Entomology

Insect Biology – Biological Studies of Insects

Insect Sciences – All aspects of the Sciences applied to insects in their environments eg. Insect Ecology, Medical Entomology, IPM, Taxonomy

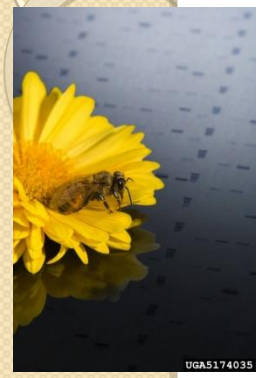
Entomology – The Science

- Life Science: examples include insect genetics/genomics, physiology, systematics, ecology
- Applied or Agricultural Science: examples include insect pest management in agricultural, urban (home and industrial), forests, and aquatic environments; vector biology; nuisance species
- Insects affect the lives of everyone

Entomology – The Science

- Best examples of biodiversity
- Almost all insect species are beneficial
- Insect control and damage costs in Georgia usually around $1 billion/year. Examples in 2004: Cotton - $92 million, ornamental plants - $172.3 million, public health $222 million, animal industries - $23.3 million

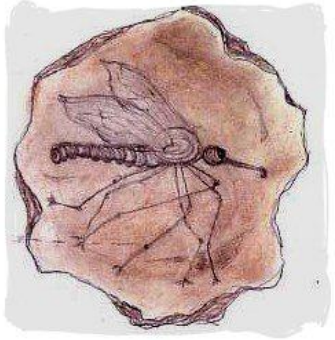
Entomology – The Science

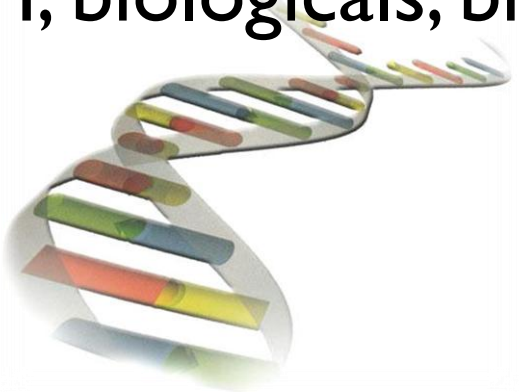


- Honey Bees – Pollination
- Forensic Entomology – Legal issues in food industry
- Forensic Entomology – Time and place of death in homicide investigations
- Biosecurity/Biosafety and insects in warfare

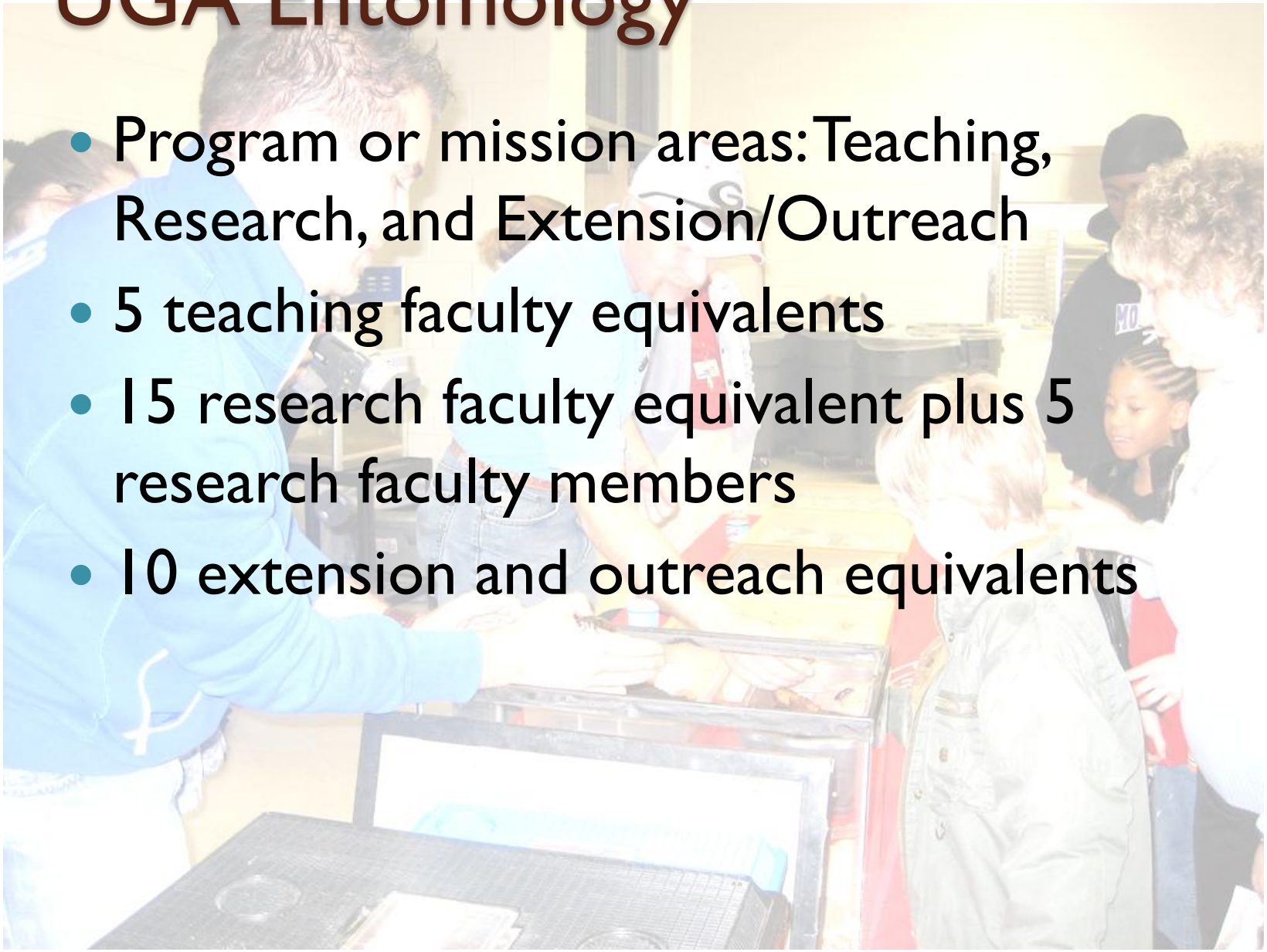
History and Development

- Ancient History of Insects – Eg. Chinese and Jewish Cultures
- European Developments
- Entomology in North America
- More Recent Developments – 1900 to now: medical, crop protection or ecomomic, pesticide era, basic insect sciences, IPM, biologicals, biodiversity, genomics





UGA Entomology



- Program or mission areas: Teaching, Research, and Extension/Outreach
- 5 teaching faculty equivalents
- 15 research faculty equivalent plus 5 research faculty members
- 10 extension and outreach equivalents

Academic Programs

- BSES in Entomology – Flexible major in which student can focus in insect sciences, pest management, or environmental sciences/biology. – 20 to 25 undergrads
- MS – 20 students
- MPPPM (Master of Plant Protection Pest Management)-Program joint with Crop and Soil Sciences and Plant Pathology - 4-5 students in Entomology
- Ph. D. – 25 students
- Entomology Faculty involved in Griffin and Tifton Campus Undergraduate Instructional Programs.



Research Program: Core Areas – Grad. Students Working in all Program Areas

- Research core programs – conducted by faculty at all three campuses
- Athens – Comprehensive, both basic and applied studies
- Griffin – Primarily urban programs
- Tifton – Primarily agricultural (field crops, fruits and nuts, vegetables)

Insect Host – Pathogen Intractions/Vector Biology

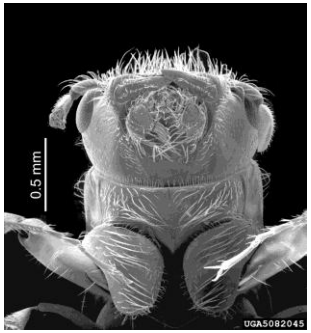
- Insect Host/Pathogen Molecular Biology
- BT (*Bacillus thuringiensis*) - Applied Biotechnololgy, Biological Control
- Mosquito Endocrinology/Genomics
- Insect Immunology
- Insect transmission of disease agents in animals and plants
- Host immune system modulation by insect vectors

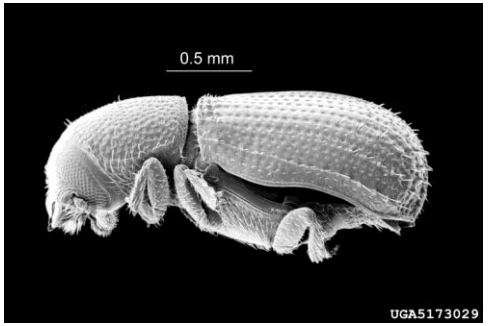
Urban Entomology

- Termites – Sociobiology, ecology and control
- Ants and other household pests
- Applied genetics of urban pests
- Green Industry pest management – Insect pests of ornamental plants and urban landscapes.
- Fire ants and pests of companion animals

Systematics, Taxonomy and Evolutionary Biology of Insects

- Coleopteran (Beetle) systematics and taxonomy.
- Thrips taxonomy
- Fire ants: Genetics and adaptation





Wetland Ecology and Environmental Toxicology/Biology

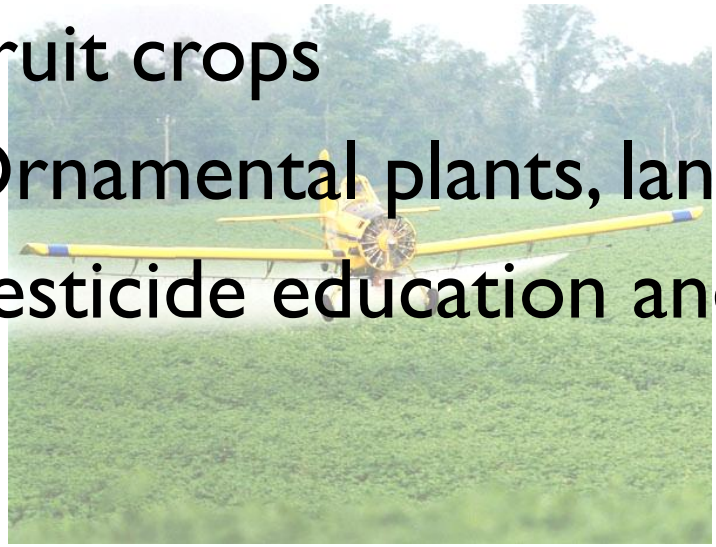
- Aquatic Insects Ecology
- Ecology of Wetland Invertebrates
- Biological Monitoring
- Aquatic Ecotoxicology
- Biologial Control of Vector Species

Integrated Pest Management and Biological Control

- Major GA Crops – Examples: Cotton, peanuts, pecans, fruit crops, vegetables, turf, ornamentals, corn and small grains
- Pests of forest crops and other natural resources
- Livestock and poultry pests
- Public health species – Examples: mosquitoes, fire ants, black flies, ticks,fleas

Extension Programs

- Insect management for urban and industrial environments
- IPM for major agricultural crops of GA
- Livestock and poultry/companion animal insect pests
- Fruit crops
- Ornamental plants, landscapes, and turf
- Pesticide education and safety programs



Example Graduate Program

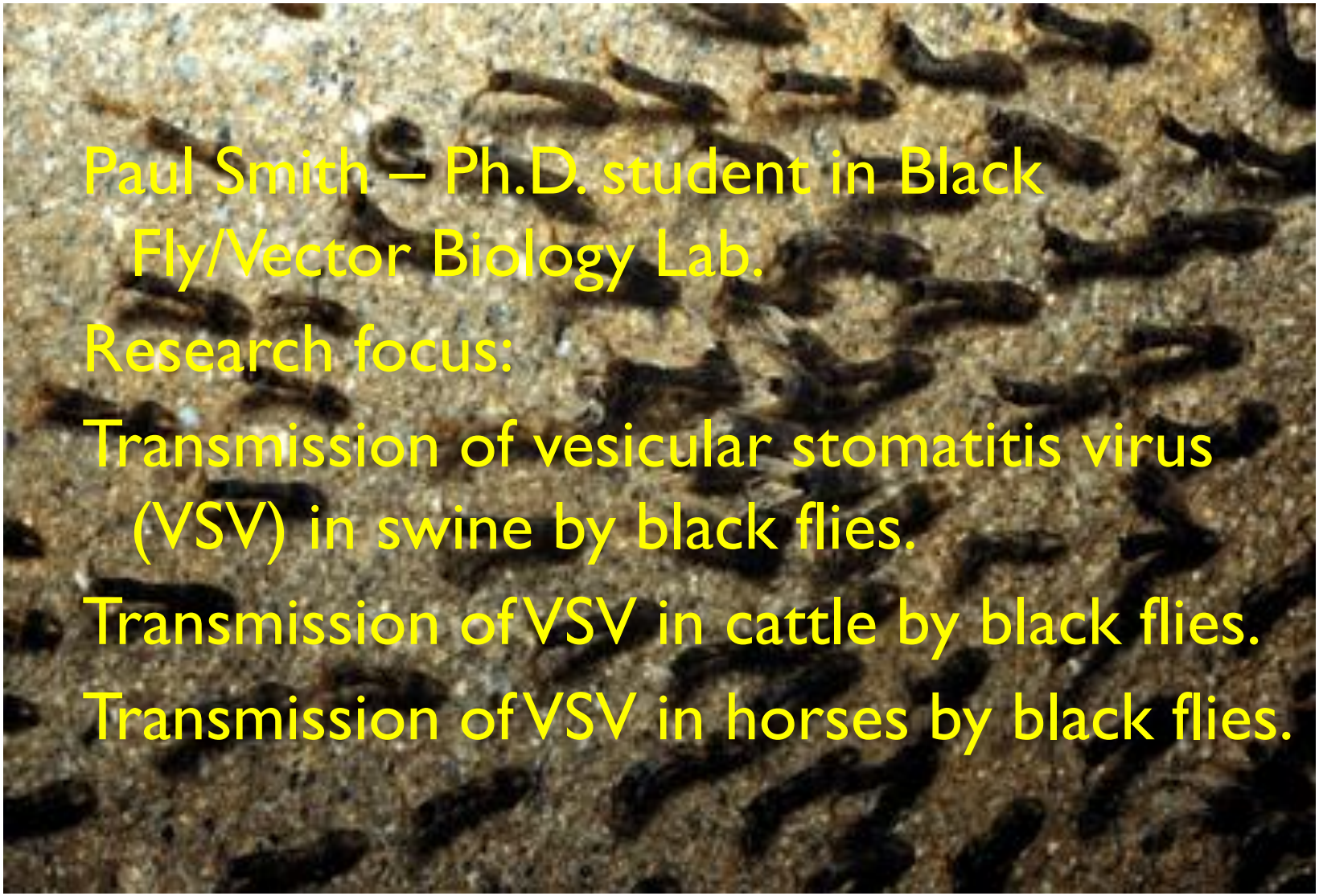
Joe Iburg – M.S. Student in Black Fly Vector Biology Laboratory.

Research Focus:

Effects of antibiotics in Streams on efficacy of Vectobac (*Bti)* for black fly control.

Impacts of other environmental factors in streams on efficacy of Vectobac.

Example Graduate Program



Paul Smith – Ph.D. student in Black Fly/Vector Biology Lab.

Research focus:

Transmission of vesicular stomatitis virus (VSV) in swine by black flies.

Transmission of VSV in cattle by black flies.

Transmission of VSV in horses by black flies.

Example Graduate Program

Glen Ramsey – M.S. student in Urban Entomology Laboratory

Research Focus:

Termite IPM on UGA Campus (Study involving 145 permanent buildings over several years).

Effects of soil types on insecticides efficacy for termites.

Example Graduate Program

Aubrey Roche – Livestock and poultry IPM Program.

Research Focus:

Darkling beetles in poultry houses serving as reservoirs of salmonella.

Beetle populations can be up to 500 million per house and can harbor Salmonella up to 9 weeks.

Career Opportunities

- University and College teaching, research, extension programs
- Federal and State agencies – Examples: USDA, EPA, USFS, State EPD, GA Dept. of Agriculture
- Agricultural and Chemical Industries, Agricultural Consulting Companies, Pest Control, and many others.
- Military Branches

Employment & Salaries

Excellent at all degree levels

Beginning salary ranges:

- BS - $25,000 to $45,000
- MS - $35,000 to $65,000
- Ph.D. - $60,000 to $75,000