2007, 2008).

## Science Modules

AUEI staff work with the classroom teachers to make sure that the modules are appropriate for each grade level. At the start of each field day, the students are divided into groups of equal numbers (usually three groups of eight to 12 students). Students rotate through each module and participate in hands-on experiments and demonstrations. The science modules included:

- Tree identification trail walks,
- Comparisons of reptiles and amphibians using living specimens,

- Bird study,
- Raptor study,
- Global positioning systems study,
- Bat ecology,
- Pond ecology,
- Soil analysis,
- Hydrology characteristics,
- Water safety, water conservation,
- Herb gardening, and
- Forensic anthropology.

## **Art/Language Arts Modules**

Each field day includes an art or language arts module. The module's purpose is to enhance the day's environmental science activities. It isn't necessary that this module leader have subject expertise; creativity is more important. For example, on the days that the science modules focus on rocks and minerals, students painted flat rocks to use as paperweights; they created bath salts using Epsom salts, which they scented with essential oils before filling jars that they decorated. Students from two schools created water conservation themed quilts that their school administrators displayed. Other art modules included:

- Making clay pots,
- Making bird feeders from recycled plastic bottles,
- Creating abstract images of nature with water colors,
- Creating nature journals,

- Writing haiku poetry,
- Learning to tell stories with a story teller, and
- Nature photography.

## Evaluations

At the conclusion of each field day, students, teachers and module leaders complete a short survey about the event and offer suggestions for improvement. Module leaders receive a summary of the evaluation comments so that they can assess their modules and make changes. Among the changes made as a result of the survey responses are allotting more time for the modules and creating additional handouts such as word search puzzles. The teachers wanted more follow-up activities for the classroom, which they now receive along with grade appropriate reading lists.

Classroom teachers indicated that they appreciate that all modules tie directly to the state curriculum for each grade level. They noted that the modules helped build teamwork skills and fostered critical thinking. They particularly appreciated that the students had a chance to use up-to-date scientific equipment such as the GPS units (Stone, 2005, 2007, 2008).

## Extension Involvement

Alabama Cooperative Extension System (ACES) representatives receive copies of grant applications for review and comments. AUEI personnel regularly update ACES representatives via phone and email. They read and review interim and final reports. Most important, as schedules permit, ACES representatives participate in the field days and coordinate with the module leaders. Initially, most choose to observe the modules and watch the students, but it isn't long before they decide to assist module leaders or work with individual students. None has volunteered to teach a module, but they all receive an invitation to do so.

## Future Plans

The continuation of BBESAP in its current configuration depends upon the continuation of funding. As long as funds continue to be available, the program will expand by adding schools within the counties currently served or by adding more Black Belt counties.

The program is repeatable and easily adaptable by pursuing environmental education grants such as the Alabama Resource Conservation and Development Grants, the EPA's Environmental Education Grants, the Sierra Club Building Bridges to the Great Outdoor Grant, and the Target Field Trip Grants Program. Local parks and nature centers may be able to host the events at little or no cost. By networking with local colleges and universities, government agencies and Extension offices, a potential pool of module leaders can be developed.

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