Doctoral Research Assistantship in: Pollinator Ecosystem Services and Social-Ecological Systems Dynamics (1 position)

The University of Maine has initiated a multi-disciplinary five-year research project on the role of native pollinators in the wild blueberry agroecosystem. This project is part of a larger Northeast funded pollination project involving the Connecticut Agricultural Experiment Station, Cornell University, University of Massachusetts, and the University of Tennessee. In this larger Northeast "umbrella" project, cranberries, blueberries, apples, and squash are focal the agroecosystems. Pollination ecology, bee disease ecology, landscape ecology, botany, economics, anthropology, pesticide chemistry, and insect pest management are the disciplines represented at the University of Maine. Pollination is the most important ecological process in production of fruits and nuts. The ecosystem service of crop pollination that the native bee community performs is a natural resource and one that some farmers protect and enhance through conservation practices. What cultural, sociological, economic, and ecological aspects of the important agroecosystems in Maine, and the Northeast in general, affect the perspectives of native bees and actions that growers may take?

This assistantship in pollinator ecosystem services, human cooperation and social-ecological systems dynamics is designed for students interested in helping develop our quantitative understanding the dynamics of human behavior and culture as it pertains to the pollination services by native bees. The graduate student will work primarily with Dr. Waring (timwaring.wordpress.com) to develop new theory and conceptual models of

human-environment interaction, and help to empirically test that theory and/or develop and explore precise models of social-ecological systems. In addition, the graduate student will work with other members of the pollinator project, especially Dr. Frank Drummond (http://sbe.umaine.edu/people/faculty/), the project leader and pollination ecologist. Some potential avenues of research in this project are: 1) testing current social-ecological systems theory using freshly collected empirical data or extant datasets on native bees, pollination, and farmer responses, 2) developing mathematical and/or computer models of coupled human-natural systems, exploring their implications and requirements, and ultimately testing their predictions, and 3) using experimental research on human cooperation within social-ecological systems, especially cooperative games methods. Each focus area is described below:

1) The graduate student will work to synthesize current social-ecological systems theory from the primary literature, gather data to test critical aspects of socio-ecological systems theory such through some combination of behavioral experiments (see area 3, below), surveys, ecological field work or by finding extant datasets.
2) The graduate student will work with Dr. Waring and other faculty to develop innovative mathematical or computer models of social-ecological systems, explore different formulations of the model system, and test its properties with mathematical stability analysis or sensitivity analysis, or related means.
3) The graduate student will survey the available experimental methods for measuring ecologically-relevant aspects of human behavior, especially cooperation, help devise suitable behavioral experiment(s) to test current social-ecological systems theory, and develop those experiments for implementation on the mobile online data collection system.

Qualifications:
A degree (preference given to individuals with an MS) in ecology or environmental science, environmental and resource economics, ecological anthropology, social psychology or a related field; excellent GPA and GRE scores; strong quantitative and computational skills; excellent communication and professionalism, demonstrated independence, and the ability to work respectfully and collaboratively in teams. Support includes a fellowship of $22-25,000/yr for four years, a tuition waiver, subsidy for health insurance.

Application Procedures:
Please submit the following information to timothy.waring@maine.edu or frank.drummond@umit.maine.edu with subject line "Pollinator Social-Ecological Systems Dynamics Assistantship":

1. A letter detailing your interest in this position specifically,
2. A CV or resume,
3. Scanned GRE scores and transcripts,
4. Names, phone numbers, and email addresses of three references familiar with your academic and research history.

Review of materials will begin immediately and continue until the position is filled. Intended matriculation: Fall, 2014.