

Florida - Meeting U.S. and International Invasive Species Challenges through Interagency Collaboration

AUTHORS

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PROTECTION AND DETECTION

The Florida Cooperative Agricultural Pest Survey (CAPS) program is a cooperative effort between FDACS-DPI and the USDA-APHIS-PPQ that coordinates active pest detection surveys for the protection of agricultural commodities from the approximately two new arthropods that arrive in Florida every month. One example of a pest detected by CAPS during 2015 was the Old World Bollworm, *Helicoverpa armigera*. (see top right) The Old World Bollworm has over 200 reported host plants, and may result in resistance management issues for cotton and other agronomic crops. During 2016, the detection of Old World Bollworm was declared to be an isolated regulatory incident. As this pest could be re-introduced, the USDA-APHIS-PPQ, FDACS-DPI, and the University of Florida recently coordinated a strategic planning workshop and a morphological dissection training session with Corn Earworm, *H. zea* (see bottom right).



DIAGNOSTICS

The diagnostic laboratory expertise at FDACS-DPI is one of the most comprehensive regulatory resources in the United States and perhaps the world. Expertise devoted to identifying arthropod, nematode, and plant pathogen pests protects Florida's agricultural commodities from exotic invaders on a daily basis (see left). FDACS-DPI is also home to one of the largest arthropod collections in North America - the Florida State Collections of Arthropods.

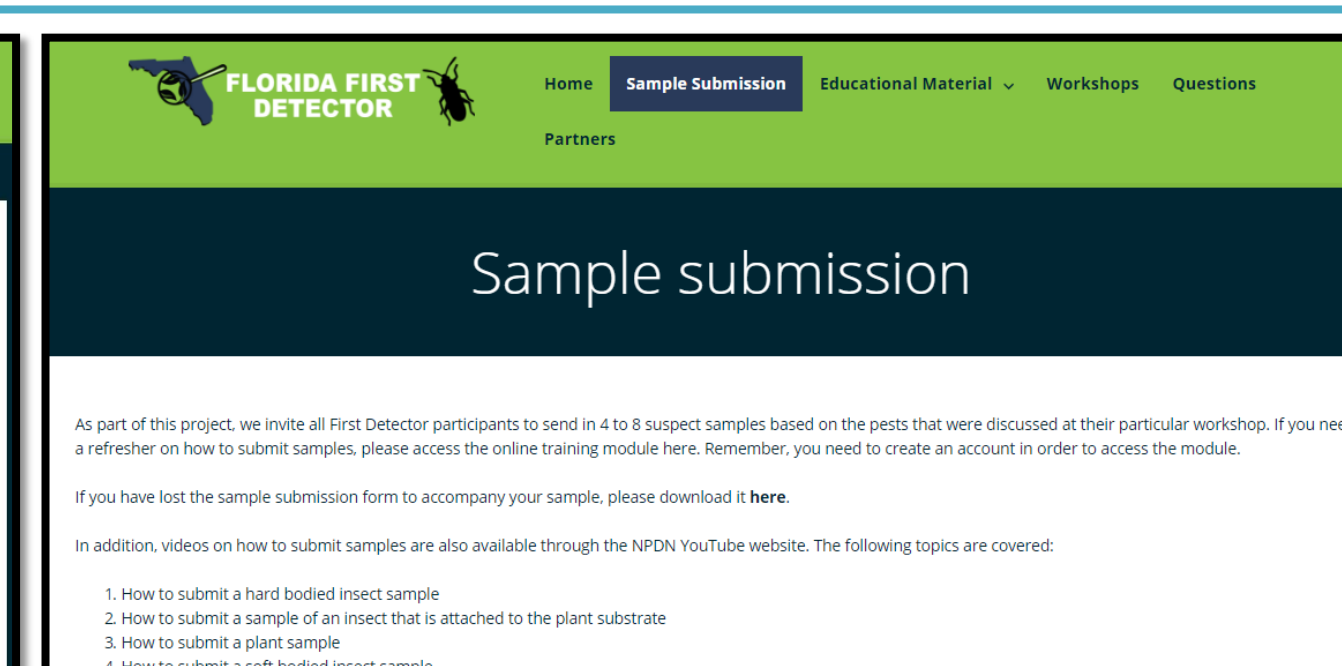
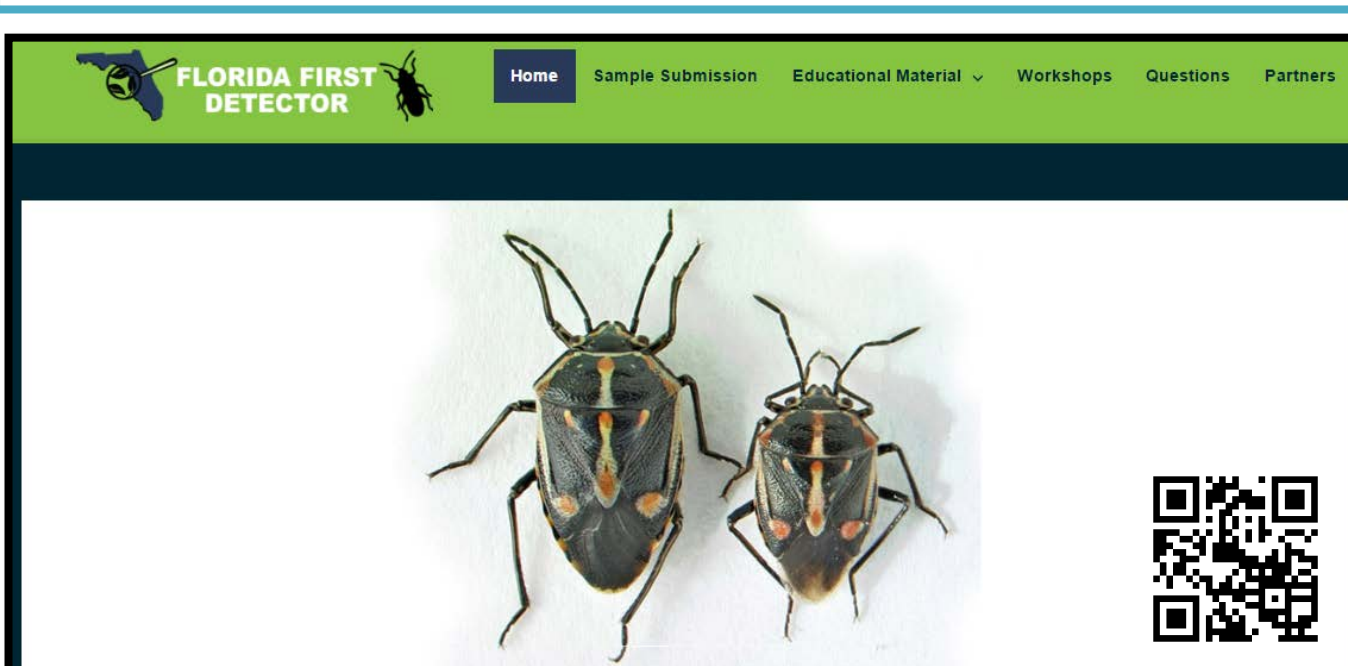
The University of Florida, IFAS Extension (UF/IFAS) also offers fee-based diagnostic services to crop consultants and others interested in routine plant pest diagnostics.

The diagnostic capabilities of FDACS-DPI and the UF/IFAS Extension collectively serve to diagnose plant pest problems within the state of Florida. UF/IFAS Extension efforts also provide for important and critical management recommendations not offered through FDACS-DPI.

OUTREACH FOR DETECTION

In 2013, the University of Florida formed an interagency training program through a Cooperative Extension Agreement with the USDA-APHIS-PPQ known as the Florida First Detector (<http://ffirstdetector.org/>).

- Provides:** critical and urgent invasive species detection training for Master Gardeners, crop consultants, county extension faculty, growers, botanical garden volunteers, and others interested in plant health topics
- Includes:** a volunteer survey and pest detection effort, comprehensive and scripted PowerPoint presentations, and e-learning modules
- Improves:** participant understanding of invasive plant pest detection and regulatory programs



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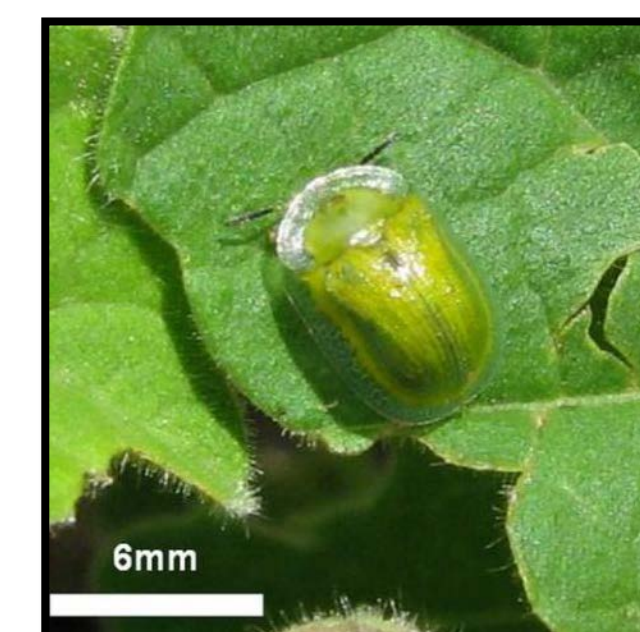
TEACHING AND RESEARCH

TROUBLESOME TERMITES

When damage from native subterranean termites at the Statue of Liberty became troublesome last year, the National Park Service asked Nan-Yao Su, professor of entomology with the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS), to find new ways to stop the pest. Su, a world-renowned termite expert, holds the new bait control system he developed, Wed. 5/14, that has brought the wood-eating pest under control for the first time in four years. Dr. Su says Liberty Island should be termite free by this summer.



Above: Pasture before and after the release of *Gratiana boliviana*, St. Lucie County, Florida
Below: Adult *Gratiana boliviana* Spaeth



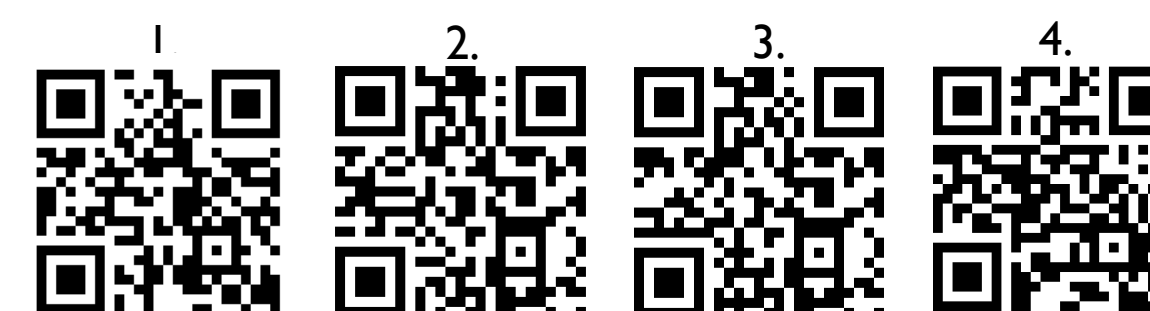
BIOLOGICAL CONTROL SUCCESS STORY TROPICAL SODA APPLE

Tropical soda apple, *Solanum viarum* Dunal (Solanaceae), is a prickly invasive from South America that reduces cattle stocking rates, competes with native plants, and incurs costs from herbicide control and mowing. Scientists from the University of Florida collaborated with scientists in Brazil and Argentina to conduct surveys for potential biological control agents. A defoliating leaf beetle, *Gratiana boliviana* Spaeth (Chrysomelidae), became the ideal candidate. In 2002, the USDA-APHIS-PPQ approved its release in the United States. The partnership between the University of Florida, FDACS-DPI, and USDA contributed to the successful rearing and release of biocontrol agents for tropical soda apple management in Florida.



DOCTOR OF PLANT MEDICINE PROGRAM

The University of Florida, Entomology and Nematology Department also serves as the lead coordinating unit for the interdisciplinary Doctor of Plant Medicine (DPM) Program. Within the DPM Program, students receive comprehensive hands-on training in plant pest diagnostics and pest detection, both at the University of Florida and through cooperative partnerships with FDACS-DPI and the USDA-APHIS-PPQ. DPM students and other graduate students in UF, IFAS also have the opportunity to further their invasive species plant pest knowledge through the Certificate in Plant Pest Risk Assessment and Management offered by the DPM program.



Above: Dr. Nan-Yao Su

RESPONSE AND RECOVERY

ORIENTAL FRUIT FLY

Oriental Fruit Fly, *Bactrocera orientalis* (Tephritidae)

- 430+** commodity hosts in Florida's \$120 billion agriculture industry
- August 2015** - Detected in Miami-Dade County
- 56,000+** traps continually monitored by FDACS-DPI and the USDA within the state of Florida
- Outreach and public relations efforts** during the outbreak event were attended by UF/IFAS extension faculty and industry partners
- February 12, 2016** - Successful eradication was announced by Florida Commissioner of Agriculture Adam H. Putnam



Yellow Fever Mosquito, *Aedes aegypti* (left) and Asian Tiger Mosquito, *Aedes albopictus* (right)

ZIKA VIRUS

The Florida Medical Entomology Laboratory in Vero Beach, Florida maintains a Mosquito Information website. Specifically, the Florida Medical Entomology Laboratory hosts an informational page on emerging threat posed by the Zika Virus. In order to provide timely and accurate information to the public, Dr. Roxanne Connelly and Dr. Jorge Rey have hosted an informational webinar and keep the public informed of the Caribbean and 2016 locally acquired cases of Zika virus. (<http://mosquito.ifas.ufl.edu/Zika.htm>)

DON'T PACK A PEST PROGRAM

FDACS-DPI developed and manages the **Don't Pack a Pest Program** with collaborative support from the USDA-APHIS-PPQ and U.S. Customs and Border Protection (CBP). This interagency effort raises traveler awareness about the potential risks associated with carrying undeclared agricultural commodities and related plant or animal products in their passenger baggage. With printed and digital signage at various domestic and international ports of entry, including air, land, and sea, the program provides travelers with guidelines that can reduce the likelihood of carrying prohibited or undocumented items in their luggage.

Currently, the Don't Pack a Pest Program has a visual presence of more than 700 signs displayed in over 50 ports of entry throughout the U.S. and the Caribbean. Within the Caribbean the program maintains partnerships with 8 different countries.

Linus, a CBP detector dog, remains the program's "spokes-canine", calling travelers to help protect our food supply and natural resources. More information about the Don't Pack a Pest Program can be found at: <http://www.dontpackapest.com/>.



PHOTO CREDITS

- Adult Old World Bollworm, *H. armigera* - Julieta Brambila, USDA-APHIS-PPQ, Bugwood.org, ID-5431761
- Male genitalia of Corn Earworm, *H. zea* - Nicole Casuso, University of Florida
- Diagnostic images - FDACS-DPI
- Dr. Nan-Yao Su - UF/IFAS File Photo
- Tropical Soda Apple, before and after - William A. Overholt, University of Florida
- Adult *Gratiana boliviana* Spaeth - Rodrigo Diaz, University of Florida
- DPM Program at CALS Career Expo - Ploy Kurdmongkoltham, University of Florida
- Male and female Oriental Fruit Fly, *Bactrocera orientalis* - Gary Steck, FDACS-DPI
- Yellow Fever Mosquito (*Aedes aegypti*) and Asian Tiger Mosquito (*Aedes albopictus*) - J. Newman, UF/IFAS/MEL
- Linus, CBP Detector Dog - FDACS-DPI, Don't Pack a Pest Program

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