

Campus Community Partnership Grant  
Associated Colleges of the South Environmental Initiative

Frogs, Lizards, and Snakes—OH MY!:  
Development of Herpetological Curriculum for Elementary Classrooms

Peggy McKay and Dr. Michael Dorcas  
Davidson College  
Davidson, NC 28035-7118

Introduction:

The Davidson College Herpetology Laboratory has been conducting outreach programs, including school-talks, for a number of years. Over 2,700 people have attended our events and presentations in the last year. We would like to expand the Davidson College Herpetology outreach program with a two-part project by 1) the inclusion of more interactive activities in our talks and 2) initiating an outdoor amphibian monitoring project with Davidson Elementary School. The outdoor monitoring program will further students' knowledge about environmental issues, especially those issues associated with amphibian declines and will facilitate the growth of students' love of learning and care for the environment. Additionally, they will gain hands-on research experience. More interactive school talks (which we will give to many local schools) will provide indoor, yet experiential learning, easy to incorporate into any classroom. Both parts of the program will be evaluated for success and improvement. Accessible models of each will be created and made available to teachers state-wide. A Campus-Community Partnership Grant would allow implementation of this project by providing funding for supplies, transportation costs, and conference expenses.

Project Description:

We will partner with Davidson Elementary School to create a monitoring station in the forest behind their school. We will use simple materials such as coverboards, funnel traps, or PVC pipes which incur relatively low start-up costs and little to no maintenance. The coverboards and PVC pipes are passive shelters for the several species of small amphibians and reptiles: the animals can come and go as they choose and are ideal for elementary school studies because the animals are not harmed if the shelters are not checked (Pittman 2006). Initially, two grade levels will be included in the projects and the details are being worked out in conjunction with teachers at Davidson Elementary. Younger grade levels will take raw data, while upper grade levels will help explain the material to younger students and assist them in data collection. The older students will complete some assessment of their research such as entering data into a computer data-base and examining yearly and seasonal variation. The project will provide a starting point for in-class discussion on the biology and conservation of amphibians and reptiles as well as basic methods of scientific research. Because the design of the monitoring program is fairly simple, it can be paired with course-material appropriate to the age of the students. For example, the older students may discuss current topics such as amphibian decline and apply the scientific method to their research. In-class learning for younger students might concentrate on the seasonal changes in amphibian lifestyle. In conjunction with teachers at Davidson Elementary, we will

develop lesson plans to incorporate the field experience with classroom learning. These lesson plans will be collected, illustrated, and posted online. To evaluate program effectiveness, students will be given a quiz before and after participation in the research to test growth of their knowledge. Teachers will also be given a survey to evaluate the program.

We have several ideas for interactive activities to punctuate our presentations. Because interactive activities appeal to multiple types of learners, they help all students to retain information. For example, one game we plan to create involves children attaching colorful, annotated images of each stage of a frog or salamander's life to a hula-hoop. Thus visual, auditory, and kinetic aspects are included in the learning. The hula-hoop also connects the concept of the cycle of life to an actual circle so that the students can visualize the connection. Fun activities such as these will increase enthusiasm for the subject matter as well as for learning in general. Instructional models of these activities will be posted online and presented at teacher's conferences.

### **Budget**

Supplies redo with tax included by line

|   |        |
|---|--------|
| • Amphibian monitoring program:                         |        |
| ○ PVC pipe (\$4.08 for 1.5"x10' x 17)                   | 70.00  |
| ○ Coverboards (13x \$15.77 for 4x8)                     | 205.00 |
| ○ Metric Rain gauge                                     | 29.00  |
| ○ Outdoor thermometer(max/min)                          | 36.00  |
| ○ Fence post (to hold rain gauge and thermometer)       | 20.00  |
| ○ Office supplies and printing costs                    | 16.00  |
| ○ Subtotal including tax                                | 376.00 |
| • Interactive activities                                |        |
| ○ Hula-hoop (cycle-of-life activity)                    | 15.00  |
| ○ Giant flash cards                                     | 14.00  |
| ○ Children's books                                      | 55.00  |
| ○ Stuffed animals (toss around for herp. trivia)        | 40.00  |
| ○ Subtotal:   | 124.00 |
| • Travel  |        |
| 20 trips, 10 miles each way (\$0.485 per mi.)           | 194.00 |
| • Conferences (2)                                       | 300.00 |
| • (\$150 each; Davidson College will provide remainder) |        |
| Total:  | 994.00 |

### **Matching funds**

The Davidson Department of Biology covers care-costs for all outreach animals and provides server space for outreach programs, including space for curriculum

available to any educator or interested citizen. The vice-president's office provides up to \$400 dollars per year per student to attend conferences where they are presenting. Davidson College provides \$7.00/hour for the student outreach-coordinator of the Davidson Herpetology Laboratory, currently Peggy McKay.

**Literature Cited**

Pittman, Shannon E. and Michael Dorcas. 2006. Catawba River corridor coverboard program: a citizen science approach to amphibian and reptile inventory. *Journal of North Carolina Academy of Science*. 122:142-151.