

JOHN A. MULRENNAN SR., PUBLIC HEALTH ENTOMOLOGY RESEARCH & EDUCATION CENTER (PHEREC)



PHEREC originated in 1964 under the Florida State Board of Health and was transferred in 1992 to Florida Agricultural & Mechanical University (FAMU), College of Engineering Sciences, Technology & Agriculture (CESTA). FAMU is a land-grant institution within the State University System of Florida supporting the three principles of education, research and public outreach (extension).

Public Health Entomology is the scientific study of insects and other arthropods in relation to human health including, but not limited to: mosquitoes, stable flies (a.k.a. dog flies), yellow flies, biting midges (a.k.a. biting gnats or no-see-ums), spiders, ticks, and mites.

PHEREC is named in honor of the late Dr. John A. Mulrennan, Sr. who was the first professional entomologist employed by the Florida State Board of Health from 1938 - 1976. Dr. Mulrennan was instrumental in creating the original laws establishing mosquito and pest control in Florida and for obtaining state funding for mosquito and biting fly research and control. Through his work, Dr. Mulrennan contributed to the quality of life by making much of the state enjoyable for tourism to grow to the year-round, multibillion-dollar industry it is today.

IMPORTANCE OF MOSQUITO CONTROL RESEARCH IN FLORIDA

Florida U.S. Senator and former Governor Bob Graham stated on many occasions, "Air conditioning and mosquito control are the two primary factors

responsible for growth and prosperity of the State." Like many residents, Senator Graham recognized early on that most folks would be unable to enjoy living in and visiting the state without these two developments. Florida's extensive swamps, marshes and other wetlands, combined with its subtropical climate, create a haven for blood-thirsty mosquitoes and biting flies. Without mosquito control, many parts of Florida would be uninhabitable. Aside from annoyance, Florida's mosquitoes pose a threat transmitting viruses causing such diseases as: St. Louis encephalitis, Eastern Equine encephalitis and West Nile virus. It is for this reason, Florida invests far more than any other state in mosquito control. Indeed, Florida has the largest, most sophisticated mosquito control arsenal in the nation. Fleets of fixed-wing and rotary aircraft, ground equipment, boats, all-terrain vehicles, as well as an army of mosquito control workers responsible for operational control are deployed annually.

Florida is also looked upon as a naturalist's wonderland with a massive array of unique and endangered flora and fauna. As such, controlling mosquitoes requires a great deal of sensitivity so that it is accomplished in a manner that preserves the environment. This requires continuous research to test and develop new methods, procedures, products and delivery techniques. Environmental regulations continue to evolve requiring research to refine mosquito control so that it is conducted in the most safe, effective and environmentally friendly manner possible.

For these reasons, PHEREC exists to provide guidance and support for mosquito control.

LOCATION

The Center is located in Panama City, Florida on Robinson Bayou at the extreme north end of Frankford Avenue. There are three major highways into town.

From U.S. 231 driving south: Continue to state highway 368 (23rd Street): At 23rd Street, turn right and drive west 3.1 miles, then turn right onto Frankford Avenue. Drive north 2.2 miles to the end of the road. PHEREC is located at 4000 Frankford Avenue.

From U.S. 98 traveling east: After crossing the Hathaway Bridge, turn left at the second traffic light

onto state highway 368 (23rd Street). Take 23rd Street 2.4 miles to Frankford Avenue. Turn left and drive north 2.2 miles to the end of the road where you will see the Center's front entry sign.

From U.S. 98 traveling west: Continue west to Frankford Avenue. Turn right onto Frankford and drive north 3.2 miles to the end of the road.

Detailed travel directions including maps are also available on-line at <http://maps.yahoo.com>

RESEARCH STAFF

Catherine L. Brock, B.S., Biological Scientist

Eric H. Cope, Laboratory Technician

Jamie S. Coughlin, B.S., Sr. Laboratory Technician

Thomas G. Floore, M.S., B.S., Sr. Biological Scientist

Michael J. Greer, B.A., Biological Scientist

Charles F. Hallmon, B.A., Sr. Biological Scientist

Clare M. Mangum, B.A., Laboratory Technician

Kenneth R. Shaffer, B.A., Sr. Laboratory Technician

Jimmy D. Walsh, Laboratory Technician

Vacant, Laboratory Technician

ADMINISTRATIVE STAFF

James B. French, Maintenance Specialist

A. Paige Packman, Office Assistant

Patricia A. Wolfe, Office Assistant

Vacant, Groundskeeper/Custodian

ADDITIONAL INFORMATION

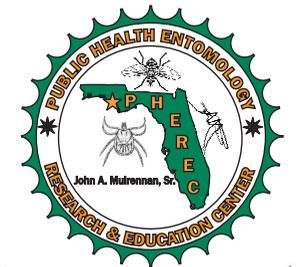
PHEREC conducts tours, presentations, mentors science fair students, sponsors internships, graduate assistantships and more. The Center also publishes a quarterly newsletter, and maintains a list of publications including a historical account of PHEREC available at: <http://pherec.org>. Contact PHEREC for more information.

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PHEREC MISSION

According to Chapter 388.042 Florida Statutes, PHEREC is mandated to:

1. Perform basic and applied research to develop and test formulations, application techniques and procedures of pesticides and biological control agents for the control of arthropods of public health and nuisance importance.
2. Provide special attention to the needs of arthropod control districts, counties and municipalities of the state by providing information, assistance, and recommendations for the safe and effective control of arthropods which create a health or nuisance problem.
3. Conduct environmental impact studies to determine (and mitigate) the effects of arthropod control pesticides, with a special emphasis on integrated arthropod control.
4. Provide the Florida Department of Agriculture & Consumer Services with such information as required to assist the Department in the performance of duties with respect to arthropod control under Chapter 388, F.S.
5. Serve as a center for training students as well as state and local government personnel in the safe and effective control of biting arthropods that create a public health or nuisance problem.

PROGRAM AREAS

- Efficacy testing of chemical, microbial and biochemical insecticides
- Application equipment evaluation
- Development and standardization of assessment actions for application efficacy
- Insecticidal drift and residue analysis
- Non-target impact and mitigation studies
- Discovery and genetic enhancement of microbial insecticides
- Mosquito and arboviral surveillance, ecology and control
- Development and evaluation of arthropod trapping systems
- Repellent dose range, efficacy and duration testing
- Attractant development and evaluation
- Assessment of residual surface and misting system technology
- Technical service provision (e.g., mosquito surveillance, equipment calibration, arthropod identifications, biological and control information)
- Public outreach (e.g., tours, presentations, internships, extension publications)
- Continuing education training for environmental health and public health pesticide applicators

FACILITIES

Over one dozen buildings occupy the 10-acre campus of PHEREC. The Center is nestled on a peninsula surrounded by salt marsh on St. Andrews Bay. Easy access to the Gulf of Mexico is available from the Center's boathouse. Additional facilities include: administration building, six laboratories, several insect-rearing facilities, and shop. An extensive array of fresh and saltwater ponds and tanks, screened enclosures, chemical storage and carport/storage facilities are maintained on the grounds. The Center deploys a fleet of 14 vehicles used for statewide travel. Cable internet is provided throughout the campus via a fiber-optic network. In addition to a library containing several popular entomologic and pesticide journals, PHEREC also maintains equipment for video teleconferencing and distance education.

CONTRACT RESEARCH

The State of Florida provides funding for facilities and staffing of PHEREC; however, most research is sponsored by sources ranging from federal, state and local government to private industry. Companies or individuals interested in contracting services from PHEREC should review the interests of the Center's scientists as listed on the side panels and contact them by email to develop a work proposal and contract. A list of their publications and resumé can be found at <http://pherec.org>.

ENTGUIDES & TECHNICAL MEMORANDA

PHEREC publishes a series of public service fact sheets known as *EntGuides* (Entomology Guides). *EntGuides* are leaflets on the biology and control of Florida's medically important arthropods and other related topics. *EntGuides* can be accessed and obtained free of charge from the PHEREC web site located at: <http://pherec.org>, or by calling, mailing and/or faxing a request to the Center. Free technical memos providing procedures and diagnostic dosages required to test resistance in wild mosquitoes are also available at the same web site.

ANNUAL TRAINING ACTIVITIES

PHEREC hosts the **Southeast Regional Public Health Pest & Vector Management Conference** in late February to assist environmental health and mosquito control professionals maintain continuing education credits for licensure. The conference offers many practical workshops that emphasize "hands on" learning. Please refer to the PHEREC Web site (<http://pherec.org>) for additional details including meeting dates and program updates. Several of the Center's scientists also serve as instructors at the FAMU Pest Control Field Days and the Florida Mosquito Control Association Dodd Short Courses. More information about these activities can be obtained on the web.

RESEARCH FACULTY

John P. Smith, Ph.D., B.C.E.

Center Director, Professor & Disease Ecology & Control Section Leader



Education:

- Ph.D. (Veterinary) Entomology, University of Missouri
- M.S. (Medical) Entomology, University of Arkansas
- B.S. Agriculture-Entomology, University of Arkansas

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Research Interests: Mosquito & arboviral surveillance and ecology; Repellent and trapping systems research

James E. Cilek, Ph.D., B.C.E.

Professor Biting Fly & Tick Control Section Leader



Education:

- Ph.D. (Veterinary) Entomology, University of Kentucky
- M.S. (Medical) Entomology, Louisiana State University
- B.S. Entomology, Purdue University

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Research Interests: Attractant evaluation; Residual surface & misting system technology assessment

He Zhong, Ph.D.

Associate Professor Pesticide Environmental Impact Section Leader



Education:

- Ph.D. Entomology, North Carolina State University
- M.S. Entomology, Oregon State University
- B.S. Pest Control, Northeastern Forest University

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Research Interests: Pesticide impact on non-targets; Insecticide toxicity & ecotoxicity; Insecticide residue analysis via GC & HPLC; Insecticide degradation & environmental fate

John L. Petersen, Ph.D.

Associate Professor Mosquito Larvicide Section Leader



Education:

- Ph. D. Biology, University of Notre Dame
- M.S. Parasitology, Columbia University
- B.S. Biology, Dickinson College

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Research Interests: Standardizing methods for monitoring insecticide resistance; Efficacy testing of mosquito larvicides

Jane A.S. Barber, Ph.D.

Assistant Professor Mosquito Adulticide Section Leader



Education:

- Ph.D. Agricultural Engineering (pesticide application) Cranfield University
- M.S. Pest Management and Applied Entomology, Imperial College of Science Technology & Medicine University of London
- B.S. Biological Sciences, Kings College University of London

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Research Interests: Pesticide application technology; Pesticide targeting; Meteorological effects on pesticide application

Hyun-Woo Park, Ph.D.

Assistant Professor; Mosquito Biological & Alternative Control Section Leader



Education:

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- M.S. Agriculture, Seoul National University
- B.S. Agriculture, Seoul National University

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Research Interests: Insect pathology and microbial control with emphasis on bacterial pathogens