

IOBC-NRS NEWSLETTER

Special Election Issue!

See Inside For Details

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IOBC-NRS Announces Education Development Award Program

Although all of us are fairly well versed in biological control, it is often challenging to forge new research programs that diverge from our particular specializations. Universities develop courses that appeal to wide audiences in order to ensure enrollment, while more specialized course topics often need to find alternative venues. Often times, short courses and workshops are able to fill this void by giving students from a broad range of backgrounds a comprehensive introduction to a specialized area of biological control that is of particular importance to them. These types of courses can focus on a particular skill or sub-discipline (e.g., insect pathology), or can focus on a particular taxonomic group of natural enemies (e.g., Coccinellidae, Carabidae, parasitoids). Many of us have benefited

greatly from these extracurricular opportunities on our road to becoming professional scientists. A problem with organizing and implementing these types of courses is arranging attractive and functional locations and bringing in top instructors while keeping costs affordable for students. The IOBC-NRS governing board has recently created an education committee to investigate ways that our organization can help to encourage biological control education. The education committee has begun to compile a curriculum of biological control courses to which the IOBC-NRS will partner. The goal of this program is to partner with currently existing courses and workshops, and facilitate the creation of new educational opportunities, that advance the knowledge and prac-



Snapshot of a recent field course taught on carabid beetles in South Dakota.

tice of biological control. IOBC-NRS will help to finance short courses through the Education Development Award Program (awards amount up to \$2000 per course) in exchange for discounted tuition costs for IOBC members. Awards granted to individual courses are meant to cover a portion of the course costs in order to make these courses more accessible to students. Awards are not intended to entirely cover the expenses of a course. Decisions on whether to fund the course will be made on a case by case basis by the education committee, and voted upon by the governing board. The committee itself was created to represent a range of disciplines and geographic regions; current members are Ray Carruthers (USDA-ARS, CA), Andy Dean (NCSU), James Harwood (Univ. KY), Jonathan Lundgren (chair; USDA-ARS, SD), and Lee Solter (INHS, IL). Application materials for the Education Development Award and additional information can be requested from Jonathan Lundgren (jonathan.lundgren@ars.usda.gov).

Jonathan Lundgren
USDA-ARS
Brookings, SD



*The Future of Our
Society Depends on
Your Vote!*

MESSAGE FROM THE PRESIDENT:

Please Take Time to Vote on Candidates for IOBC-NRS Offices in 2008-2010

I know that summer is a very busy time for most biological control scientists, who are often conducting field research at home and abroad. This year is even more hectic with the International Congress of Entomology being held in South Africa in July. However, I would like to ask for a small bit of your time to help the IOBC-NRS determine new directions for the future. Every two years the leadership of the NRS changes with the induction of new officers in most, if not all, of the positions that constitute the organization's Governing Board. Selection of these individuals is important because they exert a major influence on the directions and activities that the NRS will pursue over the next two years. In this newsletter, you will find the names and brief biographies of the individuals who have been nominated for NRS offices. We are quite fortunate that we have two highly respected and experienced individuals (Doug Landis and John Ruberson) running for President-Elect. Last December, James Hagler stepped into the position of Vice President when our elected incumbent resigned due to family needs. James has now consented to officially run for the position during this election. He knows what is expected of the position, and he is well prepared and willing to carry out the duties. Our current Secretary / Treasurer, Stephan Jaronski, and Corresponding Secretary, Jonathan Lundgren, have been doing an excellent job in office and have been nominated to run for consecutive terms. Their election will ensure stability in the operation of the NRS. Our greatest challenge during this election may be that of determining who to fill the three open Member-at-Large positions. Five individuals have been nominated for these positions: Ray Carruthers, Janet Knodel, Kevin Heinz, Eric Riddick, and Mark Hoddle. These nominees bring a broad scope of knowledge and experience to the Governing Board. The Members-at-Large provide input on the decisions we make, and they help with the everyday business of the NRS by their service on our various committees. Please review the qualifications of all of these nominees and send in your election ballots before the deadline. Your opinion is important and we want to hear it. Thank you.

Marshall W. Johnson
University of California
Riverside, CA

CANDIDATES FOR IOBC PRESIDENT

Dr. Doug Landis



Doug received his BA in Biology from Goshen College in 1981 and his MS and PhD in Entomology from North Carolina State University in 1984 and 1987.

In 1988 he accepted a position in the Department of Entomology at Michigan State University where he is currently a full Professor with research and teaching responsibilities in insect ecology and biological control of invasive species. Much of his research has focused on the role of landscape structure in shaping insect-insect and insect-plant interactions. His current projects include biological control of soybean aphid, biological control of garlic mustard, the use of native plants to enhance beneficial insects, and conservation of insects in fire-dependent ecosystems. He is the author of 100 peer reviewed journal articles and book chapters as well as over 50 extension bulletins. His 2000 review of habitat management to enhance biological control published is among the top-10 most cited and most downloaded articles in Annual Review of Entomology. As co-director of MSU's Invasive Species Initiative, he advises state and federal agencies on invasive species management including biological control. Doug is known as an excellent mentor and has

advised over 75 postgraduate students and research associates. His advisees have won numerous awards including the two most recent winners of the IOBC-NRS Outstanding PhD student of the year award. He has been a member of the North Central Regional committee on arthropod biological control (NCERA-125) since 1989 serving in multiple leadership positions. He has previously served IOBC-NRS as Secretary/Treasurer (1995-96), Associate Editor of BioControl (2002-05) and as a Member at-large (2004-06). Doug has won numerous awards for his work including four awards for excellence in biological control education from the Board Certified Entomologists of Mid-America. He was recently named the 2008 recipient of the Entomological Society of America-NCB Recognition Award in Entomology.

Dr. John Ruberson



John received his PhD from Cornell in 1989, and has been at the University of Georgia since 1994, where he currently is a Professor. He has several research foci in biological control. First, the integration of biological control into

row crop agricultural systems. John's research in this area has focused on interactions of natural enemies with pesticides, host plant resistance (including Bt-transgenic cotton), reduced tillage, and fertilization. His work has concentrated chiefly on cotton, but more recently he has been working with organic vegetable producers to develop conservation biological control programs in Georgia. Second, he is interested in the ecology and behavior of predatory Heteroptera due to their importance in many row crop systems. His work on Heteroptera has concentrated chiefly on life-history traits of *Geocoris* spp. and *Orius insidiosus*, with a special emphasis on overwintering ecology of these species.

John served as a Member-at-large for IOBC-NRS from 1998 to 2000, and as IOBC-NRS Vice President from 2000 to 2002. In addition to IOBC service, he has been the Predator/Parasitoid Subject Editor for the journal Environmental Entomology since 2002, and has served on the Editorial Board for the journal Biological Control since 2004. In the more distant past, John served as Secretary and Chair of the S-267 Southern Regional Project in biological control from 1995 to 1997, and was active in the various iterations of the project since that time. And in the yet more distant past – in the "Ur-ESA" John served as Secretary and Chair for the biological control subsection (Ca) from 1992 to 1994.

CANDIDATES FOR IOBC MEMBERS-AT-LARGE



Dr. Ray Carruthers

Ray(mond) Carruthers is the Research Leader of the Exotic and Invasive Weed Research Unit (EIWRU) that includes a total of 14 scientists which are located in Albany, CA, Davis, CA and Reno, NV. Prior to moving to Albany, he served as National Program Leader for Biological Control for the ARS in Beltsville, MD. He also served as the Research Leader of a biological control program in Weslaco, TX and as a Lead Scientist stationed at Cornell University, where he was originally appointed to the faculty in

1981. Dr. Carruthers is a Research Ecologist/Entomologist with a background in biological control, applied entomology, population ecology, integrated pest management (IPM) and system science. Since joining ARS in 1985, he has specialized his research in using biological control to regulate insect and weed pests, in developing and implementing IPM programs, and in the application of computer technology to solve agricultural problems. His research has focused on the development and application of biological control agents for vegetable, field crop and rangeland pests, including

grasshoppers, leafhoppers, whiteflies and several lepidopterans. His current work focuses on the use of biological control for management of invasive plants including saltcedar and yellow starthistle. He received his BS from California Polytechnic State University in San Luis Obispo, and both his MS and PhD from Michigan State University.

Dr. Kevin Heinz

Dr. Heinz, Professor and Head of Entomology at Texas A&M University, has advanced the scientific understanding of biological control and its practical use in the integrated management of agricultural pests, weeds, and insects. He seamlessly integrates the needs and problems of growers into his research and he uses commercial operations and other field locations as his classroom, research laboratory, and sites for grower education programs. Dr. Heinz has authored or co-authored 110 peer- and editor-reviewed research publications; he

has co-edited 2 books, 68 proceedings, popular, and other scientific articles. His co-edited text, "Biocontrol in Protected Culture", is an authoritative reference on providing biological control solutions for arthropod pest problems in greenhouse- and nursery-grown crops. His research has attracted over \$4 million in extramural, competitively-derived grant support; and it has generated 130 invited presentations or conference symposia delivered to a wide range of university, scientific, and industry audiences. He has taught both classroom and distance education versions of a course titled "Principles of Biological Control". He served as

Associate Editor (2000-'02) and member of the Editorial Board (2002-'06) for the international journal *Biological Control*. He was Co-Convenor of the IOBC Greenhouse, Nursery, and Ornamental Landscape IPM Working Group from 1998 through 2004. He was honored by the Southwestern Branch of the ESA as well as the Entomological Foundation with Awards for Excellence in Integrated Pest Management, and the Society of American Florists, presented him the Alex Laurie Award for Research and Education.

Dr. Mark Hoddle

Hoddle received his BSc. and MSc. (weed biocontrol) from the University of Auckland and his Ph.D. (insect biocontrol) from the University of Massachusetts, Amherst under the tutelage of Dr. Roy Van Driesche. Hoddle is currently a biological control extension specialist in the Department of Entomology at the University of California, Riverside, a position he has held since

1997. Hoddle's research focuses on classical biological control of invasive pest species, in particular those attacking avocados. Recently this avocado research has required prolonged proactive studies on potential invaders in their home range Central America. Hoddle was a key member of the very successful classical biological control program against the glassy-winged sharpshooter in the South Pacific. Hoddle has published around 90 peer-reviewed

scientific papers (with papers in the *Annual Review of Entomology* and the *Proceedings of the National Academy of Sciences*), and numerous extension and trade articles. In 2007, he was awarded the Entomological Society of America Recognition Award in Entomology. He is currently Director for the Center for Invasive Species Research at UC Riverside.

Dr. Janet Knodel

Knodel received her B.S. and Ph.D. from North Dakota State University in Fargo, ND, and M.S. from the Virginia Polytechnic Institute and State University in Blacksburg, Virginia. She has been an Extension Entomologist and Assistant Professor in the Department of Entomology at North Dakota State University, for the past 2.5 years. Her appointment is 80% extension and 20% research. Her research has focused on developing Integrated Pest Management

Programs for insect pests in field crops. Research interests include developing effective pest monitoring and risk forecasting systems, and evaluating alternative pest management strategies-cultural, biological control, and host plant resistance. She has also provided leadership in extension entomology programming relevant to the Upper Great Plains and in disseminating extension/research results in both professional and lay publications. Knodel serves as the editor and coordinator of the *Crop & Pest Report*, a weekly newsletter from

NDSU Extension Service on pests and crop developments. She has been an active member of ESA, serving on several committees. Other professional societies that she is a member of are the Entomological Society of Canada, the Entomological Society of Manitoba, the International Organization for Biological Control, the Extension Professional Organization of Epsilon Sigma Phi, the Honor Society of Phi Kappa Phi, and the Honor Society of Agriculture Gamma Sigma Delta.

Dr. Eric Riddick

Dr. Riddick serves as a research entomologist at the USDA-Agricultural Research Service in Stoneville, Mississippi. His research is concerned with applied behavioral and chemical ecology of natural enemies. He is currently developing rearing and cold storage methods for several predators that are

commercially available for augmentative biological control of plant pests. Over the last 15 years he has contributed to the biological control community by way of publications that have dealt with (1) conserving predator populations in apple orchards in California and in transgenic potato fields in Maryland, (2) manipulating populations of the highly problematic *Harmonia axyridis* by using repellents,

attractants or pheromones, (3) estimating the impact of naturally-occurring biotrophic parasites on *Harmonia axyridis* populations, and (4) defining the behavior of hymenopteran parasitoids within rearing systems. He has served as an anonymous peer reviewer for more than 15 entomological-based journals, including *BioControl* and *Biological Control*.



Podisus nymph. Photo by Szendrei

CANDIDATE FOR IOBC VICE PRESIDENT

Dr. James Hagler

James is a Research Entomologist with the USDA-ARS Arid Land Agricultural Research Center in Maricopa, Arizona. He received his BS and MS from New Mexico State University and his PhD from The University of Arizona. His primary research areas are biological control, insect dispersal, and insect behavior. Dr. Hagler is considered an authority among biological control researchers in using molecular gut content analyses to evaluate the efficacy of predaceous natural enemies. He pioneered the "protein marking" method for use in area-wide mark-release-recapture and mark-capture type dispersal studies and



he regularly mentors students and colleagues in the use of such methods. James has authored over 60 peer-reviewed publications. He served as the Predator Subject Editor for *BioControl* for

two years and is currently the Biological Control Associate Subject Editor for *Environmental Entomology*. He received the C.W. Woodworth Award in 2002, the highest honor bestowed by The Pacific Branch of The Entomological Society of America, based on his contributions to entomology. Dr. Hagler participates in community and academic program education related to entomology for preschool through postdoctoral students. He was recently appointed to fill out a partial term as Vice President of the IOBC, and after successful service during that term, now seeks election to a full term of the office.



CANDIDATE FOR SECRETARY-TREASURER

Dr. Stefan Jaronski

Stefan Jaronski, obtained his M.S. (1972) in parasitology and Ph.D. (1978) in insect pathology from Cornell University, where he studied Microsporida. After two postdoctoral appointments focusing on biocontrol of mosquitoes, he did an abrupt left turn and (a) left the academic community for industry, and (b) changed from medical entomology to agricultural pests. Jaronski worked at Abbott Laboratories from 1983 to 1992, during which time his research involved commercial

development of *Beauveria bassiana*, then *Bacillus thuringiensis* against a wide variety of insects. In 1992 he switched to Mycotech Corp., Butte MT, a small venture biotech group commercializing *Beauveria*-based mycoinsecticides. There, he spent 8 years involved in all aspects of commercial development - from the early basic research through field trials to generation of registration data, from basic mycology to formulation chemistry, from science to marketing. Jaronski joined USDA ARS in

Sidney MT in March 2000 as a Research Entomologist. Jaronski's research at Sidney centers on grasshopper pathogens on U. S. rangeland, and on development of a fungal biocontrol of the Sugarbeet Root Maggot (SBRM). Jaronski has been a member of NRS since 1993, and served as IOBC NRS member-at-large 2000-2002. He has also served in various capacities as a governing board member of the Microbial Control and Fungus Divisions of the Society for Invertebrate Pathology.

CANDIDATE FOR CORRESPONDING SECRETARY

Dr. Jonathan Lundgren

Jonathan is a Research Entomologist with the USDA-ARS, stationed in Brookings, SD. He received his master's degree in entomology from the University of Minnesota (2000), and his PhD from the University of Illinois (2004). His research applies molecular and ecological tools to understanding the feeding behavior of generalist predators, determining their function in agroecosystems, and integrating biological control with other pest and farm management practices. Lundgren has made signifi-

cant contributions to the understanding of interactions between higher trophic levels and GM crops, a field which has allowed him to advise domestic and foreign regulatory agencies in assessing the risk of GM crops to non-target organisms. Another major research focus of Lundgren is the importance of non-prey foods to the nutritional ecology of natural enemies (especially coccinellids and carabids), a topic which is synthesized in the in press, sole-authored book titled "Relationships of Natu-

ral Enemies and Non-prey Foods". Through prioritizing education in academic and public outreach, involvement in professional societies, and maintaining a productive research program, Lundgren is helping to improve the predictability, reliability, and acceptance of biological control as a viable pest management option. Within the IOBC-NRS, Lundgren has served for 2 yrs as Corresponding Secretary, and initiated the newly formed Education Development Program and Award.



Ballot for IOBC-NRS Governing Board 2008

Please cast your vote for the following by mailing this ballot to:

Jonathan Lundgren
NCARL, USDA-ARS
2923 Medary Avenue
Brookings, SD, 57006

Or e-mail your votes to Jonathan.Lundgren@ars.usda.gov

All votes will be kept confidential.

President Elect (vote for 1)

Doug Landis

John Ruberson

Vice President

James Hagler

Secretary / Treasurer

Stefan Jaronski

Corresponding Secretary

Jonathan Lundgren

Member-at-Large (vote for up to 3)

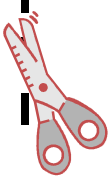
Ray Carruthers

Kevin Heinz

Mark Hoddle

Janet Knodel

Eric Riddick



Job Announcements

Professorship at Iowa State University

The Department of Entomology at Iowa State University is conducting a search for a full-time tenure track position in applied entomology to conduct extension and research (70%, 30% respectively) on arthropod pests of Iowa field crops with an emphasis on, but not limited to, insect pests of soybeans and corn. Applications will be considered at the assistant, associate and full professor level. The successful candidate must be an excellent communicator capable of informing growers and agribusiness across multiple media. The successful applicant will be expected to develop a nationally recognized field crops pest management extension program and collaborate with colleagues, commodity groups, and producers and their service providers. Responsibilities will include advising graduate students.

Applications will be accepted until 15 September 2008. The full announcement and on-line application instructions can be found at <https://www.iastatejobs.com/applicants/jsp/shared/frameSet/FrameSet.jsp>. The vacancy is ID# 080538.

Graduate Student Position at OR State

An opportunity for graduate study at the M.S. or Ph.D. level is available immediately in the Department of Forest Science, College of Forestry, Oregon State University, Corvallis, OR. The project involves studies of the biology and ecology of two species of predacious flies in the family Chamaemyiidae. These flies are being investigated as potential biological control agents for the hemlock wooly adelgid in the eastern U.S. This project is a continuation of work described in Kohler et al. 2008 (*Environ. Entomol.* 37(2): 494-504). The student will work under the direction of Drs. Dar-

rell Ross and Kimberly Wallin. Inquiries should be directed to:

Dr. Darrell W. Ross
Department of Forest Science
Oregon State University
Corvallis, OR 97331
Phone: 541-737-6566
Fax: 541-737-1393
Email: darrell.ross@oregonstate.edu



The cane toad: *Bufo marinus*

Biocontrol Musings: That's just gross



We tend to think of predation, parasitism, herbivory, and competition as the main mechanisms of biological control. In reading about the bad 'ol days of biological control, I came across a mechanism that I hadn't heard of before though: biological control agents that kill by being eaten. And I don't mean microtype eggs of parasitic flies that get ingested by their host - I'm talking about vertebrates. I found two such cases (although one was only contemplated) and they both involve the cane toad. In the first case, the cane toad (which has glands

above its cheeks that exude a toxic goo) was introduced onto some Micronesian islands to control monitor lizards, which had been eating local chickens. The idea was that the lizards would eat the cane toads as well and be poisoned to death! Incredibly, this apparently worked to some extent in Guam, but as you probably know, the cane toad itself became a pretty bad problem in many of the places it was introduced. These problems have been particularly acute in Australia, where the cane toad itself was the subject of the second (contemplated) case of biological-control-by-being-eaten. Waterhouse suggested that very large scarabs be imported to Australia with the goal that they be gobbled up by cane toads. The thought was that the

scarabs would be robust enough to burrow out of the toads' guts to freedom, killing them in the process. As I said, this was only an idea and never carried out, although plenty of scarabs were imported into Australia to control cow dung. This was by the more standard mechanism of just eating it.

George Heimpel
Dept. Entomology
University of Minnesota
St. Paul, MN

Schreiner, I., 1989. *Proc Hawaiian Entomol Soc* 29: 57-69.

Waterhouse, D.F., 1974. *Scientific Am*, 30P: 100-109.

2008 Midwest Institute for Biological Control

The 2008 MIBC, which was the second offering of "The Natural History and Taxonomy of the Carabidae", was successfully implemented from June 22-25. Twelve students from 8 states convened in Brookings County, SD at the Oak Lake Field Station (operated by South Dakota State University). Topics covered at the course included phylogeny and taxonomy of the group, carabid feeding ecology and diagnostic tools, parasitoid carabids, carabid defensive capabilities, and the effects of habitat

management on carabid communities. Nationally recognized instructors (Jonathan Lundgren, Foster Purrington, Kirk Larsen, Don Weber, and Kip Will) led units in their areas of expertise to give students a wide perspective on this ecologically complex and often misunderstood group of biological control agents.

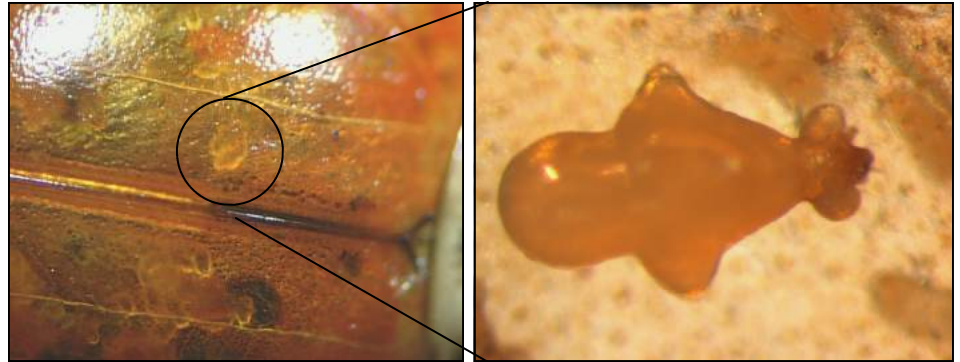
Jonathan Lundgren
USDA-ARS
Brookings, SD



RESEARCH BRIEFS

Parasitic Mite Discovered on *Harmonia axyridis* in Mississippi, USA

A parasitic mite that causes female sterility in the two-spot ladybird, *Adalia bipunctata*, in Europe, has been discovered on the multicolored Asian lady beetle, *Harmonia axyridis*, in Mississippi, USA. The mite is *Coccipolipus hippodamiae*; it belongs to the family Podapolipidae, which contains species that attack herbivorous and entomophagous lady beetles. All life stages (eggs, larval females, adult females, males) of *C. hippodamiae* were found underneath the elytra of male and female *H. axyridis*. Additionally, a parasitic fungus, *Hesperomyces virescens* (Family Laboulbeniaceae), was found on the outer surface of some of the same beetles that harbored the mite. This discovery represents the first time that the parasitic mite, *C. hippodamiae*, has been found on the multicolored Asian lady bee-



tle in nature, anywhere in the world. This discovery also represents the first report of dual parasitism of a lady beetle by two biotrophic parasites, representing two distinct phyla. Can this mite help us curb populations

of the multicolored Asian lady beetle in the USA and elsewhere?

Eric Riddick
USDA-ARS
Stoneville, MS

If you have not renewed your membership for 2008, please take a moment to do so! Contact Stefan Jaronski (bug@midrivers.com) with questions.

GRAD STUDENT AWARD NAMED FOR O'NEIL

The IOBC-NRS Governing Board elected unanimously to change the name of one of the graduate student awards to the Robert J. O'Neil Award for Outstanding Ph.D. Student in Biological Control. This

name change is in response to Bob's contributions to the IOBC, and his strong commitment to student education and advancement. Bob passed away Feb 6, 2008.



The soybean aphid, one of Bob's major research foci. Photo by Yoo

NEWSLETTER WRAP-UP

The governing board of the IOBC-NRS is an important post and your vote will strongly influence the future of our society. The governing board over the past two year cycle has made some significant improvements to the society. Membership recruitment efforts have helped to increase membership 61% since 2006, several ballot issues have been passed, two successful symposia were organized, a joint meeting with the Mexican Biocontrol Society was implemented, the newsletter has been completely redesigned and a new

website is under construction, and two new award programs have been created (MS-level grad student award and the Education Development Award). These efforts will only serve to further swell our numbers and influence on the discipline of biological control. The strength of our society is evidenced by the high quality (and number!) of candidates running for office in 2008. Please take time out to make your voice heard regarding the next two-year election cycle, encourage your students to join the society and com-

Jonathan Lundgren
IOBC-NRS Newsletter Editor
Jonathan.Lundgren@ars.usda.gov



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).

Send items for the IOBC-NRS Newsletter

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