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IOBC-NRS NEWSLETTER

INSIDE THIS ISSUE:

The long road to recovery: classical biological control of olive fruit fly in California

Recent recoveries of a parasitoid imported into California for control of the olive fruit fly strongly suggest permanent establishment at two, possibly three coastal locations. Olive fruit fly (*Bactrocera oleae*, Tephritidae) was first reported in California in 1998 and has since spread to all commercial olive production regions. It is, worldwide the worst pest of commercially grown olive. The significance of this establishment is two-fold. *Psyttalia lounsburyi* (Hymenoptera: Braconidae) is the first agent to be released and recovered after years of foreign exploration and host specificity testing. They

Psyttalia lounsburyi (Photo by K. Daane)

(Olive cont. on p. 4)

Parasitoid workshop focuses on native and exotic brown marmorated stink bug enemies

Earlier this month, during June 10-11, 2015, Kim Hoelmer and Christine Dieckhoff of the ARS Beneficial Insect Introduction Reseach Unit in Newark, Delaware, and Matt Buffington and Elijah Talamas of the ARS Systematic Entomology Lab, based at Smithsonian National Museum of Natural History in DC, hosted a workshop on "Parasitoids of the Brown Marmorated Stink Bug". This workhop ocurred in conjunction with the BMSB IPM Working Group Meeting which was held the preceding day at the University of Maryland, College Park.

More than two dozen participants learned about the collection, curation, systematics, and identification of stink bug natural enemies. Special emphasis was placed on a scelionid wasp species just recently discovered in North America, *Trissolcus japonicus* (Ashmead). This species was recovered in a study of stink bug parasitoids using sentinel eggs at Beltsville by Megan Herlihy and Don Weber of the ARS Invasive Insect Biocontrol and Behavior lab,

(Brown marmorated cont. on p. 3)

Message From the President:
Pollinator week: Adding Biocontrol to all the Buzz

Don Weber

IOBC-NRS President
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As I write this, it's National Pollinator Week 2015 in the USA. A lot of both celebration as well as handwringing on Capitol Hill and elsewhere, mostly about the fate of the "the bees." (Wait a minute, that's a monarch and a milkweed featured on the brochure and stickers!). This is a good thing, but it's not enough.

While essential to our food chain in North America and globally, honeybees are only one of many bee species, and bees are only one group of pollinators. But wait, you -- unlike over 99% of the public -- know that.

What even fewer people know is that pollinators are only a fraction of the vast diversity of beneficial arthropods. With the lack of knowledge of natural enemies -- which silently suppress pestiferous insects, mites, and weeds -- comes the risk that well-meaning actions to "save the bees" will not benefit, and will sometimes imperil, valuable biological control research and achievements.

This can happen in the political sphere, when "save the bees" moves resources and attention away from biological control to pollinator protection. It can happen too, when all the focus is on pollination, even shorter-term efforts to save alien *Apis*. The problem is, until good science is in place, merely advocating the flower power of blooming strips can turn out a half-baked kumbaya.

Fortunately, there is broad overlap of tactics and strategies to conserve and augment pollinators *and* arthropod natural enemies. But on the specifics, way more research is required to tease out the solid science, and to recommend regionally appropriate conservation buffer plantings which fulfill the many functions we expect of them, including fostering pollinators and natural enemies. Work in the UK and Belgium by Felix Wäckers and others has examined the multiple attributes for beneficial field margin plantings (they chose 14 qualities!). These included value to birds and other wildlife, lack of weediness, not providing food for key pests, timely nectar for parasitoids, and good soil nutrient capture, among others.

Every region is different; for some regions, fire hazard and drought tolerance could be key. Multipurpose research efforts emphasizing conservation biocontrol are growing in the US and Canada, for example some great work with blooming perennials for the Great Lakes region by Doug Landis, Rufus Isaacs, and colleagues.

But collectively, natural enemies don't yet have the high profile that pollinators do. Working with agencies like NRCS, state DNRs, progressive growers and other landowners, and thoughtful informed advocates like the Xerces Society, those of us involved with biological control must provide the good science, and identify the pitfalls and hazards to biological control, and advocate for broader Agri-Environment Schemes, as they are known across the pond. Only in this way can the current wave of interest and support for bees and butterflies translate into meaningful support and expanded success for biological control *and* pollination.

Don Weber
USDA-ARS, Beltsville

Research Highlight: PhD student

Ryan is a graduate student working toward a PhD in entomology at Kansas State University, under the direction of Dr. Brian McCornack. His main research interest is the use of conservation biological control to foster more sustainable agriculture practices. During his M.S. work at South Dakota State University, under Dr. Jonathan Lundgren, much of his attention was focused on the effects microbial symbionts have on the behavior and biology of insects. Accordingly, most of his research dealt with the effects of gut symbionts, such as *Enterococcus faecalis*, on insect seed consumption and diet selection behavior. Ryan's preliminary experiments while at SDSU boosted his interest to study insects. Specifically, he became interested in the factors influencing insect gut symbionts and insect diversity at the community level. Since transitioning to a PhD program at Kansas State University, Ryan's research has focused on developing effective and efficient devices for monitoring the Hessian fly, a common pest in wheat. The goal of his research is to develop methods for Hessian fly surveillance, which will allow producers to make better informed decisions on Hessian fly management.

Ryan sampling in the field

Ryan Schmid

Kansas State University

(Brown marmorated cont. from p. 1)

where it emerged from seven sentinel BMSB egg masses deployed in a woody habitat at the Beltsville station. The presence of *T. japonicus* came as an incredible surprise to researchers, especially Elijah Talamas!

Elijah and co-authors rapidly assembled a report of this discovery and published it within two months in the Journal of Hymenoptera Research. Co-author Claude-Marie Bon of the European Biocontrol Lab in Montpellier, France, recently confirmed that the parasitoids are not from the same populations as those now under study in quarantine at Newark. This supports our hypothesis the presence of *T. japonicus* in Maryland is the result of a separate and accidental introduction, entering North America in stink bug eggs on plant material or as a dormant adult in soil or wood. Interestingly, specimens of *Trissolcus* were recently intercepted at Atlanta International Airport on plant material from Ukraine and sent to the Systematic Entomology Lab, where Elijah identified them as *T. cultratus* (Mayr), a species known to attack BMSB in Asia. The small size and general crypsis of many parasitoids, combined with the volume of global commerce, makes such accidental introductions ever more likely. Another recent example is the spontaneous 2013 appearance of *Paratelenomus saccharalis* (Dodd), attacking eggs of the introduced kudzu bug.

On June 11th, workshop participants were led on a behind-the-scenes tour of the Beltsville Area Research Center (BARC) where stink bug rearing is conducted for the production of sentinel egg masses and diverse other research projects.

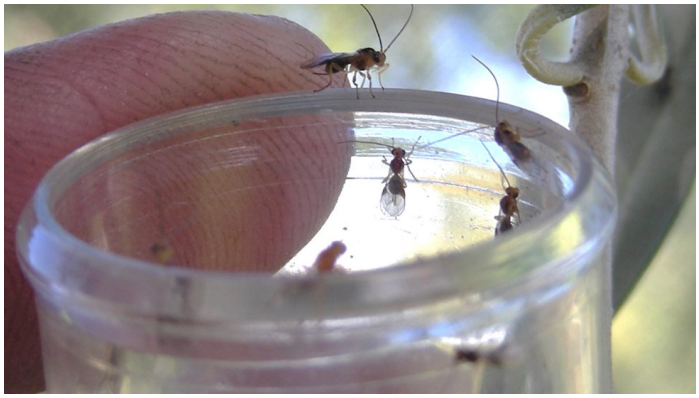
(Brown marmorated cont. on p. 6)

(Olive cont. from p. 1)

have been found 945 days after release at one location, have dispersed at least 1500 m from some release sites, and reached 45% parasitism at another location. But equally significant, it is the first time an olive fruit fly biocontrol agent has been successfully collected from Sub-Sahara Africa, origin of fly, and established in the northern hemisphere. Silvestri, a well-traveled Italian, foreign explorer in the early 1900's was the first to suggest that olive fruit fly was an introduced pest to the Mediterranean region. He explored east and south Africa for natural enemies, but was never successful at introducing them into southern Europe. Since then several other Europeans have attempted colonization of parasitoids from sub-Sahara Africa but have not succeeded. Part of the problem has been that parasitoids were reared on olive infested fruit which are not available from May to July when parasitoids can be easily collected in the southern hemisphere. This problem was overcome through advances in rearing techniques developed at the European Biological Control Laboratory in southern France. And just as importantly, this project's success is due to the dedication of an international group of entomologists and long-term financial support. Efforts are continuing in the importation of additional olive fruit fly parasitoids since *P. lounsburyi* is not expected to disperse into all climatic regions of California.

Charlie Pickett, CDFA

Kent Daane, UC Berkeley



Psyttalia lounsburyi at release (Photo by C. Pickett)

Reference: K. M. Daane, X-G Wang, D. J. Nieto, C. H. Pickett, K. A. Hoelmer, A. Blanchet, and M W. Johnson. 2015. Classic biological control of olive fruit fly in California: release and recovery of introduced parasitoids. Biocontrol, in press.

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Call for nominations for IOBC-NRS Awards !

IOBC-NRS Distinguished Scientist Award

The IOBC-NRS solicits nominations for its 2015 Distinguished Scientist Award. Nominees must have spent most of their career in the Nearctic Region, and have made significant contributions to biological control, but need not be members of IOBC.

Nomination narratives are restricted to one page in length and should contain a thorough but concise summary of the principal contributions of the nominee. The nominator should include the names and current contact information of both nominator and nominee on a separate page. A copy of the nominee's CV (no page limit) should also be included that provides the nominee's professional record (employment affiliations), list of prior awards, description of biological control related activities, publications lists, and extramural grant record.

The recognition of those scientists who have made outstanding contributions to the science and implementation of biological control over the course of their careers is an important function of IOBC. Many members have expressed their enjoyment seeing colleagues honored with our Distinguished Scientist Award. Help us honor our deserving colleagues!
Please send nominations or questions electronically by July 10, 2015, to IOBC NRS President, DonWeber, Don.Weber@ars.usda.gov

IOBC Graduate Student Awards

The IOBC-NRS sponsors two Graduate Student Awards — The Robert O'Neil Award for Outstanding PhD Student in Biological Control, and a Master's-level award — to be awarded to students whose contributions are likely to shape the future of biological control. The recipients will be recognized at the IOBC-NRS Symposium held at the ESA Annual Meeting in November 2015, in Minneapolis, Minnesota. Winners will receive cash awards ($300 for PhD, $200 for Master's), and the PhD winner will also give a research presentation during the IOBC Symposium and Meeting.

Eligibility: All students enrolled in a graduate program in Bermuda, Canada, or the U.S., and who are members of the IOBC at the time of the application deadline are eligible.

Application guidelines: Students should send as a single PDF file: a letter that details the significance of their research and its relevance to biological control; a CV that includes contact information; and two letters of recommendation. See IOBC NRS website for information on previous winners and specific criteria for assessment of nominations.
Application materials and questions should be sent electronically to President-Elect, Jim Nechols, jnechols@ksu.edu. Application deadline is July 10, 2015.

Early Career Outstanding Scientist Award

Inaugurated in 2012, the Early Career Outstanding Scientist Award recognizes nominees no more than 10 years post-PhD, who have made significant contributions to the field of biological control through research, teaching, and/or extension/outreach. The nominee must have spent most of their career in the Nearctic Region and be a current IOBC member.

Nomination narratives are restricted to one page in length and should contain a thorough but concise summary of the principal contributions of the nominee. The nominator should include the names and current contact information of both nominator and nominee on a separate page. A copy of the nominee's CV, which provides the nominee's professional record (i.e., employment affiliations), list of prior awards, description of biological control related activities (in paragraph form), publications list, and extramural grant record, (no page limit) should also be included.
Please submit nominations by 10 July: IOBC NRS President, Don Weber, **Don.Weber@ars.usda.gov**

(Brown marmorated cont. from p. 3)

These sentinels are part of a larger 2015 regional survey, which includes Tracy Leskey's lab in Kearneysville, WV, Chris Bergh's station in Winchester, VA, and the associated ARS laboratories at BARC, Newark DE and Washington DC. The tour included the otherwise unremarkable *T. japonicus* discovery site and other nearby sampled habitats. From there, participants were whisked to and wowed by a tour of the Systematic Entomology Laboratory within the NMNH, Smithsonian Institution, in Washington, DC with Matt Buffington and Elijah Talamas. The tour concluded at the *Trissolcus* display (housed within the Smithsonian Insect Zoo) summarizing the role of systematics in biological control and invasive species management.

Don Weber—USDA-ARS, Beltsville
Elijah Talamas—USDA-ARS, DC

Insect Pathology Short Course

The IOBC sponsored Insect Pathology Short Course was held on June 8-12, 2015 at Cornell University. The recent course will be highlighted in a future issue or on the website. Photos from past course are featured.

Lee Solter
Illinois Natural History Survey

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The International Organization for Biological Control—Nearctic Regional Section Newsletter is published 3 times a year to provide information and to further communication among members of the Region (Bermuda, Canada, & the United States).

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