Bugwood Image Database

Bugwood Images is a grant-funded project that began in 1994. The website, launched in 2001, has grown and received a great deal of recognition. Bugwood Images provides an easily accessible archive of high quality images for use in educational applications. It is made up of five major website interfaces: ForestryImages, IPMImages, InsectImages, WeedImages, and Invasive.org.

The focus of Bugwood Images is on species of economic concern. Images cover invasive species, forestry, agriculture, integrated pest management, plants, insects, diseases, fungi, wildlife, fire and other natural resource issues. Images are reviewed for content and quality. In most cases, the images found in this system were uploaded to our database by the actual photographers. Images are available freely for educational and non-commercial use, as long as they are cited. Commercial usage is dictated by individual photographers, who retain all rights to images.
Total Number of Images, 2014-2018

Images Added by Year, 2014-2018

Subjects Represented by New Images by Year, 2014-2018
EDDMapS is a web-based mapping system for documenting the distribution of invasive species and agronomic pests. It is fast, easy to use and doesn’t require geographic information systems experience. Launched in 2005, it was originally designed as a tool for state exotic pest plant councils to develop more complete distribution data of invasive species.

Participants submit their observations using a simple, interactive web interface or view results through interactive queries into the EDDMapS database. EDDMapS encourages users to participate by providing internet tools that maintain their personal records and enable them to visualize data with interactive maps.

Users simply enter information from their observations into the standardized on-line data form, which allows specific information about the infestation, including images, to be added. Data are immediately loaded to the website, allowing real time tracking of species. Being able to visualize the current distribution of a species as it moves into a new area helps to facilitate early detection and rapid response (EDRR) programs. EDRR programs help stop or control an invasive species before it becomes an unmanageable problem.

All data are reviewed by state verifiers to ensure identifications are accurate. The data are made freely available to scientists, researchers, land managers, land owners, educators, conservationists, ecologists, farmers, foresters, state and national parks.

EDDMapS goal is to maximize the effectiveness and accessibility of the immense number of invasive species observations recorded each year. As of April 2019, EDDMapS has over 4.8 million records.

EDDMapS combines data from other databases and organizations as well as volunteer observations to create a national network of invasive species distribution data that are shared with educators, land managers, conservation biologists, and beyond. These data will become the foundation for a better understanding of invasive species and pest distribution around the world.
Bulk Data added to EDDMapS, 2014-2018

Total EDDMapS Records, Total Reporters and Total Species Reported by Year, 2014-2018
MEDIA DISTRIBUTION

BUGWOOD APPS

The Center is involved in the design and publication of numerous mobile applications for both Android and iOS devices. To date, we have published 76 smartphone applications on topics including, but not limited to, reporting broad (e.g., EDDMapS Pro) and specific (e.g., Squeal on Pigs) invasive species as well as pest management and identification (e.g., VegDr). Applications created offer both geographically defined (e.g., IveGot1, EDDMapS West) and wide-ranging (e.g., Wild Spotter, Forest Insect Pests) options. Mobile applications engage users with topics related to invasive species, forest health, natural resource and agricultural management.

BUGWOOD WEBSITES

The Center has designed and developed some of the most recognizable web interfaces/brands for the fields of forestry, forest health, invasive species, natural resources, agriculture and entomology. We believe that web interface and application design must be both graphically pleasing and intuitive to provide information to users as quickly as possible.

Our most visited websites are EDDMapS.org, Bugwood.org and our image websites (Invasive.org, ForestryImages.org, IPMImages.org, InsectImages.org and WeedImages.org). We have also created and hosted outside organization websites including state and regional Exotic Pest Plant Council websites, Cooperative Invasive Species Management Area websites, and various others.

Total Number of Smartphone Apps by Year, 2014-2018

Some examples of recent partnerships that have led to Center-hosted sites include Texas A&M (RoseRosette.org), the USDA-ARS and the University of Illinois (SuctionTrapNetwork.org), and the National Cotton States Arthropod Pest Management Working Group (SouthernPests.org). Perhaps our biggest partnership as of late is with the U.S. Forest Service and Wildlife Forever to create WildSpotter.org.

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Number of Website Page Views by Year, 2014-2018

Total Number of Websites, 2014-2018
Presentations

Center staff are invited to a variety of events, conferences and workshops at the local, state, regional, national and international level. We are involved in invasive species policy workshops, give talks at data and citizen scientist symposiums, attend annual meetings for entomological and plant pathology societies and meet with many partners throughout the year on various projects. We also work locally providing First Detector workshops to the public and partnering with local garden clubs.

Some examples of national and international conferences attended by Center employees include:

Not only do Center staff give talks at outside events, the Center itself hosts national and international meetings. In May 2017, the Center hosted the North American Invasive Species Forum at the Coastal Georgia Botanical Gardens in Savannah, Georgia. This forum provided an opportunity for professionals and organizations to meet and discuss various aspects of invasive species management, research and regulation in North America.

The entire conference and workshop were live streamed on YouTube so it could reach a larger audience. The Forum and Preconference Workshop featured 47 presentations. There were 104 attendees from Canada, Mexico, India and 24 U.S. States. Forum sponsorship was provided by the Bureau of Land Management, Syngenta and the Sustainable Forestry Initiative.

One of the many presentations at the 2017 North American Invasive Species Forum.
The Center has many partners for whom we develop and maintain smartphone applications, websites and other software. These partners fund such projects with small grants and gifts. We also receive grant funds from state, regional and national sources, including state forest departments and fish and wildlife conservation commissions, universities, the USDA Animal and Plant Health Inspection Service and groups in Canada.

These funds are used toward expanding and maintaining smartphone apps and websites as well as toward publications and outreach activities to educate the public about invasive species. Funds are also used toward maintaining an image database for border agents to help them identify invasive species.

Total Number of Grants and Total Grant Amounts by Year, 2014-2018
Center Faculty & Staff

Center Faculty

Chuck Bargeron, MS Computer Science
Co-Director – Warnell School of Forestry & Natural Resources
Information Technology and Invasive Species

Michael Toews, PhD Entomology
Co-Director – College of Agricultural & Environmental Sciences
Department of Entomology
Research, Teaching, and Extension – Insect Ecology and Pest Management

Joe LaForest, MS Entomology/Plant Pathology
Associate Director
Integrated Pest Management and Forest Health
Co-Director – Southern IPM Center

Center Staff

Salina McAllister, AS Business Administration – Administrative Assistant II

Karan Rawlins, MS Biology – Invasive Species Coordinator

Rebekah Wallace, MS Crop & Soil Sciences – EDDMapS Coordinator

Liz Moss, MS Forestry – Forest Health Coordinator

Rachel Carroll, MS Natural Resource Ecology and Management – Citizen Science Coordinator

Sarah Jean Swain, BS Ag Communication – Communications Coordinator

Jordan Daniel, BS Computer Science – Smart Phone Application Programmer

Bilal Bush, BS Computer Science – Web Application Programmer

Krunal Patel, BS Computer Engineering, MS Computer Science – Smart Phone Application Programmer

Sai Dasari, MS Computer Science – Web Application Programmer

Michaela Lubbers – Student Assistant

Graduate Students

Apurba Barman, PhD Entomology, is a post doc working on the distribution and management of silverleaf whitefly in cotton and vegetable production.

Sarah Hobby is a current Master of Plant Protection and Pest Management (MPPPM) graduate student working on distribution and abundance of brown marmorated stink bug.

Lauren Perez is a current MS graduate student working on temporal abundance of stored product insects in peanut storage and shelling facilities.