



4th INTERNATIONAL SYMPOSIUM ON BIOLOGICAL CONTROL OF ARTHROPODS

Pucón, Chile - March 4th to 8th, 2013

Program

Sunday, March 3rd, 2013

15:00 - 19:00	Registration , Gran Hotel Pucón Drop off oral presentations Session 1 & 2
19:30 - 21:30	Welcoming reception , Terrace of the Gran Hotel Pucón

Monday, March 4th, 2013. Theme Day 1: Classical Biological Control

7:30 - 13:00	Late Registration , Gran Hotel Pucón Drop off oral presentations Session 3, 4, 5 & 6
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8:00 - 8:15	Welcome words <ul style="list-style-type: none"> - Magdalena Vergara, Extension Director, College of Agriculture and Forest Sciences, Pontificia Universidad Católica de Chile - Tania Zaviezo, Organizing Committee
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Time	Title	Organizers/speakers
Session 1 8:15 – 10:00	Risk Assessment in Arthropod Biological Control: Where are we? IOBC Global Working Group on Exotic Biological Control Agents	Peter Mason & D.R. Gillespie (Agriculture and Agri-Food Canada), Jian J. Duan (USDA, USA)
8:20	Selection of non-target species for risk assessment of entomophagous biocontrol agents using an automated decision-support system	Jacqui H. Todd et al. (New Zealand Institute for Plant & Food Research Limited)
8:37	Progress and problems in host specificity testing of arthropod biological control agents	Tim Haye et al. (CABI, Switzerland)
8:54	Molecular diagnostics in biological control: evaluating trophic interactions and non-target effects of insect parasitoids	Tara Garipey (Agriculture and Agri-Food, Canada)
9:10	Natural Host Range of <i>Microctonus aethiopoidea</i> Loan (Hymenoptera: Braconidae) in Morocco: could it help predict host range in new areas?	Barbara Barratt, et al. (AgResearch, New Zealand)
9:27	New risk assessment strategies for the regulation of polyphagous arthropods in biocontrol programs	Kate Bromfield (Environmental Protection Authority, New Zealand)

9:44	Host Specificity Testing and Quantitative risk assessment: A Case Study with Introduction of Exotic Parasitoids for Classical Biocontrol of the Invasive Emerald Ash Borer	Jian Duan (USDA, ARS)
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10:00 – 10:30 **Coffee brake**, Coñaripe Room + Foyer Ballroom

10:00 - 13:00 **Poster setting** (1 – 88), Coñaripe Room

Session 2 10:30-12:15	The importance of considering intraspecific variation in classical biological control	Thibaut Malausa (INRA, France), Blas Lavandero (Universidad de Talca, Chile)
10:35	Population genetics of three classical biocontrol introductions to New Zealand	Craig Phillips (AgResearch, New Zealand)
10:55	Classical biological control of the olive fruit fly, <i>Bactrocera oleae</i> , using the exotic parasitoid, <i>Psytalia lounsburyi</i> in France: will the intraspecific hybridization improve the establishment of the biological control agents?	Nicolas Ris et al. (INRA, France)
11:10	Interest and feasibility of the use of parasitoids' venom to evaluate and monitor biological control agents	Hugo Mathé-Hubert et al. (INRA, France)
11:27	How generalists are generalists?	Blas Lavandero (U Talca, Chile)
11:45	Biocontrol of mealybugs in apple and ornamental plants in France	Geraldine Bout et al. (INRA, France)
12:00	Survey and efficacy of the Western <i>Europe Anagyrus near pseudococci</i> over <i>Planococcus ficus</i> , a pest of the California vineyards.	René F.H. Sforza et al. (USDA, France)

12:15 – 13:15 **Lunch**, Restaurant Calafquén @ Gran Hotel Pucón

Session 3 13:15 – 15:00	Recent classical biological control projects against forest pests IUFRO working group	Carlos Wilcken (Universidade Estadual Paulista, Brazil), Marc Kenis (CABI Europe, Switzerland)
13:20	Biology and establishment of <i>S. neseri</i> , a new biological control agent for the eucalyptus gall wasp <i>Leptocybe invasa</i>	Brett Hurley et al. (University of Pretoria, South Africa)
13:40	Building BiCEP: a global collaboration for the biological control of eucalypt insect pests	Simon Lawson et al. (Fisheries and Forestry Queensland, Australia)
14:00	<i>Cotesia urabae</i> : a biocontrol agent against gumleaf skeletoniser <i>Uraba lugens</i> (Lepidoptera: Nolidae) in New Zealand	Gonzalo Avila et al. (University of Auckland, New Zealand)
14:20	Biological control of <i>Sirex noctilio</i> (Hym.: Siricidae) in Chile	Marcos Beeche & Sandra Ide (SAG, Chile)
14:40	Biological control of Sirex woodwasp in Brazil: 25 years of results and challenges	Edson Tadeu Iede (Embrapa, Brazil)

15:00 – 15:30 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 4A 15:30-17:20	Classical biocontrol for the protection of biodiversity (A)	Roy Van Driesche (University of Massachusetts, USA), Mark Hoddle (University of California, Riverside)
15:30	Overview of insect biological control in natural systems: past contributions and future challenges	Roy Van Driesche (U Massachusetts, USA)
15:40	Biocontrol of the Erythrina Gall Wasp: Protecting a Native Keystone Forest Species in Hawaii	Russell Messing et al., (University of Hawaii, USA)
16:00	Classical Biological Control of Cottony Cushion Scale with <i>Rodolia cardinalis</i> : towards ecosystem restoration in the Galápagos Islands	Roy Van Driesche (U Massachusetts, USA)
16:20	Update on conservation benefits from successful biological control of <i>Orthezia</i> scale on the island of St. Helena, South Atlantic Ocean	Simon Fowler (Landcare Research, New Zealand)
16:40	Effects of invasive scales on forest butterflies in Australia, and benefits following their biological control	Don Sands (CSIRO, Australia)
17:00	Biological Control of Cycad Scale, <i>Aulacaspis yasumatsui</i> , Attacking Guam's Endemic Cycad, <i>Cycas micronesica</i>	Aubrey Moore & T. Marler (University of Guam, Guam)

17:20 – 17:40 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 4B 17:40 – 19:10	Classical biocontrol for the protection of biodiversity (B)	
17:40	Biological Control and Biological Conservation – Prospects for a Happy Marriage	Dan Simberloff (University of Tennessee, USA)
18:00	Classical Biocontrol of the Emerald Ash Borer and Its Potential for Preserving Ash-Dependent Biodiversity	Jian Duan (USDA, USA)
18:20	How does restoring natural enemy function in degraded ecosystems influence community dynamics?	Peter McEnvoy (University of Oregon, USA)
18:40	Winter moth: biological control and population dynamics in the northeastern united states	John Elkinton & G. Boettner (U. Massachusetts, USA)
19:00	Practical steps toward enhancing cooperation between conservation biologists and biocontrol scientists	Roy Van Driesche (U. Massachusetts, USA)

19:10 – 20:30 **Cheese & Wine**, Foyer Ballroom

Tuesday, March 5th. Theme Day 2: augmentative BC

8:00 - 8:15	Housekeeping,
8:00 – 10:30	Drop off oral presentations Session 7, 8, 9 & 10

Session 5 8:15 – 10:00	Prospects for enhancing augmentative releases of beneficial organisms using radiation	Jorge Hendrichs & Andrew Parker (Joint FAO/IAEA Division of Nuclear Techniques, Austria)
8:15	Introduction	Andrew Parker (FAO/IAEA)
8:20	Integrating augmentative biocontrol and inherited sterility for management of Lepidopteran pests	James Carpenter (USDA, USA)
8:40	Current management efforts against <i>Cactoblastis cactorum</i> as a pest of the North American prickly pear cactus, <i>Opuntia</i> spp	Stephen D. Hight (USDA, USA)
9:00	Mobile mating disruption – the challenge of cross-species behavioural suppression	Max Suckling (Ag and Food Research, New Zealand)
9:20	Improving mass rearing and commercial shipments of <i>Spalangia endius</i> W. (Hymenoptera: Pteromalidae) through irradiation of its host	Miguel C. Zapater & G. Perez-Camargo (Universidad de Buenos Aires, Argentina)
9:40	Integrating the SIT with parasitoids and pathogens against fruit fly pests: the potential of using sterile insects as vectors of pathogenic microorganisms	Pablo Montoya & S. Flores (Moscafrut SAGARPA-IICA, México)

10:00 – 10:30 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 6 10:30 – 12:15	Mass production of Natural Enemies: Challenges and Opportunities	Eric Riddick (USDA, ARS), Vanda H. P. Bueno (Federal University of Lavras, Brazil)
10:35	The ectoparasitoid <i>Tamarixia radiata</i> as a tool in IPM of the Asian citrus psyllid <i>Diaphorina citri</i>	José R. P. Parra et al. (Universidade de Sao Paulo, Brazil)
10:55	Adult mass rearing affecting foraging behavior in the larval parasitoid <i>Microplitis croceipes</i>	Keiji Takasu (Kyushu University, Japan)
11:15	Development and reproduction of the zoophytophagous predators <i>Orius thripoborus</i> and <i>Orius naivashae</i> on factitious prey and plant foods	Bonte Jochem et al. (Ghent University, Belgium)
11:35	Performance of <i>Amblyseius swirskii</i> Athias-Henriot and <i>Amblydromalus limonicus</i> Garman (Acari: Phytoseiidae) on factitious foods and pollen	Tung Nguyen Duc et al. (Ghent University, Belgium)
11:55	Demogenetic processes at play in natural enemy mass productions: can we detect and manage them?	Thibaut Malausa et al. (INRA, France)

12:15 – 13:15 **Lunch**, Restaurant Calafquén @ Gran Hotel Pucón

Session 7 13:15 – 14:40	Strategies to Increase the Adoption of Biological Control in Greenhouses	Kevin Heinz (Texas A&M University); Michael Parella (University of California, Davis)
13:20	Biological control in greenhouse pests in Chile	Renato Ripa (Centro Entomología Aplicada, Chile)
13:40	Banker Plants, Trap Crops and Other Bioprotection	Michael Brownbridge et al.

	Developments in Canadian Greenhouse Floriculture	(Vineland Research and Innovation Centre, Canada)
14:00	Genetic variation in insectary-produced biological control species	Kevin Heinz (Texas A&M, USA)
14:20	Pesticide Use Declines and Biological Control Increases in California Greenhouses	Michael Parrella (UC Davis, USA)

14:45 – 15:15 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Sesión 8 15:15 – 17:00	Augmentative and conservation biological control techniques in forestry IUFRO working group	Marc Kenis (CABI, Switzerland) Vincent D'Amico (USA)
15:20	Production and use of heteropteran predators for biological control of Eucalyptus pests in Brazil	José C. Zanuncio et al. (Universidade Federal Viçosa , Brasil)
15:40	Biological Control of Forest Pests by Insect Natural Enemies in China	YANG Zhong-qi (Chinese Academy of Forestry, Beijing)
16:00	Perspectives and challenges to biological control of red gum lerp psyllid	Carlos Wilcken (UNESP, Borucatu, Brazil)
16:20	Biological Control of Hemlock Woolly Adelgid: A Complex and Challenging Effort in Progress	Melissa J. Fischer et al. (Virginia Tech , USA)
16:40	The ecology and behaviour of the parasitoid <i>Ibalia leucospoides</i> : lessons for biological control of forest	Juan C. Corley (CONICET, Argentina)

17:00 – 19:00 **Poster session 1**: Posters 1 to 29 and 57 to 69, Room Coñaripe

18:00 – 20:00 **ESA International Branch Meeting**, Room Araucanía Lonquimay

Wednesday, March 6th. Theme Day 3: Conservation Biological control

8:00 - 8:15 8:00 – 10:30	Housekeeping, Drop off oral presentations Session 11 & 12
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Session 9 8:15 – 10:00	The effect of climate change on biological control	Marta Montserrat Larrosa (CSIC – Spain); Josep Jacas Miret (Universitat Jaume I, Castelló, Spain); Tim Hays (CABI)
8:20	Predicting the effects of climate change on mealybugs and their natural enemies in grapevines in Australia	Linda J. Thomson, et al. (University of Melbourne, Australia)
8:40	Performance of a biological control community under extreme temperatures	Dave Gillespie et al. (Agriculture and Agri-Food Canada)
9:00	Environmental conditions affect competitive and predatory interactions among natural enemies. Implications for biological pest control in a changing climate	Marta Montserrat et al. (CSIC, Spain)
9:20	Climate change and biological control: case studies From New Zealand	Philippa Gerard (AgResearch, New Zealand)
9:40	Genotype matching in a parasitoid-host genotypic food web: an approach for measuring effects of environmental change	Blas Lavandero (U. Talca, Chile) & Jason M. Tylianakis

10:00 – 10:30 **Coffee break**, Coñaripe Room + Foyer Ballroom

Session 10 10:30 – 12:20	Use of Volatiles to Monitor or Manage Natural Enemies	Nick Mills (UC-Berkeley, USA), Tania Zaviezo (Universidad Católica, Chile), Don Weber (USDA, USA)
10:30	Introduction. Semiochemicals and biological control: Complexity in nature and in pest management	Donald C. Weber (USDA, USA)
10:40	Plant Volatiles for Monitoring Natural Enemy Activity and Phenology	Nick Mills (University of California, Berkeley, USA)
11:00	Field application of semiochemicals for parasitoids management.	Raúl Laumann (EMBRAPA, Brasil)
11:20	Response of insect predators to methyl salicylate in cranberries	Cesar Rodriguez-Saona (Rutgers University, USA)
11:40	Smells of the dark: prospects of exploiting belowground chemical ecology for biological pest control	Ivan Hiltbold (University of Missouri, USA)
12:00	Omnivory in spiders and the potential role of spider chemoreception in conservation biological control	Bob Pfannenstiel (USDA, USA)

12:30 – 18:00 **Field trip**, Pick up lunch box at the entrance of the Hotel

Take buses depending on chosen option

Thursday, March 7th. Theme Day 4: Conservation Biological Control

8:00 - 8:15	Housekeeping, Drop off oral presentations Session 13, 14, 16 & 17
8:00 – 10:30	

Session 11 8:15 – 9:40	Integrating Conservation Biological Control and Wildlife Conservation	Stephen Goldson (New Zealand) David G. James (Washington State University, USA), Steve Wratten (Lincoln University, New Zealand)
8:20	Beauty with Benefits: naturescaping Washington vineyards to sustain biological control and provide butterfly habitat	Lorraine Seymour (Washington State University, USA)
8:40	Vertebrate conservation as an added ecosystem service from conservation biological control of pests	Kate Bromfield (New Zealand)
9:00	The implications of biodiversity loss for pest population regulation: a multi-trophic perspective	Andrew Wilby (Lancaster University, UK)
9:20	Milkweed: A resource for increasing stink bug parasitism and aiding insect pollinator and monarch butterfly conservation	Glynn Tillman (USDA, USA)

10:00 – 10:30 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 12 10:30 - 12:15	Conservation biological control: a landscape perspective	Audrey Grez (Universidad de Chile) & Tania Zaviezo (Universidad Católica, Chile)
10:35	Spatial organization of organic and conventional farming in agricultural landscapes: impacts on biological control	Camille Puech (INRA, France)
11:00	Predicting biological control of cereal aphids across agricultural landscapes	Mattias Jonsson (Swedish University of Agricultural Sciences, Sweden)
11:25	Habitat modifications to enhance biological control of leafrollers in fruit orchard: finding the right balance	Bob Pfannenstiel et al. (USDA, USA)
11:50	Conservation of native coccinellids and biological control of aphids in alfalfa: a landscape perspective.	Audrey Grez et al. (Universidad de Chile)

12:15 – 13:15 **Lunch**, Restaurant Calafquén @ Gran Hotel Pucón

Session 13 13:15 – 15:00	Functional implications of non-prey feeding in biological control	Don Weber & Jon Lundgren (USDA ARS)
13:20	On the interplay between omnivores' behavior and the nutritional value of plant and prey foods	Moshe Coll (The Hebrew University of Jerusalem, Israel)
13:40	Diet switching and mixing: an understudied phenomenon in natural enemies, and its implications	Don Weber and Jonathan G. Lundgren (USDA, USA)
14:00	Functional biodiversity: How to make non-crop vegetation work for biocontrol	Felix Wäckers (BIOBEST, Belgium)
14:20	Decoding the diets of spiders: non-prey resources for dietary supplementation.	James Harwood et al (University of Kentucky, USA)

14:40	Consequences of facultative granivory to biological control in soil systems	Jon Lundgren (USDA, USA)
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15:00 – 15:30 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 14 15:30	Generalist predators for plant pest control: applications, prospects and drawbacks	Arne Janssen & Maurice Sabelis (University of Amsterdam, The Netherlands)
15:35	The role of generalist predators in greenhouse crops	Gerben J. Messelink (Wageningen, The Netherlands)
15:55	Are generalist predators particularly suitable targets to be supported through non-prey food?	Felix Wäckers (BIOBEST, Belgium)
16:15	Tracking intraguild predation within arable crops using PCR and next generation sequencing	Bill Symondson (Univ Cardiff, UK)
16:35	Predator diversity, weed abundance and biological control: do generalist predators enhance or inhibit the impact of specialists?	Eve Roubinet (Swedish University of Agricultural Sciences, Sweden)
16:55	Unravelling non-pest prey feeding by generalist predators using molecular tools and its implications for conservation biological control	Michael Traugott (University of Innsbruck, Austria)

17:00 – 19:00 **Poster session 2:** Posters Posters 30 to 56 and 70 to 88, Room Coñaripe

18:00 – 20:00 **IOBC Global & Neotropical Business Meeting**, Room Araucanía Lonquimay

20:00 – 21:00 **Symposium Dinner**, Restaurant Calafquén @ Gran Hotel Pucón,

Selection of ISBCA 2017 Venue

Friday, March 8th. Theme Day 5: Biological control in particular systems and in combination with other approaches

8:00 - 8:15	Housekeeping, Drop off oral presentations Session 15 & 18
8:00 – 10:30	

Session 17 8:15 – 10:00	Evaluation and practical application of parasitoids and predators of the tomato leaf miner <i>Tuta absoluta</i>	Vanda H. P. Bueno (DEN/Federal University of Lavras, Brazil) Jose Belda (Koppert B.S., Spain)
8:20	<i>Nesidiocoris tenuis</i> (Reuter) (Hemiptera: Miridae) as the basis for control <i>Tuta absoluta</i> (Meyrick) (Lepidoptera: Gelechiidae) in tomato protected crops in Spain	José E. Belda (Koppert, Spain)
8:40	Biological control of <i>Tuta absoluta</i> : sampling and evaluation of new hemipteran predators found in Brazil	Vanda Bueno et al. (UFLA, Brazil).
9:00	Impact of interspecific competition with an omnivorous predator on survivorship of an ectoparasitoid of <i>Tuta absoluta</i> in tomato agro-ecosystem	Anaïs Chailleux (France)
9:20	Evaluation of native larval parasitoids as BC agents against <i>Tuta absoluta</i> in Argentina	Maria Gabriela Luna et al. (CEPAVE, CONICET – UNLP, Argentina).
9:40	Experiences of implementation of a biological control program for <i>Tuta absoluta</i> in greenhouse with the parasitoid <i>Apanteles gelechiidivoris</i> in Colombia	Fernando Cantor (Universidad Militar Nueva Granada UMNG, Colombia)

10:00 – 10:30 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 16 10:30 – 12:15	Pest Management for an Urbanizing World: Arthropod Biological Control in Ornamental Landscapes	Matthew H. Greenstone (USDA, ARS), Paula M. Shrewsbury (University of Maryland, USA)
10:30	INTRODUCTION TO THE SESSION	Matthew H. Greenstone (USDA, USA)
10:35	Value of Vacant Land: Arthropod Predators and Biocontrol Services in the Urban Landscape	Mary M. Gardiner (Ohio State University, USA)
10:55	Hot in the city: effects of urban heat on the ecology and evolution of urban forest pests	Steven D. Frank (North Carolina State University, USA)
11:15	Chemical and Nutritional Ecology of <i>Ibalia leucospoides</i> Ensiger, a Parasitoid of Siricid Wasps	Kamal J.K. Gandhi (University of Georgia, USA)
11:35	Biocontrol in Native vs. Exotic Urban Ornamental Landscapes: Colonization of Experimental Backyards by Parasitic Hymenoptera	Matthew H. Greenstone (USDA, USA)
11:55	Arthropod Communities in Native vs. Alien Urban Landscapes: How Do They Differ?	Paula M. Shrewsbury (University of Maryland, USA)

12:15 – 13:15 **Lunch**, Restaurant Calafquén @ Gran Hotel Pucón

Sesión 15 13:15 – 15:20	Consequences of reduced-impact pesticides for biological control agents and top-down suppression of arthropods in managed landscapes	Ada Szczepaniec (South Dakota State University, USA) Jonathan Lundgren (USDA, USA)
13:20	The influence of crop management tactics, including seed-applied insecticides, on biological control of slugs in no-till crop fields	Margaret R. Douglas and John F. Tooker (Pennsylvania State University, USA)
13:40	Impact of pesticides on phytophagous and predatory mites: case studies in annual and perennial crop systems	Carlo Duso, et al. (University of Padua, Italy).
14:00	Soybean aphid resistant seed treatments and genetics: Effects on biological control	Madeline Spigler and Christian Krupke (Purdue University, USA)
14:20	Pesticides and biocontrol: integrating life history data into predictive population models	John E. Banks. (University of Washington, USA)
14:40	The complicated relationship between neonicotinoid insecticides and biological control: Does it ever work or is it always bound for a disaster?	Ada Szczepaniec & Micky D. Eubanks (South Dakota State University, Texas A&M; USA)
15:00	RNAi-based Insecticidal Crops: Potential Effects on Non-target Species.	Jonathan G. Lundgren (USDA, USA)

15:20 – 15:50 **Coffee brake**, Coñaripe Room + Foyer Ballroom

Session 18 15:50	Compatibility of transgenic insecticidal crops with biological control	Joerg Romeis (Agroscope Reckenholz, Switzerland), Anthony M. Shelton (Cornell University)
15:55	Using Bt-resistant hosts to remove prey quality effects when investigating potential effects of Bt plants on natural enemies	Anthony M. Shelton (Cornell, USA)
16:20	Spiders entangled in environmental risk assessment of genetically engineered crops	Michael Meissle et al. (Agroscope, Switzerland)
16 :45	Effects of Bt crops on arthropod natural enemies: A global synthesis	Steven E. Naranjo (USDA, USA)

17:10 **END OF MEETING**

NOTES:

Conference sessions, welcome, lunches and dinner will be held at the Gran Hotel Pucón.

Talks and associated meetings will be held at **Room Araucanía Lonquimay**

All posters will be at **Coñaripe room**, as well as coffee brakes

Times in the program are approximate and subject to change

Poster Program

Posters will be displayed throughout the meeting at the Coñaripe room. During poster sessions authors are asked to be by their work according to the following schedule:

Poster session 1: Tuesday March 5, 5 to 7 pm → Posters 1 to 29 and 57 to 69

Poster session 2: Thursday March 7, 5 to 7 pm → Posters 30 to 56 and 70 to 88

Poster Number	Title	Presenter (institution, country)
Session 1	Risk Assessment in Arthropod Biological Control: Where are we?	
1	<i>Heringia calcarata</i> (Diptera: Syrphidae) – a potential biocontrol agent for Woolly Apple Aphid in New Zealand	John G Charles (The New Zealand Institute for Plant and Food Research Ltd, New Zealand)
2	Prediction of non-target impacts: can results be generalised between related species?	Sarah Mansfield (University of Sydney, Australia)
3	Risk assessment of the egg-parasitoid <i>Trissolcus Halyomorphae</i> (Scelionidae) for biocontrol of the Brown Marmorated Stink Bug <i>Halyomorpha halys</i> (Pentatomidae) in the USA	Julio Medal (Florida Department of Agriculture and Consumer Services, USA)
Session 3	Recent classical biological control projects against forest pests	
4	Classical biological control program against the chestnut gall wasp <i>Dryocosmus kuriphilus</i> (Hym., Cynipidae) in France: objectives and issues	Nicolas Ris (INRA, France)
5	Long-term monitoring of the biological control of the European shoot moth <i>Rhyacionia buoliana</i> Den. et Schiff. (Lepidoptera: Tortricidae) in Central Chile.	Luis Devotto (INIA, Chile)
6	Classic Biological Control and <i>Rhyacionia buoliana</i> (Schiff.) (Lepidoptera: Tortricidae): What we did, what we do and what we need to do?	Dolly Lanfranco (Universidad Austral, Chile)
7	<i>Anaphes tasmaniae</i> , parasitoid of <i>Gonipterus platensis</i> (Coleoptera: Curculionidae) introduced in Chile	Sandra Ide (Servicio Agrícola y Ganadero, Chile)
8	Quarantine and rearing of <i>Cleruchoides noackae</i> (Hymenoptera: Myamridae), parasitoid of <i>Thaumastocoris peregrinus</i> (Hemiptera: Thaumastocoridae)	Sandra Ide (Servicio Agrícola y Ganadero, Chile)

Session 6	Mass production of Natural Enemies: Challenges and Opportunities	
9	Infectivity of <i>Aphidius ervi</i> on different aphid host: Does source matter?	Sebastián Ortiz-Martínez (Universidad de Talca, Chile)
10	Morphometric characterization of host and habitat associated <i>Aphidius ervi</i> populations	Cinthya Villegas González (Universidad de Talca, Chile)
11	Development of an artificial diet for the leaf beetle larvae to facilitate mass rearing of larval and pupal parasitoid wasps	Mika Murata (National Institute for Agro-Environmental Sciences, Japan)
Session 7	Strategies to Increase the Adoption of Biological Control in Greenhouses	
12	Alternating temperatures regimes affect development rates of <i>Phytoseiulus persimilis</i> Athias-Henriot and its target pest <i>Tetranychus urticae</i> Koch	Dominiek Vangansbeke (Ghent University, Belgium)
13	Evaluation of different food sources to improve the larval ectoparasitoid <i>Dineulophus phtorimaeae</i> (Hymenoptera:Eulophidae) fitness as a potential candidate for conservation biological control against <i>Tuta absoluta</i> (Lepidoptera: Gelechiidae)	María Gabriela Luna (Centro de Estudios Parasitológicos y de Vectores – CONICET, Argentina)
14	Telematic tools as driving forces to adoption of sustainable practices in Greenhouses	Alexandre Bout (INRA, France)
15	Can food supplements improve polyphagous predator establishment in vegetable crops?	Judit Arnó (IRTA, Spain)
16	<i>Orius</i> banker plants, worth the investment?	Rosemarije Buitenhuis (Vineland Research and Innovation Centre, Canadá)
17	Has tiger-fly a role in biological control of protected crops?	Elisabete Figueiredo (Instituto Superior de Agronomia, Portugal)
18	Preliminary studies of positive and negative effects of brown lacewings on the control of foxglove aphids by parasitoids in sweet pepper	Nancy Greco (Centro de Estudios Parasitológicos y de Vectores – CONICET, Argentina)
Sesión 8	Augmentative and conservation biological control techniques in forestry IUFRO working group	
19	Formosan Subterranean termites and their interaction with entomopathogenic fungi	Abid Hussain (King Faisal University, The Kingdom of Saudi Arabia)
20	Biological control agents of cypress aphid present in Chile	Cristian Montalva (Universidad Austral de Chile, Chile)
21	Will climate change affect biological control in forests and other natural habitats?	Marc Kenis (CABI, Switzerland)

Session 9	The effect of climate change on biological control	
22	Environmental conditions affect intraguild predation: implications for pest biological control in avocado orchards	Inmaculada Torres-Campos (Consejo Superior de Investigaciones Científicas, Spain)
23	Environmental warming influences the relative competitive ability between two natural enemies sharing a common prey	Celeste Guzmán (Consejo Superior de Investigaciones Científicas, Spain)
24	Potential future distribution of the Multicolored Asian lady beetle, <i>Harmonia axyridis</i> in Chile under a global warming scenario	Constanza Rodríguez (Universidad de Chile, Chile)
25	Influence of temperature on the life cycle of <i>Harmonia axyridis</i>	Tatiana de Oliveira Ramos (Universidade Estadual Paulista, Brazil)
Session 10	Use of Volatiles to Monitor or Manage Natural Enemies	
26	Natural enemies response to the sex pheromone of <i>Pseudococcus viburni</i> (Hemiptera: Pseudococcidae) in laboratory and field conditions	Fernanda Flores (Pontificia Universidad Católica de Valparaíso, Chile)
Session 11	Integrating Conservation Biological Control and Wildlife Conservation	
27	Mite diversity in shaded coffee and under full sun	Paulo Rebelles Reis (Empresa de Pesquisa Agropecuária de Minas Gerais, Brazil)
28	Native carabid beetles and salamanders as natural enemies of the invasive earthworm <i>Amyntas agrestis</i>	Anita Juen (University of Innsbruck, Austria)
Session 13	Functional implications of non-prey feeding in biological control	
29	Interactions of <i>Ricoseius loxocheles</i> (Acari: Phytoseiidae) and coffee leaf rust	Angelo Pallini (Universidade Federal de Lavras, Brasil)
Session 14	Generalist predators for plant pest control: applications, prospects and drawbacks	
30	An analysis of population structure of two <i>Orius</i> species in Japan for conservation biological control	Norihide Hinomoto (NARO Agricultural Research Center, Japan)
31	Native predators control <i>Bactericera cockerelli</i> in potato crops in New Zealand	Graham Peter Walker (Plant and Food Research, New Zealand)
32	Does predator functional richness increase the biological control of plant pests?	Abdelhak Rouabah (Université de Lorraine – INRA, France)
33	<i>Chrysoperla externa</i> (Neuroptera: Chrysopidae) as a biological control agent of pests in roses grown in an integrated production system	Brígida Souza (Universidade Federal de Lavras, Brasil)
34	Selection of candidate plants for the conservation of <i>Orius</i> predators	Judit Arnó (IRTA, Spain)

35	Intraguild predation and cannibalism on eggs of native and exotic coccinellids in alfalfa fields, in central Chile	Paola Andrade (Pontificia Universidad Católica de Chile, Chile)
36	Capacity of predation of <i>Cycloneda sanguinea</i> fed on <i>Schizaphis graminum</i> (Hemiptera: Aphididae)	Laís da Conceição dos Santos (Universidade Estadual Paulista, Brazil)
37	Predatory capacity of ground beetles (Coleoptera, Carabidae) captured in agroecosystems in northeast region of São Paulo State, Brazil	Francisco Jorge Cividanes (Universidade Estadual Paulista, Brazil)
38	Diversity of ground beetles (Coleoptera, Carabidae) in forest fragments and soybean/corn crops under two tillage systems	Francisco Jorge Cividanes (Universidade Estadual Paulista, Brazil)
39	Determining ground beetle (Coleoptera: Carabidae) consumption of lowbush blueberry insect pests.	Justin M. Renkema (University of Guelph, Canadá)
40	Impact of plant structural complexity and extraguild prey density on intraguild predation	Jacques Brodeur (Université de Montréal, Canadá)
41	Do parasitized coccinellids contribute to aphid biological control?	Josée Doyon (Université de Montréal, Canadá)
42	Predatory potential of <i>Hippodamia convergens</i> and <i>Harmonia axyridis</i> on <i>Aphis gossypii</i> on okra	Terezinha Monteiro dos Santos Cividanes (Agência Paulista de Tecnologia dos Agronegócios, Brazil)
Sesión 15	Consequences of reduced-impact pesticides for biological control agents and top-down suppression of arthropods in managed landscapes	
43	<i>Diglyphus isaea</i> for leafminer management and compatible alternatives for the management of other pests on Gerbera daisies	Ronald D. Oetting (University of Georgia, USA)
44	Effects of a bifenthrin-treated net on the natural enemies <i>Aphidius colemani</i> and <i>Adalia bipunctata</i> in a cucumber crop in Central Spain. Semi-field experiments.	Elisa Viñuela (Technical University of Madrid – UPM, Spain)
45	Side effects of modern pesticides on adults of the predatory mite <i>Amblyseius swirskii</i> (Acari: Phytoseiidae) under laboratory conditions	Elisa Viñuela (Technical University of Madrid – UPM, Spain)
46	Toxicity of sulfur, mineral oil, abamectin and pyridaben on <i>Neoseiulus californicus</i> (Acari: Phytoseiidae)	Gabriela Lankin-Vega (Universidad de Chile, Chile)
47	Evaluation of neem-based formulations on <i>Harmonia axyridis</i> in okra	Terezinha Monteiro dos Santos Cividanes (Agência Paulista de Tecnologia dos Agronegócios, Brazil)
48	Survival of the parasitoid wasps <i>Cotesia glomerata</i> and <i>Copidosoma</i> sp. to natural products	Geraldo Andrade Carvalho (Federal University of Lavras, Brazil)

49	Selectivity of compounds used in corn crop in Spain on larvae of <i>Chrysoperla carnea</i> (Neuroptera: Chrysopidae)	Geraldo Andrade Carvalho (Federal University of Lavras, Brazil)
50	Inoculative release of a beneficial wasp egg parasitoid, <i>Trichogramma pretiosum</i> (Hymenoptera: Trichogrammatidae) to supplement natural wasp populations for control of <i>Helicoverpa</i> in Northern New South Wales field crops.	Christopher M. Carr (New South Wales Department of Primary Industries, Australia)
Session 16	Pest Management for an Urbanizing World: Arthropod Biological Control in Ornamental Landscapes	
51	Biological control of <i>Protopulvinaria pyriformis</i> (Hemiptera: Coccidae) in urban landscapes. How to overcome its phenology and defenses?	Aleixandre Beltrà (Universitat Politècnica de València, Spain)
52	Effects of <i>Protopulvinaria pyriformis</i> host size on <i>Metaphycus helvolus</i> sex allocation patterns.	Aleixandre Beltrà (Universitat Politècnica de València, Spain)
53	Impacts of urbanization on ground beetle communities	Michael J. Raupp (University of Maryland, USA)
Session 17	Evaluation and practical application of parasitoids and predators of the tomato leaf miner <i>Tuta absoluta</i>	
54	Rapid detection of key endoparasitoids in <i>Tuta absoluta</i> , <i>Symmetrischema tangolias</i> and <i>Phthorimaea operculella</i> using multiplex PCR	Michael Traugott (University of Innsbruck, Austria)
55	Ecotoxicity of insecticides of frequent use in tomatoes on <i>Trichogramma achaeae</i> (Hymenoptera: Trichogrammatidae)	R.M. Santalices (Universidad Politécnica de Madrid, Spain)
Session 18	Compatibility of transgenic insecticidal crops with biological control	
56	Compatibility of transgenic legumes and parasitoids to control bruchids (Coleoptera: Bruchidae)	Jörg Romeis (Agroscope Reckenholz-Tänikon Research Station, Switzerland)
Session 19	Free Themes	
	a) Classical BC in crops & others	
57	Invasive exotic pests in European vineyards: prospects for biological control?	René F.H. Sforza (USDA European Biological Control Laboratory, France)
58	Status of biological control of red imported fire ants with phorid flies in Louisiana	Seth Johnson (LSU AgCenter, USA)
59	Potential of Hymenopteran parasitoids for classical biocontrol of leafminer flies (Diptera: Agromyzidae)	Norma Mujica (International Potato Center, Perú)
	b) Augmentative BC in crops & other	
60	Bio-control efficiency of two aquatic bugs against mosquito larvae <i>Culex quinquefasciatus</i> Say	Rabindra Hazarika (Tezpur affiliated to Gauhati University, India)

61	Impact of releasing egg parasitoid <i>Telenomus busseolae</i> (Hymenoptera: Scelionidae) for controlling of sugarcane stalk borers <i>Sesamia</i> spp in South West of Iran; a three years of experience	Amin Nikpay (Arak Islamic Azad University, Iran)
	c) Conservation BC in crops & Other	
62	Effect of flowering trap crops on insect pests and their natural enemies	Francisco Rubén Badenes-Pérez (Institute of Agricultural Sciences, Spain)
63	Strawberries, alfalfa, and parasitoids: synergy in pest management	Charles H. Pickett (California Dept. of Food & Agriculture, USA)
64	Spontaneous weed strips associated with chili pepper agroecosystems promote the abundance and survival of aphid predators	Madelaine Venzon (Agriculture and Livestock Research Enterprise of Minas Gerais, Brazil)
65	Field boundary effect on the biological control of plant pests	Françoise Lasserre-Joulin (Université de Lorraine – INRA, France)
66	Enhancing bio-control agents of <i>Helicoverpa zea</i> and thrips through incorporating flowering resources in corn- cover crop intercropping systems	Roshan Manandhar (University of Hawaii at Manoa, USA)
67	Potential biological control agent of the desert locust, <i>Schistocerca gregaria</i> : Behavioural characteristics of the predatory beetle <i>Pimelia senegalensis</i> (Coleoptera: Tenebrionidae)	Satoshi Nakamura (Japan International Research Center for Agricultural Sciences, USA)
68	Evaluation of weed control managements on the incidence of coffee-miner <i>Leucoptera coffeella</i> (Lepidoptera: Lyonetiidae) and predatory wasps	Rogério Antônio Silva (Minas Gerais Agricultural Research Institution - EPAMIG Brazil)
69	Conservation of natural enemies a successful example in the field management of african rice gall midge, <i>Orseolia oryzivora</i> (DIPTERA: CECIDOMYIIDAE) in Nigeria	Emmanuel O. Ogah (Ebonyi State University, Nigeria)
	d) Miscellaneous	
70	Why don't biological agents mitigate the global threat of red palm weevil, <i>Rhynchophorus ferrugineus</i> ?	Aziz Ajlan (King Faisal University, Saudi Arabia)
71	Structure of tortricid-parasitoid community in blueberry crop of Buenos Aires, Argentina	Nancy Greco (Centro de Estudios Parasitológicos y de Vectores, Argentina)
72	Molecular Characterization of Parasitoids associated to new described mealybug species in Chile	Margarita Correa (Pontificia Universidad Católica de Chile, Chile)
73	Natural enemy of powdery mildew in Japan: potentials and problems	Yohsuke Tagami (Shizuoka University, Japan)

74	Complementary biological control strategies: parasitoids, predators and entomopathogenic fungi against the Cabbage root fly, <i>Delia radicum</i>	Birgitta Rämert (Swedish University of Agricultural Sciences, Sweden)
75	Assessment of pathogenic fungi of the Red Palm Mite, <i>Raoiella indica</i> , in the Caribbean	Yelitza Colmenarez (CAB International)
76	Control of diapausing larvae of <i>Cydia pomonella</i> in field using two new species of entomopathogenic nematodes	Luis Devotto (INIA, Chile)
77	Apple Sawfly, <i>Hoplocampa testudinea</i> , entomopathogenic fungi, <i>Beauveria bassiana</i> , <i>Metarhizium</i> , participatory research, biological control	Weronika Swiergiel (Swedish University of Agricultural Sciences, Sweden)
78	Management of white grubs in California blueberries using entomopathogenic nematodes	David R. Haviland (University of California Cooperative Extension, USA)
79	Acaricidal activities of essential oils against <i>Oligonychus afrasiaticus</i> , an important pest of date palm	Ahmed M. AlJabr (King Faisal University, The Kingdom of Saudi Arabia)
80	Entomopathogenic nematodes as potential biocontrol agents for major potato pests	Norma Mujica (International Potato Center, Perú)
81	Parasitoidism rate and life table parameters of <i>Aphytis diaspidis</i> (Hymenoptera: Aphelinidae) and <i>Hemiberlesia lataniae</i> (Hemiptera: Diaspididae)	Paulina Bermúdez (INIA, Chile)
82	Role of microbial control in strawberry and vegetable pest management in coastal California	Surendra Dara (University of California Cooperative Extension, USA)
83	Food plants of host caterpillars affect development of the parasitoid fly <i>Compsilura concinnata</i> (Diptera: Tachinidae)	Satoshi Nakamura (Japan International Research Center for Agricultural Sciences, Japan)
84	Evaluation of biological control strategies of <i>Delia platura</i> , under laboratory conditions	Luis Alejandro Arias R. (Universidad Jorge Tadeo Lozano, Colombia)
85	Assessment of entomopathogens for biological control of <i>Tuta absoluta</i> in Tomato (<i>Solanum lycopersicum</i> L.)	Luis Alejandro Arias R. (Universidad Jorge Tadeo Lozano, Colombia)
86	Entomopathogenic fungi infecting forest pests in Brazil	Pereira, Rozimar de Campos (Universidade Federal do Recôncavo da Bahia, Brazil)
87	Biology of african rice gall midge (<i>Orseolia oryzivora</i>) and parasitism by <i>Platygaster diplosisae</i> in Nigeria	Emmanuel O. Ogah (Ebony State University, Nigeria)
88	Feasibility of SIT to control <i>Rhynchophorus ferrugineus</i> (Col.: Curculionidae): an integrated physiological, ethological and genetic approach	Massimo Cristofaro (ENEA C. R. Casaccia, Italy)