



ENTOMOLOGICAL
SOCIETY OF AMERICA
SHARING INSECT SCIENCE GLOBALLY



Grand Challenge Agenda for Entomology – Looking to 2022

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December 8, 2021



Entomological Society of America (ESA)

- Largest organization in the world serving the professional and scientific needs of entomologists and individuals in related disciplines
- Founded in 1889
- More than 7,000 members affiliated with educational institutions, health agencies, private industry, and government
- Members are researchers, teachers, extension service personnel, administrators, marketing representatives, research technicians, consultants, students, pest management professionals, and hobbyists
- Annual and branch meetings, eight journals, other programming to support awards, DEI, early career, science policy, etc.



Grand Challenge Agenda for Entomology (GCAFE) Origins

- 2014: ESA President Frank Zalom charges the Presidential Committee on Grand Challenges for Entomology to launch an effort by ESA to
 - maximize the contribution of entomology to improving the human
 - identify the most important challenges to which entomology can make the most significant contributions
- Long-term vision:
 - Entomology is recognized by policy makers and key research influencers as a critical element to solving our targeted challenge areas.
 - Entomological societies around the world increasingly collaborate to support the Grand Challenge Agenda for Entomology.

Four thematic GCAFE topics identified

- Sustainable agriculture – global hunger, food security, and natural resources preservation
- Vector-borne diseases – impact on human health
- Invasive Species – global trade and climate change
- Biodiversity loss – healthy ecosystems depend on diverse, thriving arthropod communities



Early Events

- March 2016, Brazil: Summit on the *Aedes aegypti* Crisis in the Americas
- May 2016, Washington, DC: Integrated Tick Management Symposium: Solving America's Tick-Borne Disease Problem
- September 2016, Orlando: International Entomology Leadership Summit: Improving the Human Condition through Insect Science
- September 2018, Brazil: Grand Challenges in Entomology in South America

Entomology 2018

- November 2018, Canada: “Addressing the North American and Pacific Rim Invasive Insect and Arthropod Species Challenge”
- This summit was co-located with Entomology 2018 – a tri-Society meeting of ESA, the Entomological Society of Canada, and the Entomological Society of British Columbia
- Mix of round tables, plenary sessions, breakout conversations, scientific posters, and other methods of scientific presentation
- Created statement combining recommendations that came out of two days of break out discussions

GCAFE 2020

- Following 2018 meeting, received request from APHIS for better guidance on how to improve ISPM-15
- Started developing plans with a working group including NWPCA, TNC, etc. for a summit to look at ISPM-15 and wood-boring insects.
- Then COVID-19 hit...

Questions that arose in 2021

- From which countries are infested materials most likely to arrive in the U.S.?
- Which types of SWPM are most likely to be infested?
- What is the true rate of infested material at U.S. ports?
- What is the causal route for the SWPM to be infested? (ie. Fraudulent ISPM 15 stamp? Improper treatment? Untreated and unstamped? Pre- or post-treatment?)
- Can we improve targeting (by commodity, region, country, etc.) so inspectors can more efficiently focus their efforts?
- What areas of focus will lead to the highest reduction in pest incidence? Or of ISPM 15 compliance?

Preliminary Proposal

- Create an objective, independent, and longitudinal study based on replicable methods to evaluate the risk of pest presence in SWPM on and in dunnage and pallets at five major foreign importation ports in the U.S.
- Leverage national collaborations between academic institutions, federal partners, and private entities.
- Integrate existing and emerging technology to validate effectiveness and help create potentially new markets for use to help increase efficacy and efficiency for APHIS and CBP.

Where we are now

- Started preliminary conversations with APHIS, ARS, CBP, and others about interest and feasibility.
- Many questions remain:
 - How many samples need to be collected to be statistically significant?
 - How to collect samples?
 - Where to rear up collected samples?
 - How to legally and safely swap out pallets?
 - What existing technology can be integrated?
 - Funding?
 - Etc.

Looking towards 2022

- Answer questions essential to planning and budget proposal
- Buy in from relevant stakeholders, engage others
- Start research project
- Host summit in conjunction with ESA Annual Meeting in National Harbor, November 2023

Questions?

