

Texas A&M University Department of Entomology
Sixth Annual Graduate Student Forum
Wednesday, August 27, 2003

Committee Members

Dr. Patricia Pietrantonio, Chair
Dr. Craig Coates
Dr. Keyan Zhu-Salzman
Chair Assistant: Teresa Gold

Dr. Pete Teel
Dr. Jim Olson
Mark Johnsen

Evaluators

Dr. Sumana Datta
Associate Professor
Department of Biochemistry
and Biophysics

Dr. Forrest L. Mitchell
Associate Professor
Research Entomologist – Stephenville
Department of Entomology

Dr. Tanya Pankiw
Assistant Professor
Department of Entomology

Dr. Karen F. Snowden
Associate Professor
Veterinary Medicine – Pathology

Graduate Student Forum Previous Award Recipients

Year	1 st	2 nd	3 rd
2002	Mei-Er Chen	Christine E. Gray	Steven P. Holmes
2001 (Three way tie)	Christine E. Gray (Three way tie)	Steven P. Holmes (Three way tie)	Ronald D. Weeks (Three way tie)
2000	Jarrad Prasifka	Robert Kula	Ahmed Mohammed
1999	Carlos Bogran	Jarrad Prasifka	Karol Burns
1998	Carlos Bogran	Richard Houseman	Jim Martin

Texas A&M University Department of Entomology
Sixth Annual Graduate Student Forum
Wednesday, August 27, 2003

Reflections from the Chair



Patricia V. Pietrantonio
Associate Professor – Insect Toxicology
Chair, Graduate Student Forum
Department of Entomology
Texas A&M University
College Station, Texas 77843-2475
Phone: (979) 845-9728
Fax: (979) 845-6305
p-pietrantonio@tamu.edu

THE MOLECULE OF THE CENTURY...

Fifty years ago, in 1953, a team of outstanding researchers uncovered the structure of DNA. The resulting papers were published in the journal *Nature*. As often happens in science or any other complex human endeavor the significance of this achievement was increasingly acknowledged over time.

For **ENTOMOLOGISTS**, the importance of this discovery has only been equaled recently by the completion and release of two insect genomes, those from the fruit fly *Drosophila melanogaster* (www.flybase.org) and the malaria mosquito, *Anopheles gambiae* (www.anobase.org). The release of the honey bee genome is currently ongoing (<http://www.hgsc.bcm.tmc.edu/projects/honeybee/index.html>).

Diseases transmitted by mosquitoes, such as dengue, malaria and filariasis among others, affect millions of humans each year and cause tremendous loss of life, mainly of children. Disease transmission by ticks affects humans, cattle and wildlife worldwide. Pests of agriculture and urban settings continue to develop insecticide resistance or evolve into diverse and new biotypes. Target validation for the purpose of pesticide development is often achieved through gene knock-outs, gain of function mutants and RNA interference. The difficult task of identifying cryptic species is aided by molecular markers...But professionals of *other* scientific disciplines such as biology, biochemistry, microbiology, parasitology, bioinformatics, and chemistry, are now being recruited by various universities and scientific institutes to do the job of **ENTOMOLOGISTS**.

As professionals in this broad discipline it is crucial that we acknowledge the tremendous responsibility imposed on **ENTOMOLOGISTS** by the quality and quantity of the new information present in or to be interpreted from insect genomes.

The tools of a trade evolve; however, the discipline and the unsolved entomological problems remain: Let us take full advantage of the complementary powerful approaches and new discovery paths that the insect genomics era (including transcriptome analysis and proteomics) has opened for **ENTOMOLOGY**.

Texas A&M University Department of Entomology
Sixth Annual Graduate Student Forum

Wednesday, August 27, 2003

Keynote Speaker



Dorothy Elaine Shippen

Professor

Department of Biochemistry and Biophysics

Texas A&M University, 2128 TAMU

College Station, Texas 77843-2128

phone: (979) 862-2342

fax: (979) 845-9274

email: dshippen@tamu.edu

Dr. Dorothy Shippen received her Bachelor of Science degree from Auburn University and then in 1987 was awarded a Ph.D. from the University of Alabama at Birmingham. Her Ph.D. thesis, which was carried out under the guidance of Dr. Anne Vezza, involved characterization of small ribosomal RNA genes from the human malaria parasite, *Plasmodium falciparum*. For postdoctoral training, Dr. Shippen worked with Dr. Elizabeth Blackburn beginning at the University of California at Berkeley and then in 1990 moved to UC San Francisco when Dr. Blackburn took a position there. Her work in the Blackburn lab focused on the biochemistry of the telomerase RNP complex in the ciliated protozoan, *Euplotes crassus*. A major contribution was the demonstration of a functional telomere DNA templating domain within telomerase RNA subunit.

In 1991 Dr. Shippen joined the faculty of the Biochemistry and Biophysics Department at Texas A&M University and in 2002 was promoted to full professor. Her work at Texas A&M continues to focus on telomeres and telomerase, with a major emphasis on telomerase-telomere interactions in *Arabidopsis thaliana*, a new model system for telomere biology developed by the Shippen laboratory. Research in the Shippen lab is funded by the National Institutes of Health and the National Science Foundation. Dr. Shippen currently serves as member of the editorial boards of *Molecular and Cellular Biology* and the *Journal of Eukaryotic Microbiology*. She is also a member of the Texas A&M Life Science Task Force and the Executive Committee for the Council of Principal Investigators.

Texas A&M University Department of Entomology
Sixth Annual Graduate Student Forum
Wednesday, August 27, 2003

Interim Department Head



Kevin M. Heinz

Associate Professor, Interim Department Head

Department of Entomology

Texas A&M University

College Station, Texas 77843-2475

(979) 845-2516

(979) 862-3408

kmheinz@tamu.edu

Graduate education in science has set the international standard in preparing students to work successfully at the cutting edge of research, and it must continue to do so. Discovery and goal oriented research has been invaluable to improving the human condition. Elucidation of the structure of DNA 50 years ago initiated a revolution that continues to provide arguably the most significant impact on life science research and its applications. The value of a scientific discovery is often judged over time on the levels of positive change exerted on various disciplines.

In response to a variety of contemporary stresses, graduate education has undergone a revolution of its own. Increasingly in recent years, graduate education has contributed to filling the nation's growing need for advanced expertise in diverse non-research positions. Entomology, a discipline with global significance, has provided leadership in this diversification process. The abilities to discover, understand, and apply science to the maximum benefit of society demands that scientists be versatile. Hence graduate programs will continue to place an emphasis on versatility in an effort to make students more adaptable to changing conditions. This is mainly a matter of local initiative by universities, disciplines, and programs, but there is a supporting role for government, too. In keeping students aware of the continuing array of choice available to them, the Department of Entomology at Texas A&M University continues to utilize diverse forms of communication to better inform students and faculty so that students can make realistic career decisions. Finally, the Department continues to re-evaluate graduate education so that the open policy questions, the current information gaps, and the contemporary stresses are systematically addressed by a suitable blend of university, industry, society, and government. Those improvements can be made without disruption of the traditional commitment to excellence in discovery and goal-oriented research that has been, and must continue to be, a hallmark of an Entomology graduate education at Texas A&M University.

Although individuals and units are primarily responsible for implementing those changes, national and state government, industry, business, and others can help by providing opportunities to gain experience and exposure to a variety of occupations via internships, alternative certification programs, etc. There are challenges in attempting to accomplish the goals stated above in a discipline as complex and diffuse as that of entomology. As will be seen in the 2003 Annual Graduate Student Forum, already we have many relevant examples of the application of local imagination and initiative. In listening to the various presentations, continue to question how you as an individual may reshape graduate education to meet students' career needs better and to ensure the vital role of Entomology in the nation's steady progress toward a knowledge-based society.

Texas A&M University Department of Entomology
Sixth Annual Graduate Student Forum

Wednesday, August 27, 2003

Associate Department Head for Academics



Pete D. Teel

Professor and Associate Department Head
for Academics

Department of Entomology

Texas A&M University

College Station, Texas 77843-2475

(979) 845-3253

Fax (979) 845-6305

pteel@tamu.edu

The graduate program in Entomology at Texas A&M University offers the M.S. and Ph.D. degrees in Entomology and Master of Agriculture degrees in Economic Entomology and Plant Protection. We enjoy one of the world's best graduate programs in Entomology, and by any measure it is one of the world's most prestigious.

Our teaching, research, and extension programs have become recognized nationally and internationally for excellence, and these programs offer outstanding opportunities for graduate student education and research. The diversity of geography, climate, and demographics of the state offers an array of entomological problems with worldwide relevance and opportunities to work with Entomology research and extension faculty located throughout Texas.

We are very proud of our former students and their career accomplishments. They continue to become leaders in Entomology serving needs in public and private sector arenas of state, national, and international communities.