International Organization for Biological Control of Noxious Animals and Plants. Nearctic Regional Section

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IOBC-NRS NEWSLETTER

INSIDE THIS ISSUE:

Ted Center Receives IOBC-NRS Distinguished Scientist Award

Ted Center, USDA ARS Invasive Plant Biologist, receives 2009 IOBC Scientist of the Year Award

Ted Center of the USDA ARS Invasive Plant Research Laboratory in Ft. Lauderdale was awarded the 2009 IOBC Distinguished Scientist of the Year Award for lifetime accomplishments in weed biological control. For 32 years, he developed and led an active program against weeds of natural areas. He participated in or led successful biological control projects against several invasive aquatic plants including alligatorweed, waterhyacinth, water lettuce, *Salvinia* and *Melaleuca*, as well as ongoing attempts against *Hydrilla*, skunkvine, and Old World climbing fern. A waterhyacinth project was of particular ecological importance. The successful biological control of *Melaleuca*'s regenerative capacity, when combined with mechanical and chemical control, ended the threat of this Australian tree to south Florida ecosystems, especially the Everglades. Ted's contributions also include his vision and leadership, which resulted in the development of greatly improved facilities for invasive plant biological control in the southeastern USA. Ted's efforts led to the planning and construction of a new quarantine facility and support laboratories in Ft. Lauderdale, and a stable base of support for this Invasive Plant Research program. As research leader, he also assembled and inspired a team of scientists whose work continues to tackle important and emerging pest problems in natural areas.

A Proposed IOBC-NRS Working Group: Generalist Predators

Roy van Dreische
Dept Entomology
University of Massachusetts

James Harwood and Jonathan Lundgren are spearheading the development of an IOBC Working Group devoted to promoting research and awareness of generalist predators in agricultural and natural systems. Generalist predator communities are often speciose and abundant in even the most highly managed systems. Yet their contributions to pest management and the complex interactions that allow them to persist remain poorly understood. Specific areas of interest for the group will be predator conservation, IGP, omnivory, plant-predator interactions, and how biodiversity affects predator function. Strong emphases will be on approaches for diagnosing trophic interactions to unravel complex food webs. The foundations for this working group will be laid at the IOBC-NRS meeting in Niagara Falls in May. For further information on this working group, please contact:
James Harwood
(jharw2@email.uky.edu)
or Jonathan Lundgren
(Jonathan.Lundgren@ars.usda.gov)
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***Argiope*, a common predator in North America. Photo by Kelton Welch**

MESSAGE FROM THE PRESIDENT:

Spring Time in Niagara Falls, Canada

Please plan to attend the IOBC-NRS meeting in Niagara!

As I look out my window today, the warmer weather is arriving and many of us are busy planning our field season. Another activity I am hoping that you are entering in your calendar is the joint IOBC – Nearctic and Neotropic Regional Sections Conference "Biocontrol in the Americas: Past, Present and Future" May 11–13, 2010 at Niagara Falls, Canada. The scientific program is completed and contains symposia on all aspects of biological control. Find out what is the current status of biological control of arthropods, weeds and plant pathogens in North America, Mexico, and Central and South America. The program is available on our website (www.iobcnrs.com). Registration is limited to 150 participants. There is reduced registration for students and prizes for poster competitions for the students. Encourage your student to participate and network with their future colleagues in biocontrol. The tulips will be up and cherry blossoms in bloom; spring time is a beautiful season to see Niagara Falls.

In closing, it seems like a long time since our annual meeting in Indianapolis, but I would like to thank James Hagler and Jonathan Lundgren for organizing and moderating the symposium on "Advances in the Application of Molecular and Biochemical Methods for Biological Control Research". All the speakers gave excellent presentations and we had a full house. We were privileged also to have Joop van Lenteren (General Secretary of IOBC Global) give us an update on the latest activities of IOBC Global including the report on "Biological Control and Access and Benefit Sharing". You will hear more about the report from Jacques Brodeur (IOBC President) and our keynote speaker for the IOBC meeting in Niagara Falls.

See you in Niagara Falls!

Les Shipp
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A Call For Nominations for IOBC-NRS Awards!

IOBC-NRS Distinguished Scientist Awards

The IOBC-NRS is soliciting nominations for the 2009 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 principle 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 (i.e., employment affiliations), list of prior awards, description of biological control related activities (in paragraph form), publications lists, and extramural grant record.

This is a major way for our organization to tell key contributors how much their work is appreciated. The recognition of those scientists who have made outstanding contributions to the science and implementation of biological control over extended and illustrious careers is an important function of IOBC. Many members have expressed their enjoyment of seeing colleagues honored with our Distinguished Scientist Award. Help us honor our deserving colleagues!

Please send nominations or questions electronically by June 15, 2010 to the IOBC-NRS President, Les Shipp
Les.Shipp@AGR.GC.CA

IOBC Graduate Student Awards

The IOBC-NRS is sponsoring two Graduate Student Awards (The Robert O'Neil Award for Outstanding PhD Student in Biological Control, and a Master's-level award), to be bestowed on students whose contributions are likely to shape the future of biological control. The recipients will be recognized at the IOBC-NRS Informal conference held at the ESA Annual Meeting. Winners will receive cash awards ($300 for PhD, $200 for Masters), and the PhD winner will also give a research presentation during the IOBC business meeting. See IOBC-NRS website for information on previous winners.

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. Please indicate that you plan to attend the Annual meeting of the ESA– preference will be given to students planning to attend.

Application Guidelines: Students should send: 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. Criteria (and relative ranking) to be assessed are: publications (15 pts), presentations (15 pts), outreach activities (15 pts), teaching (15 pts), grantsmanship (15 pts), current and future contributions to biological control (15 pts), and letters of support (10 pts). Application materials and questions should be sent electronically to Doug Landis *landisd@msu.edu*. **Application deadline is June 30, 2010.**

Menelaos Stavrinides Wins Robert J. O'Neil Outstanding PhD in Biological Control Award.

Mel Stavrinides began his PhD at UC Berkeley in August 2004, having completed a BSc at the Aristotle University of Thessaloniki, Greece, and an MSc in pest management at the University of London, Imperial College, UK. For his dissertation research, Mel tackled the problem of increasing spider mite damage in vineyards in California. Two important questions that he addressed were; (1) Can water stress and leaf temperature in grapes influence the performance and relative abundance of Pacific spider mite and Willamette spider mite, and their control by western predatory mite?, and (2) To what extent can the insecticides and fungicides that

IOBC-NRS VP Doug Landis presents Stavrinides his award in Indianapolis.

are commonly used in grapes influence the control of Pacific spider mite by western predatory mite? As a graduate student Mel has not only been very successful in generating grant support for his research, but he has also frequently been invited to give presentations of his research at national and international conferences, and at grower meetings throughout the grape growing regions of California. In addition to his research skills, Mel is a very impressive mentor and instructor, guiding numerous undergraduates through research projects and receiving an Outstanding Graduate Student Instructor Award for his contribution to General Biology. He currently holds a postdoctoral position at UC Berkeley.

Nick Mills
UC Berkeley
Berkeley, CA

IOBC-NRS Meeting in Niagara Falls, Ontario May 11-13, 2010

The meeting is filling up fast, but there is still time to register. Visit our website (www.iobcnrs.com) for more information on this exciting event. In addition to a keynote address by Jacques Brodeur, and an organized tour of the Niagara region, the program includes the following symposia:

- ***Risks and Benefits of Exploration for Biological Control Agents in the Americas*** (Heimpel & Mason)
- ***Use of Generalist Predators in Biological Control*** (Harwood & Lundgren)
- ***Ecosystem Landscapes and Habitat Management to Improve Biocontrol*** (Landis & Hooks)
- ***Invasive Pests – Is Biological Control a Viable Option: What Lessons Have We Learned?*** (Hoddle & Van Driesche)
- ***Challenges for Commercialization and Implementation of Biological Control Agents in the Americas*** (Bueno & Parra)
- ***Challenges and Successes in Augmentation Biological Control for North America*** (LeBeck)
- ***Biological Control with Egg Parasitoids*** (Consoli & Boivin)
- ***Weed Biocontrol – Why is it so Successful*** (Cabrera-Walsh & DeLoach)
- ***Microbial Control in the Americas: Successes, Failures, Lessons Learned – What worked, Why? What didn't work, Why?*** (Jaronski & Faria)
- ***Biocontrol Free Trade in the Americas – Exchanging People, Technology and Resources*** (Canas & Heinz)

Please plan to attend, present a poster, and interact with biocontrol colleagues from both North and South America.

Saltcedar, an invasive weed currently targeted by a classical biological control program in North America. Photo by S. Dewey.

Meeting Announcements

The 10th International Colloquium on Invertebrate Pathology and Microbial Control and **43th Annual Meeting of the Society for Invertebrate Pathology Karadeniz Technical University, Trabzon, Turkey;**
July 11-15, 2010

We are planning an exceptional scientific program to explore the most current international findings on invertebrate pathology, including biological control of insect pests, understanding disease in beneficial invertebrates, medical and biotechnological significance of entomopathogens and fundamental scientific research in host-pathogen interactions. For more information visit the meeting website at: http://www.sip2010.org/

Lerry Lacey
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Biological Control in Support of Nature Northampton Massachusetts, USA;
October 3-7 2010

This meeting will explore the benefits of classical biological control for the control of invasive insects and weeds in natural forests, and associated habitats such as wetlands, grasslands, and deserts. Applications to islands and other natural systems will be included. The meeting will not address other forms of biological control (augmentation, conservation, or biopesticides), nor will it address the use of biological control in plantation forestry. The meeting will appeal to biological control scientists, conservationists, invasion biologists, and land managers.

***Rhodolia cardinalis*, a wildly successful classical biological control project against *Icerya purchasi*.**

Information on the conference (including registration, session, and location information) can be found at:
http://biocontrolfornature.ucr.edu/

The meeting is limited to just 150 people so early registration is encouraged.

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Blueprint for the Future of Arthropod Rearing and Quality Assurance
Vienna International Center, Austria
October 19-22, 2010

The objective of the workshop is to address the audacious goal of moving from "bug farms" to industrial production of high-quality insects, mites and nematodes for biological control, SIT, research and other current and future applications.

The workshop will focus on all issues related to the rearing of entomophagous and phytophagous insects and mites, and entomopathogenic nematodes, and to principles and practices of quality assurance. The program will consist of invited papers presenting an overview of selected topics (to be announced later) and contributed presentations on the different aspects of arthropod rearing as it relates to quality control. Papers will serve as a basis for discussion and exchange, with the final aim of improving collaboration among scientists and practitioners.

Limited financial assistance for young IOBC members is available. All upcoming information on the program, registration and accommodation will be available on the AMRQC (www.AMRQC.org), ANBP (www.ANBP.org) and IAEA (to be announced later) websites.

Patrick DeClercq
patrick.declercq@ugent.be

Your membership is crucial to our society!
If you have not renewed your membership for 2010, please take a moment to do so! Contact Stefan Jaronski (bug@midrivers.com) with questions.

Biocontrol Musing: Leo's Interpretation

"*Happy families are all alike; every unhappy family is unhappy in its own way*"

Thus begins Tolstoy's classic novel, Anna Karenina. This phrase has given us the "Anna Karenina Principle"- the idea that any number of a diverse set of factors can go awry and doom an enterprise as complex as a family to failure, while success can only be expected when everything falls into place just so. The Anna Karenina principle has wide applicability and Jared Diamond applied it to the domestication of animals, which has only occurred with success for a relatively small fraction of potential candidates.

Does the principle apply to biological control as well? I would certainly think so, since there are so many aspects of the relationships between a natural enemy, its target species and the surrounding environment that have converged for control to be achieved. Many of these factors are necessary conditions for successful control, meaning that in the absence of the condition, control fails. Indeed, one could describe the science of biological control as a quest to identify those factors common to biological control projects that are "happy" and conversely those factors without which biological control is "unhappy".

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Diamond, J.M. 1997. Guns, Germs and Steel: the Fates of Human Societies. Norton & Co., New York.
McClay et al. 2005. Biol. Control 35: 197-207.

RESEARCH BRIEFS

Bacteria, Sex Ratios, and Biological Control

Biological control practitioners have long been fascinated with the ability of some species or biotypes to reproduce by complete parthenogenesis (thelytoky). As early as 1924 Clausen and Timberlake realized that thelytokous populations, which consist of only females, could have a much higher rate of population increase than comparable sexual forms. Now that we know that in many cases thelytoky is caused by bacteria (*Wolbachia*, *Cardinium* and *Rickettsia*) and it may become possible to render populations used for biocontrol thelytokous by infecting them with these bacteria. At this point it appears that it is not easily done. For instance, the parthenogensis-inducing *Wolbachia* found in different *Trichogramma* species can only stably infect their own *Trichogramma* species. Additionally, in some cases infection with these bacteria may negatively influence the total number of offspring produced by the infected females. Still there are many intriguing possibilities for using thelytokous lines in biocontrol. One approach might be to create a large number of genetically different thelytokous lines of *Trichogramma* which could be released in the field. The best performing lines could subsequently be recovered, and in this way inundative biological control programs could be optimized.

***Trichogramma* egg parasitoids, a model organism for studying parthenogenesis-inducing symbionts.**

Richard Stouthamer
UC Riverside,
Riverside, CA

Timberlake, P. H.; Clausen, C. P. 1924 The parasites of *Pseudococcus maritimus* (Ehrhorn) in California (Hymenoptera, Chalcidoidea). Parts I & II. Univ. Califor-

IOBC-NRS Sponsored Shortcourse: Insect Pathology

The "Insect Pathology Short Course" will summarize the infectious diseases of insects by introducing the etiological agents: bacteria, fungi, nematodes, protozoans, and viruses by some of the world's experts in Insect Pathology (Lee Solter, Lerry Lacey, and Richard Humber). The morphological, biological and pathological features of these organisms will be presented, as well as their importance and use in forestry and agricultural settings. The course is intended for students at the graduate level and researchers at any level who are interested in learning about insect pathogens.

Each pathogen group will be covered in a lecture format using handouts and PowerPoint presentations. Participants will learn diagnostic techniques for each pathogen group in 'hands on' laboratory sessions using live material (hosts and pathogens), and archived material (slides). We will also cover microbial control, epizootiology, and diseases of beneficial insects. Participants have benefited by the mix of students and other scientific researchers, some who have had previous experience with entomopathogens.

The course is capped at 20 students, and so please contact Solter right away.

University of Illinois, Urbana, IL; June 7-11, 2010

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NEWSLETTER WRAP-UP

When speaking to the general public, I often quote the phrase, "insects are the little things that rule the world." Unfortunately, this is a myopic view (or perhaps not myopic enough!); research consistently shows that microbes have a profound effect on the interactions between biocontrol agents and their targets. Nevertheless, many of us in the field of biocontrol are ethologists and ecologists, and often forget or glance over the influence that microbial symbioses have on individuals and populations of natural enemies.

Pathologists have long understood that microbes can regulate insect and weed populations, and have tried to harness this power for biological control. Unfortunately, the presence of Insect Pathology in the curricula at major universities is getting harder to find. Thankfully, Lee Solter et al.'s 2010 short course on this topic helps to partially fill this void, and IOBC-NRS is proud to help sponsor this wonderful course this summer.

The importance of microbes transcends simple pathological relationships. Microbial symbionts influence the dietary breadth of natural enemies, mediate plant-insect interactions, affect parasitoid-host relationships, and are a crucial factor to consider when introducing new natural enemies to recipient biota. These fascinating topics will be covered at the ESA Annual meeting in San Diego at the IOBC-NRS's Tuesday evening symposium entitled "Unseen alliances: microbial symbioses that affect biological control" (Jen White and myself are co-organizers). It should be a very interesting discussion that hopefully prompts new research in this emerging branch of biocontrol.

Moth infected with fungus. Photo by Tom Coleman.

Jonathan Lundgren
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International Organization for Biological Control of Noxious Animals and Plants. Nearctic Regional Section
Organisation Internationale de Lutte Biologique Contre Les Animaux et Les Plantes Nuisbiles: Section de la Region Nearctic

Visit our new website:www.iobcnrs.com

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

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