

Grad student's forest research featured in *Nature*

By Laura L. Hunt

School of Public Health receives teen pregnancy research funding

By Kathy Quirk

UWM's newly established School of Public Health is receiving \$285,000 from the Centers for Disease Control (CDC), primarily for two projects related to the prevention of teen pregnancy.

The money was appropriated last year as part of the 2009-10 CDC budget. The School of Public Health, which works in partnership with the Milwaukee Health Department and other schools and colleges at the university, was formally approved by the state Legislature in the summer of 2009.

The first project, in collaboration with the College of Nursing (CON), will continue ongoing work in teen pregnancy prevention through the Milwaukee Healthy Teen Initiative (MHTI). Through MHTI, the college is working with local social service agencies to develop effective educational materials for teens and their families. The project, led by Sally Lundeen, dean of the College of Nursing, and Bev Zabler, an advanced practice nurse and doctoral candidate in nursing, works with social service agencies primarily serving the African American and Hmong communities.

"We have strong evidence that community-based interventions led by nurses working in collaboration with social service providers can reduce adolescent pregnancy and increase the well-being of young, at-risk families while delaying second pregnancies," says Lundeen. "The MHTI approach helps span the gap between traditional medical care and primary care and prevention by integrating such care into the daily lives of community residents in familiar settings."

Project Health, the second research effort funded through the CDC appropriation, is new and will focus on combating teen pregnancy through teaching and learning in Milwaukee Public Schools (MPS). This project is led by School of Public Health faculty members Paul Florsheim, a psychologist specializing in at-risk adolescents, and Amy Harley, an assistant professor with expertise in health education, health messaging and evaluation of health behaviors.

The researchers will target teens who are at risk for dropping out of school, helping them learn about the issues associated with early pregnancy through small group projects. Renato Umali, a film faculty member, will teach a service learning class to prepare UWM film and education students to provide technical and educational support to MPS teachers leading the Project Health classes.

"These projects are both critical in helping Milwaukee combat high rates of teen pregnancy and childbirth," says Stephen Percy, acting dean of the School of Public Health. "These early pregnancies involve increased health risks for both children and mothers. In addition, pregnant teens and too-young parents often drop out of school, which increases the risk of a lifetime of poverty. These are the kinds of critical issues we intend to address in the School of Public Health."

The CDC funding will also help provide additional public health electronic resources such as databases, research journals and e-books to the UWM Libraries to support the new School of Public Health and its partnership with the Milwaukee Health Department.



Emma Morris

Joe Mascaro's research into "invaded" forests in Hawaii was featured in the prestigious journal *Nature* in July. Mascaro is a Biological Sciences doctoral student in the lab of Associate Professor Stefan Schnitzer.

When biology graduate student Joe Mascaro began his research into the effects of exotic plants on forest dynamics, he had no way to know that the work would end up featured in the prestigious journal *Nature* – a feat that not even many faculty have achieved.

But then again, the work of Mascaro, who is finishing his Ph.D. at UWM, is perturbing some long-held ecological beliefs about biodiversity in the plant kingdom, namely that heavily "invaded" environments, also called "novel ecosystems," are of little value.

Hawaii has a lot of such forests – a hodgepodge of nonnative plants in a geographic area that is not managed or no longer managed by humans. Such ecosystems have traditionally been considered something to be avoided in favor of forests of native species. There is very little data on the issue, but Mascaro has stepped in to fill the void.

He is finding that novel forests have unique ecological benefits. In fact, he recently found that in some areas novel forests can store more carbon than native forests. And that's not all.

Mascaro, who came to UWM specifically to work with Associate Professor Stefan Schnitzer, recently responded to questions about the research and where it will lead.

Q. Did you choose Hawaii for fieldwork because of the novel ecosystems there?

A. Yeah. I was an intern for a project funded by the USGS [U.S. Geological Survey] and looking at avian malaria on the Big Island in 2003. We had a lot of field sites in heavily invaded forests, and I was really intrigued by the idea of a global suite of species suddenly thrown together, where a new set of interactions were developing, and where ecosystem properties and functioning seemed to be more or less maintained.

Q. What have you found? And why are these results important?

A. The novel forests have higher tree-species diversity. In addition, ecosystem productivity and

nutrient turnover are higher in the novel forests compared to the native forests. This is very important. The general view is that ecosystems experiencing such a great transition of species will collapse in a way that could negatively impact human welfare. We've found that rather than collapsing, the Hawaiian forests become more productive as they are altered by species introductions.

Q. Your point about the unexpected benefits in novel ecosystems is interesting. But what about biodiversity that depends on specific native species?

A. There is no doubt that the reorganization of species that will create novel ecosystems is bad for a lot of species. However, when we look at plants, we find that competition from introduced plants has not been a strong driver of extinction in native plants. This means that regional plant diversity is actually increasing worldwide due to species introductions.

The story is different for diseases or parasites, such as ash borer, and predatory interactions, such as the introduction of the brown tree snake to Guam that led to all the native birds going extinct.

Q. Where do we draw the line in either letting go or managing human influences in these ecosystems?

A. I think we have to manage in context. If we are dealing with endangered species or vast tracks of virgin rain forest – we need to protect them at all costs. However, if we are managing an abandoned parking lot in a tropical country, we might be better served by allowing natural processes to run their course. The ecosystem that is assembled as a result will probably surprise us in its diversity and complexity.

Q. What are your future plans?

A. I expect to graduate this spring, and am looking for postdoctoral opportunities. I hope to keep working on novel ecosystems and climate change. Ultimately, I plan to apply for an AAAS [American Association for the Advancement of Science] fellowship that may enable me to have an influence on policy development.