

## **Graduate Education with the Penn Ecology and Evolution Group**

Thank for your interest in the Mongolian project and the PhD program at Penn. In the fall of 2007, the ecology and evolution group in the Department of Biology received a five-year program grant for climate change research and education in Mongolia through the NSF PIRE Program. Our project examines the ecological, evolutionary and societal consequences of increased grazing pressures and rising temperatures in the Lake Hövsgöl region of Mongolia where the effects of global warming are already being felt. The project integrates monitoring, experiments and modeling because of the complex interactions between climate change, land use by and movements of nomadic herders, and differences in ecosystem processes in taiga forests and steppe grasslands. Monitoring includes meteorological conditions, permafrost depth, hydrological cycles, ecosystem processes, and activities of nomad families and their livestock. Controlled experiments in the field examine how temperature increases and grazing affect plant community composition, phenology, productivity, litter decomposition and soil respiration. The project also addresses long-term responses of the forest ecosystem by examining carbon and oxygen isotope ratios of tree rings because long-term alteration of evaporative flux could affect regional precipitation and ecosystem sustainability. Modeling efforts emphasize the integration of results that can inform the development of new research questions, governmental policy and sustainable practices in the context of climate change. It is also our hope that this project will provide a template for conducting international collaborative research and educational efforts in other regions facing rapid shifts in environmental conditions.

Graduate students associated with the project will be eligible for support through a combination of PIRE fellowship and teaching assistantship funds, and will conduct field-based Ph.D. research in Mongolia with Penn faculty and members of the collaborating institutions. Here is an overview of the ecology and evolution group at Penn, graduate education, and what you can expect to happen if you apply.

Most of the people involved are members of the ecology and evolution group, which is a highly interactive group within the department. We do admissions, qualifying exams, etc. separate from the cell/molecular side, although the department is well-integrated. Because ecology and evolution is a small group, we look for students who can bring something to the group. A fair amount of graduate education occurs in seminars and the more that people (students) speak up, the better. The faculty include Brenda Casper (plant ecology), Dustin Brisson (disease ecology), Art Dunham (modeling), Dan Janzen (tropical ecology), Dorothy Cheney (primate behavior), Paul Schmidt (evolutionary ecology of marine organisms and *Drosophila*), Paul Sniegowski (evolutionary ecology of microbes), Brett Helliker (ecosystems) and Warren Ewens (theoretical population genetics and genomics, although Warren is now retired, he is still active).

Typically, an ecology and evolution student takes five to six years to complete the Ph.D. Ecology and

evolution students take two years of course work and must pass a comprehensive exam (in the second year) and a prelim exam (late in the second year or early in the third year). The department currently promises five years of support, which provides a stipend of \$25K per year, tuition waiver, and health insurance. Philadelphia is an affordable city and it is possible to live comfortably on the stipend. Support comes from a combination of teaching assistantship, training grant support, and fellowship support from individual faculty research grants; the latter two sources typically provide support beyond the fifth year. Students are also encouraged to apply for outside support sources such as NSF predoctoral fellowships and EPA STAR fellowships. Ecology and evolution faculty play an active role in assisting students with these applications, and the group has been quite successful in obtaining such outside fellowships.

For the 2009-2010 academic year, completed applications must be received no later than December 15, 2008. Before the New Year, the ecology and evolution group sits down and decides whom to interview. The number of interviewees depends on the number of available slots and the quality of the applicant pool. We usually get 40-60 applications, and we usually interview 6-12 people. The dept runs the interviews over a weekend, usually in early February. The dept also covers the cost of bringing in the interviewees. International interviews are completed via phone. We usually try to make the first set of offers within a week or so of the interview day. We try to balance offers and admits across the faculty, but we are all very committed to taking the very best students regardless of their interests and "openings" in particular labs. If you are in the first group of offers, you would hear quite soon. However, some people choose to go elsewhere, sometimes we get more positions, and so additional offers are made throughout the spring. People with offers have until mid-April to accept or not, so once in awhile we will make an offer as late as April. Website for grad applications: <http://www.bio.upenn.edu/programs/graduate/>

I hope that this provides a good summary of our project and the ecology and evolution group at Penn.