

## **TIE Environmental Education Grant Application**

### **New Seminar: Advanced Topics in Conservation Biology**

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#### **Objectives and Significance**

I teach an upper level course in conservation biology (Bio 144), and my proposed course addition would allow advanced training for students interested in the topic. There is stated interest among Environmental Studies Majors for more courses in conservation biology, and this would provide that training. This course will be taught for the first time in spring 2004, and in alternating years after that. *This course has already been approved by the Department of Biology Faculty.* Next spring the focus of the course will be bird conservation biology.

I am considering using a new book published by the IUCN (The World Conservation Union) entitled "Conserving Bird Biodiversity". This will be supplemented by readings from the primary literature. Since the primary focus of my research for the past 25 years has been bird conservation biology, I have a tremendous collection of books and primary literature to supplement the readings. In addition, I have worked with Tisch Library over the past 6 years to increase our holdings in books and primary literature on bird conservation.

The course will be supplemented by field trips. One field trip will be to the Harvard Museum of Natural History, where I know the Curator of Birds, and he has agreed to host a class there (behind the scenes, not in the museum proper). Last semester he hosted our Bio 91 class, and it was more successful than I anticipated. We will also make 3 field trips to observe birds in the wild, and specific conservation efforts. These field trips will be to local National Wildlife Refuges, including Plum Island (an LTER site for NSF) and Audubon sites.

It is my experience that students are incredibly excited by the opportunity to see the real applications outside the classroom of what is being discussed in class. I anticipate that these field experiences will make the course memorable and effective, creating a feel for conservation at a personal level.

I am requesting funding from TIE to purchase field equipment for the course. I need approximately \$6000 for field equipment – I am requesting half of this money from TIE, and will be requesting the other half from the Biology Department. Funds would be used to purchase 13 pairs of binoculars, 2 spotting scopes, and 2 tripods. The Department of Biology would pay for van rentals.

In subsequent years the topics will change, including topics such as landscape ecology, dynamics and conservation of small populations, and restoration ecology. Regardless of the topic, there will be field trips that will use this equipment. The equipment would be available for other field related

conservation courses, such as Bio 181 (Ecology and conservation of tropical forests), which has a field trip over semester break to Costa Rica. Equipment will also be used by undergraduates in the department with a need for summer research. I am also considering starting an informal bird-watching group for undergraduates to get them involved in the outdoors. I would anticipate environmental studies undergraduates to be particularly interested, so I would target them through environmental studies classes.

### **Projected Audience**

The course would be open to all students at Tufts University, although I anticipate mostly undergraduate participation. The prerequisite for the course would be one of the following: Bio 71, Bio 144, or Bio 195E, or consent. Because it is a seminar, class size will be limited to 12 students.

### **Anticipated Effect on Beneficiaries**

It is my experience, mostly from my own experiences teaching field biology (Bio 51), and partly from doing research in the field with undergraduate and graduate students, that being outdoors in a learning situation creates a much greater impression than does reading about real world events. As useful as a course in conservation biology is, there is little opportunity because of class size (40-70 students) to see the applications of the material being taught. This course would allow students to delve more deeply into a narrow portion of conservation biology, and to become engaged in specific conservation efforts. I do not know how to determine the long-term benefits to the students of a course like this, but I will ascertain the short-term perceived benefits during an end-of-class evaluation where I will ask them to evaluate the different portions of the course, including the field experiences.

### **Relevance to TIE's mission of facilitating inter-School and interdepartmental initiatives**

This course is open to all students with sufficient pre-requisite classes or experiences. In the past, my conservation biology course has been taken by undergraduates and graduate students in Arts and Sciences, as well as by graduate students from Fletcher, UEPP, and the Vet School. I would anticipate this course having a similar mix of students. In addition, I envision interactions with the Center for Conservation Medicine during the teaching of this course, although I have not yet contacted them about this. (Since I teach in their Conservation Medicine course, and Mark Pokras has lecture in my Conservation Biology course, however, I anticipate successful interactions.)

**Outline of topics to be covered and preliminary reading list Anticipated level of enrollment and departments served**

- 1) Biodiversity of birds
- 2) Why conserve bird diversity?
- 3) Mapping and monitoring bird populations
- 4) Priority setting in species conservation
- 5) Selecting sites for conservation
- 6) Critically endangered bird populations and their management
- 7) Diagnosing causes of population declines and selecting remedial actions
- 8) Outside the reserve: pandemic threats to bird biodiversity
- 9) Predicting the impact of environmental change
- 10) Fragmentation, habitat loss and landscape management
- 11) The interface between research, education and training
- 12) Conservation policies and programs affecting birds

Norris, K., and D. J. Pain. 2002. *Conserving Bird Biodiversity: General Principles and their Application*. Cambridge Univ. Press

Selected readings from: *Conservation Biology*, *Biological Conservation*, *Journal of Applied Ecology*, *Ecological Applications*, *Journal of Wildlife Management*

Enrollment: 12; anticipate students from Arts and Sciences, Fletcher, UEPP, Vet School