

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY NOMINATIONS FOR THE FEDERAL  
INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA) SCIENTIFIC ADVISORY PANEL (SAP)  
Docket Number: EPA-HQ-OPP-2017-0693**

**Biographical Sketches**

**Arthur G. Appel, Ph.D.**

**Affiliation:** Interim Associate Dean of Research and Assistant Director of Alabama Agricultural Experiment Station, Professor in the Department of Entomology and Plant Pathology, College of Agriculture, Alabama Agricultural Experiment Station, Auburn University, Auburn Alabama

**Expertise:** The biology, physiology, and control of insects of urban importance; insect physiological ecology, especially water and temperature relations.

**Education:** Ph.D. and M.S. Urban Entomology, University of California, Riverside, B.A. Biology, University of California Los Angeles

**Experience Summary:** Dr. Appel is a Professor of Entomology in the Department of Entomology and Plant Pathology at Auburn University, Alabama. His primary research interests are in urban entomology, insect physiology, and development of integrated pest management (IPM) programs for household and structural pests. He currently serves as Interim Dean and Director for the College and the Alabama Agricultural Experiment Station, while previously serving as the Interim Associate Dean of Research for the College of Agriculture and department chair for 8 years before that. His research includes development of IPM programs for smokybrown cockroach and garden millipede management as well as developing trapping and sampling protocols for indoor and outdoor cockroaches. Dr. Appel coordinates the D.C. Orientation Program. The College of Agriculture developed this program that sponsors primarily junior faculty members to visit Washington D.C. to meet with national program leaders in USDA and other federal agencies. The goal is to familiarize faculty with the leadership in funding agencies, to be engaged in grant panel reviews, and to network with scientists and administrators. In 2014, a total of 12 faculty and administrators visited with program leaders at NIFA and NSF. He has published nearly 150-refereed articles on all aspects of the biology, behavior, physiology, and management of urban pests. He is an elected fellow of the American Association for the Advancement of Science and the Royal Entomological Society.

**Panel Experience:** None

**Jerry L. Cook, Ph.D.**

**Affiliation:** Associate Vice Pres. for Research, Sam Houston State University, Huntsville, Texas

**Expertise:** Field tests on efficacy of treatments; the release of biological controls to manage red imported fire ants.

**Education:** Ph.D., Entomology, Dept. of Entomology, Texas A&M University. M.S. Biology, Dept. of Life Sciences, University of Southern Colorado, B.S Geology, Dept. of Geology, University of Southern Colorado

**Experience Summary:** Dr. Jerry Cook is a Professor of Biological Sciences at Sam Houston State University (SHSU). He served as chief research officer (CRO) for this Carnegie Doctoral University of over 20,000 students for the past nine years. He is also the Executive Director of the Texas Invasive Species Institute. Prior to heading the research office at SHSU, Dr. Cook served as a program officer at the National Science Foundation and was also appointed to the National Invasive Species Committee (NISC) by the U. S. Secretary of Agriculture. His research includes projects in systematics, ecology of invasive species, and conservation biology. Part of Dr. Cook's research has included ants, primarily those of economic importance. He has conducted field tests on efficacy of treatments as well as being involved in the release of biological controls to manage red imported fire ants.

**Panel Experience** Appointed to the National Invasive Species Committee (NISC) by the U. S. Secretary of Agriculture.

## **Christopher Geden, Ph.D.**

**Affiliation:** Research Entomologist, USDA Agricultural Research Service, Center for Medical, Agricultural, and Veterinary Entomology (ARS/CMAVE); Professor, University of Florida, Gainesville, Florida

**Expertise:** Management of flies affecting livestock and poultry.

**Education:** Ph.D. and M.S., Entomology, University of Massachusetts at Amherst, B.S., Biology, Boston College

**Experience Summary:** Dr. Geden has worked on management and biology of livestock and poultry pests for the last 40 years. Since receiving his Ph.D. in Entomology, he has authored 122 papers in refereed scientific journals, written 5 book chapters, co-edited a book, and authored 42 popular and extension articles. His research has been supported by over \$700,000 in extramural funding. Dr. Geden has also received patents for two pest control inventions. He has presented numerous papers at scientific meetings and stakeholder meetings, given 21 international presentations, organized three symposia at national scientific meetings and been a co-organizer of two national conferences. He is considered an international authority on filth flies, and his research contributions have been recognized in 36 articles in industry trade journals and popular media.

**Panel Experience:** Dr. Geden has served as President of the Medical, Urban and Veterinary Entomology (MUVE) section of the Entomological Society of America (ESA) and currently serves as MUVE's elected representative to ESA's Governing Board.

**Lawrence C. 'Fudd' Graham, Ph.D.**

**Affiliation:** Research Fellow IV and Extension Specialist in the Department of Entomology and Plant Pathology, Auburn University, Alabama

**Expertise:** Release and monitoring of biological control agents for fire ants; evaluation of fire ant control strategies using IPM methods; use of GPS/GIS technology to collect data.

**Education:** Ph.D., Entomology; B.S., Animal & Dairy Science, Auburn University, Alabama

**Experience Summary:** Dr. Graham works as an Extension Agent with the Alabama Cooperative Extension System and as a Research Assistant at Auburn University. He has been involved in IPM since he was an undergraduate and worked then as a cotton scout. Fudd has conducted over twenty efficacy trials for industry in cotton, twenty-three efficacy trials for industry with fire ant baits and granular and liquid insecticides, twenty-eight on-farm demonstrations and four trials with insecticides for the control of the tawny crazy ant. Many of these trials were conducted according to EPA product performance test guidelines. His primary research focus has been on the release and establishment of phorid flies that are biological control agents for fire ants and evaluation of fire ant control strategies using IPM methods. Dr. Graham is active with implementing IPM programs in schools and educating pest management professionals and school personnel on setting up these programs. Dr. Graham serves as co-leader of the eXtension Urban IPM web site. He served as Alabama Pesticide Education Safety Coordinator for eight years; and is also a member of the Imported Fire Ant and Pesticide Environmental Stewardship communities of practice and is a Certified Pest Management Professional in Alabama.

**Panel Experience:** Dr. Graham has been a member of the Southern IPM Center Advisory Council since 2009. He serves as co-chair of the Southern School IPM Work Group. as a member of National School IPM Steering Committee; and as a board member of the Alabama Vector Management Society. Dr. Graham is a past board member of the Alabama Pest Control Association.

**Elmer W. Gray, M.Ag.**

**Affiliation:** Professor Entomology Department, University of Georgia, Athens, Georgia

**Expertise:** Mosquito control, Black Fly suppression and bioassay laboratory research.

**Education:** Masters of Agriculture, Medical and Veterinary Entomology, Clemson University, B.S. Zoology, Clemson University.

**Experience Summary:** Mr. Gray was instrumental in moving the laboratory to the University of Georgia where he currently serves as a Medical and Veterinary Entomologist with the Department of Entomology. Mr. Gray supervises the operation of the University of Georgia Black Fly Rearing and Bioassay Laboratory. This laboratory maintains the world's only black fly colony and conducts a variety of research related to larval black fly feeding and *Bacillus thuringiensis* subsp. *israelensis* insecticidal protein induced mortality. In addition, he serves as the Public Health Extension Entomologist for Georgia, focusing on mosquito control training, education and outreach. He is also a commercial pesticide applicator, assisting in the development and operation of black fly suppression programs both internationally and domestically. As part of this work, he has personally operated a successful black fly suppression program in South Carolina for the past 23 years. Mr. Gray is an active member of the American Mosquito Control Association, the North American Black Fly Association, and the Georgia Mosquito Control Association. Mr. Gray has been an invited speaker at the local, national, and international level on a wide range of entomological topics.

**Panel Experience:** Mr. Gray serves on the Board of Directors of the Georgia Mosquito Control Association. He also serves on the Executive Committee of the University of Georgia Staff Council and the Board of Directors of the Oglethorpe County Little League.

**Jerome A. Hogsette, Ph.D.**

**Affiliation:** Lead Scientist and Research Entomologist, USDA Agricultural Research Service, Center for Medical, Agricultural, and Veterinary Entomology (ARS/CMAVE); Professor and Lead Scientist/Research Entomologist, University of Florida, Gainesville, Florida

**Expertise:** The biology, ecology and control of house flies and stable flies in agricultural and urban settings.

**Education:** Ph.D., M.S. and B.A., Entomology, University of Florida, Gainesville, Florida

**Experience Summary:** Dr. Jerome A. Hogsette is the Lead Scientist for and a Research Entomologist in the Mosquito and Fly Research Unit at the USDA-ARS Center for Medical, Agricultural and Veterinary Entomology (CMAVE) in Gainesville, Florida. He was also appointed Lead Scientist in the Mosquito and Fly Research Unit at the University of Florida in 2009. His research interests have been in the biology, ecology and management of nuisance higher Diptera, particularly house flies and stable flies, in agricultural and urban settings. He has conducted numerous cooperative studies with USDA and university scientists, both nationally and internationally, and has worked extensively with industry and with the military. He is the USDA expert in the development of mechanical disinsection systems for use on commercial aircraft and has worked with the US Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the World Health Organization (WHO) and private industry cooperators during the course of these studies. Dr. Hogsette is a consultant to the US Armed Forces Pest Management Board for nuisance fly management. He was Invited to attend an Aircraft Disinsection Meeting with representatives of the US DOT, and Delta Airlines to begin planning for a cooperative project for prevention of insect entry into aircraft at airports in West Africa using non-chemical methods, Washington, DC, October 5, 2010.

**Panel Experience:** Invited to be a Panel Member to develop a Request for Proposal on disinsection of aircraft at The National Academy of Sciences, Transportation Research Board, Washington, DC, February 1-2, 2010 Also Invited by Michelle Landis, USDA Office of the Chief Scientist, to be a member of the National Security Council working group on China fumigation, August 17, 2016.

**Michael E. Merchant, Ph.D., B.C.E.**

**Affiliation:** Professor and Extension Urban Entomologist, Texas A&M AgriLife Extension Service, College Station, Texas

**Expertise:** Urban entomology; control of insect pests of structures, landscapes; Integrated Pest Management (IPM) programs for schools and institutions; pesticide applicator training

**Education:** Ph.D. Entomology, Texas A&M University; M.S. Entomology, Purdue University; B.S. Environmental Science, Huxley College - Western Washington University

**Experience Summary:** Dr. Michael Merchant currently serves as Professor and Extension Urban Entomologist for the Texas A&M AgriLife Research and Extension Center at Dallas. The focus of his research and extension career has been on developing safe, practical IPM programs for urban settings. Research has included insecticide evaluations on scale insects, fire ants, bed bugs, spiders, scorpions, and other household pests. He was principal developer of the Texas Two-Step Method for managing fire ants, which has since been adopted as a simple, environmentally friendly approach to fire ant control throughout the South. Dr. Merchant was instrumental in drafting regulations governing pesticide use and IPM programs for Texas public schools, and in 2001 established the Southwest Technical Resource Center for School IPM, which is a leading provider of training for pesticide applicators and school IPM coordinators in Texas. As Director of the Board Certified Entomologist program in 2001-2002, he led establishment of a new testing and certification program for pest management professionals called the Associate Certified Entomology program. The A.C.E. credential has since become the standard certification program for non-degreed, structural pest control professionals throughout the U.S. He maintains numerous websites targeting the public and pest management professionals, is a frequent contributor to pest management trade publications, and makes 40-50 presentations each year to both public and professional audiences. In 2016 he established IPM Experience House, a unique, hands-on training facility where pest management professionals learn to manage pests and safely use pesticides through listening, watching and doing.

**Panel Experience:** Dr. Merchant served as Chair of the Texas Structural Pest Control Board School IPM Advisory Committee charged with developing regulations for school pest management programs. He was also a member and Chair of the Certification Board of the Entomological Society of America (ESA, 1999-2003) and a member of grant review panels for the Northeastern IPM Center. He is currently active as a member of StopPests in Housing Advisory Group (HUD) and on the Advisory Committee for the ESA Associate Certified Entomology program. He currently serves as Chair of the ESA Common Names Committee.

**Paul D. Shirk, Ph.D.**

**Affiliation:** Supervisory Research Physiologist, USDA Agricultural Research Service, Center for Medical, Agricultural, and Veterinary Entomology (ARS/CMAVE), Gainesville, Florida

**Expertise:** Communication between host eukaryotic cells and obligate intracellular bacteria; the development of genetic transformation systems for insects and their pathogens to elucidate host/symbiont interactions and the reproductive physiology of Diptera and Lepidoptera.

**Education:** Ph.D., Zoology, Texas A&M University; M.S. Biochemistry, Texas A&M University, College Station, Texas

**Experience Summary:** Dr. Paul Shirk received his M.S. in Biochemistry (1975) and Ph.D. in Zoology (1978) from Texas A&M University and is currently a Supervisory Research Physiologist (Insects) in the Insect Behavior and Biocontrol Research Unit at the USDA-ARS, Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, FL. Dr. Shirk is the Research Leader for the IBBRU whose research is a component of ARS National Program 304–Crop Protection and Quarantine. The assigned mission of IBBRU is to provide alternative methods to conventional pesticides for control of insect and plant pests of crops, vegetables and fruits. The approach is to describe, analyze and manipulate the behaviors and environments of pest and beneficial insects, and to develop area-wide tactics for managing lepidopterous, thrips, psyllid and fruit fly pests utilizing natural enemies, molecular manipulations, and semiochemicals and other signals and cues with the ultimate objective of environmentally benign control methods. He also serves as Professor in the Center for Biological Control, College of Agriculture and Food Sciences at Florida A&M University, Tallahassee, FL, as well as courtesy Professor in the Entomology/Nematology Department, University of Florida, Gainesville, FL.

**Panel Experience:** Dr. Shirk has served on national and international advisory committees [U.S. Environmental Protection Agency (U.S. EPA); U.S. National Institutes of Health Special Genetics; USDA Cooperative State Research, Education, and *Extension* Service (CSREES) National Research Initiative (NRI)] and served as peer reviewer for granting agencies [U.S. National Science Foundation; Genome Canada; California Department of Food & Agriculture].



## **Michael Waldvogel, Ph.D.**

**Affiliation:** Extension Associate Professor and Extension Specialist with the Department of Entomology and Plant Pathology at North Carolina State University, Raleigh, North Carolina

**Expertise:** Management of structural, industrial and community pests including termites, cockroaches, ants, bed bugs, rodents, flies and mosquitoes and ticks. Primary research includes IPM in the residential and industrial settings for pest management.

**Education:** Ph.D., Entomology, North Carolina State University; M.S., Entomology, The Pennsylvania State University; M.S., Biology, Fordham University; B.S., Biology, Iona College

**Experience Summary:** Dr. Waldvogel provides direct assistance to pest management professionals and other industrial clients to solve specific pest problem situations. He conducts outreach programs emphasizing professionals, state and municipal agency employees, various business groups and to the general public through the county Cooperative Extension Service programs, such as ServSafe. Other activities include North Carolina Pesticide Applicator Certification training in structural pest control for pest management professionals and non-commercial applicators in the Household Pests (P), Wood Destroying Pests (W), and Structural Fumigation (F) phases, plus Category B (Public Health) and participates in the NC Department of Health and Human Services - Centralized Intern Training program for new and transferring county environmental health specialists across the state. Prior to his tenure at NCSU, he held positions as the staff Entomologist for the NC Department of Agriculture & Consumer Services – Plant Protection Section, and as a Field Evaluation Scientist for Ecogen Inc. (formerly of Langhorne, PA) where he conducted small plot and EUP trials across North America testing microbial insecticides for use primarily against lepidopterous pests. Dr. Waldvogel is the lead editor for the certified applicator training manual in Public Health and a member of the NC Agromedicine Institute Faculty since 2001.

**Panel Experience:** Dr. Waldvogel currently serves on the following committees: USEPA Pesticide Program Dialogue Committee (PPDC), Public Health Work Group; chair of the North Carolina Bed Bug Task Force (2011-present); Centralized Internship Training Committee for county Environmental Health staff (since 2013); NC Structural Pest Control Committee (current Chair); Structural Pest Control Applicator Certification and Licensing Examination Review Committee (Chair, 1990 – pres.); School IPM Advisory Committee (2002-pres.); and NCSU-Agricultural Institute Academic Policy Committee, member and now current Chair (since 2013)

**Jing Zhai, M.S.**

**Affiliation:** Research Director for Ecotoxicology and Specialty Products based in North Carolina, USA for Eurofins Agrosience Services, Incorporated, Mebane, North Carolina

**Expertise:** honeybees, biocides, vector control

**Education:** M.S., Urban Entomology, Virginia Polytechnic Institute & State University; B.S., Biology, Shanghai Teacher's University, China

**Experience Summary:** Ms. Zhai directs overall planning and implementation of pollinator research and Specialty Product service programs in the US. Working closely with sponsors and technical staff, she designs and directs lab and field studies from concept proof to new product development and registrations pertaining to public health pest control as well as crop protection products. Before joining Eurofins in 2007, she worked at Bayer Environmental Science for over 12 years and held several key positions in Product Development and Technical Services for professional pest and vector control business. Prior to moving to the U.S. in 1989, she was responsible for insecticide evaluation and registration at Shanghai Municipal Center for Disease Control.

**Panel Experience:** Organizing Committee of the 4th International Conference on Urban Pests, Charleston, South Carolina, 2002; Treasurer, Executive Committee of the International Conference on Urban Pests 2009-2011