

Are you a



Based on a competitive application process, each year the HERO program selects a diverse group of undergraduate students from a variety of programs across the country to be HERO Fellows. HERO values students who demonstrate energetic and inquisitive minds, and who are fearless when charting new intellectual territory. Previous course work in human or environmental geography—such as urban and population studies, GIS, landscape ecology, land-use planning, statistics, and remote sensing—is helpful but not required. Evidence of outstanding scholarly and professional potential is essential, while there is no minimum GPA. Because HERO is supported with NSF funds, you must be a US citizen or permanent resident of the United States or its possessions to participate, and you must take undergraduate classes at your institution in fall 2012. Women and minorities are encouraged to apply.

**TO APPLY:**

Visit [hero.clarku.edu](http://hero.clarku.edu) for an online application and instructions. Applications are due to HERO Admissions at [heroadmissions@clarku.edu](mailto:heroadmissions@clarku.edu) no later than **Monday, March 1, 2012.**



HERO  
HUMAN-ENVIRONMENT REGIONAL OBSERVATORY  
CLARK UNIVERSITY  
WORCESTER, MA 01610-1477

CLARK UNIVERSITY

Human-Environment  
Regional Observatory



**UNDERGRADUATE  
RESEARCH PROGRAM**

— in Land Change Vulnerability and sense of place in New England



**SUMMER 2012**  
**June 4 - July 27**  
[hero.clarku.edu](http://hero.clarku.edu)

# UNDERGRADUATE RESEARCH PROGRAM



## Human-Environment Regional Observatory

CLARK UNIVERSITY • WORCESTER, MASSACHUSETTS

*The Human-Environment Regional Observatory (HERO), located at Clark University in Worcester, Massachusetts offers an exciting opportunity for approximately 10 undergraduate students from institutions across the country to collaborate with experts conducting research at Clark University, City/State Parks on the effects of the infestation and eradication of Asian Longhorned Beetle in Worcester County in the summer of 2012.*

**PROGRAM DESCRIPTION:** This eight-week curriculum is sponsored by the U.S. National Science Foundation (NSF) through its Research Experiences for Undergraduates Site (REU Site) Fellowship program. HERO Fellows will analyze the causes and consequences of the Asian longhorned beetle (*Anoplophora glabripennis*), an invasive wood-boring insect that is a severe threat to both urban and ex-urban forests in New England. The Asian longhorned beetle (ALB) infestation of central Massachusetts poses a greater stress on ecosystem services, as well as response groups ranging from federal/state resource managers to local residents, than any previous ALB outbreak in other localities in the U.S.

Because of the predominance of favorable host-species and the finely interconnected nature of urban-rural forests as well as the presence of a competitive interaction at the federal-stakeholder-neighborhood level surrounding how the infestation should be treated and understood. Unanswered questions abound regarding the social and ecological impacts of ALB. Each Fellow will be paired with 1 or more Clark faculty mentors and other researchers in one of two research streams below. Fellows will learn how to use and engage with several research methodologies, including landscape metrics, GIS, remote sensing, geostatistical modeling, and qualitative methods such as interviews and focus groups.

### RESEARCH AREAS:

- **Beetle Impact Assessment Stream** This stream will produce validated measures of spatial and temporal changes in tree cover composition in the ALB-infestation area. This stream will also evaluate impacts of ALB on forest diversity and cover at present and in the future.

- **The Place-Making Assessment Stream** This stream will assess management and policymaking responses to community concerns in response to ALB impacts, involving stakeholders throughout the analysis. This stream will also evaluate ALB impacts by socio-economic status, race/ethnicity and management/governance regime to explore how a more engaged stakeholder group would respond to policy as a result of the ALB experience.

The research will produce salient results to provide resources for practitioners and urban-rural communities experiencing changes associated with loss of urban forest; publications will be produced for both scholarly and stakeholder (e.g., UDSA-APHIS, federal/state/municipal/community groups/elected officials) audiences. Undergraduate students will be integrally involved in the implementation of established research design, and learning outcomes will be assessed using a proven methodology within HERO-MA.

**Compensation:** HERO Fellows are paid \$4,500 for the eight weeks of full-time research, plus a substantial allowance for room and board, transportation to Worcester, Mass will be at the student's expense. Six students will be chosen to attend the April 2013 Association of American Geographers scholarly meeting in Los Angeles to present your research to an audience of scholars and professionals.



HERO is a program offering undergraduates hands-on research experiences. The program has received competitive funding from various prestigious sources, including the National Science Foundation, National Marine Fisheries Service, Thoreau Foundation, and O'Connor '78 Fund. The research conducted by HERO Fellows has often resulted in scholarly publications, presentations at scientific conferences and professional settings across the USA, and awards & honors.

*“HERO is a program offering undergraduates hands-on research experiences. For the faculty, the most gratifying part of the program is watching the students grow, intellectually and personally, so quickly. They often enter with little idea about the process of research, and with some fear about public speaking. By the time the Fellows leave HERO – especially those who continue working with faculty during the academic year – they are often selected, and eager, to give formal scientific presentations in front of other professionals.”*

—Colin Polsky, Ph.D., Clark University  
Geography Associate Professor

*“Seeing HERO research actually used by a grassroots environmental group really piqued my interest in getting involved. When I heard what the program was all about and how challenging it was, I knew I wanted to be part of it. Today, I can honestly say that HERO played a central role in preparing me with the necessary skills for graduate work.”*

—HERO alumnus and current Yale University  
PhD student Troy Hill

*“HERO gave me research experience as an undergraduate, including publishing and presenting at professional conferences, and allowed me to work as closely with faculty as an undergraduate, as I do now as a doctoral candidate. This gave me a significant advantage in graduate school. HERO provided me with many of the skills that I use every day; I certainly would not be where I am today without it.”*

—HERO alumna and current University of Texas, Austin  
BA student Cait McCann