XV International Symposium on Biological Control of Weeds

Hotel Bellevue, Engelberg, Switzerland

26-31 August 2018

Scientific Programme
Including participant list and useful information
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Preface

The first International Symposium on Biological Control of Weeds (ISBCW) was organized in 1969 by CABI Switzerland (back then the European Station of the Commonwealth Institute of Biological Control) in Delémont, Switzerland. Twenty scientists representing 15 institutes and organizations from eight countries participated.

The XV ISBCW comes back to its roots. This time we will have 10 different scientific sessions, 212 participants from 27 different countries and 114 different institutions, giving 81 oral presentations and presenting 105 posters. So the dwindling numbers in Symposium participants – as outlined in Cliff Moran’s and Jonny Hoffmann’s paper in Biological Control in 2015 - appear to be over.

However, despite increasing numbers of participants, first successful biocontrol releases in Europe, and resurging initiatives in the developing world, classical weed biocontrol is still a much neglected tool in managing alien invasive plants around the world. Increasingly tight regulations to release agents and to source natural enemies, coupled with reduced public funding, and a general trend towards risk aversion, have led to severe bottlenecks in many countries. On the other hand, invasive species problems are expanding around the world and biocontrol is in many instances the only viable and sustainable management option with a chance to be successful.

Taking advantage of the fact that the XV ISBCW is taking place in Switzerland, we will organize a panel discussion on Thursday 30 August from 5-6pm, and will be inviting the Swiss and international press. With this we want to raise awareness of the advantages and achievements of weed biocontrol to respective stakeholders, scientists from other disciplines and the general public. We have also asked national and European regulators to come for this particular day.

In addition, we invited George Heimpel, current President of the International Organisation for Biological Control, IOBC, and Barbara Barratt, past-President, to give a presentation about IOBC and the advantages of membership on Tuesday morning. During the VIII ISBCW in New Zealand in 1992, participants voted against ‘joining’ IOBC, but times have changed since then. We believe that forming a Global Working Group for Classical Biological Control of Weeds under the umbrella of IOBC could only help in our efforts to further raise the profile and awareness of weed biocontrol and to provide us with a mechanism to ‘lobby’ for its increased use. A discussion on this topic will be held on Friday afternoon.

We wish all of us an inspiring and successful Symposium with lots of networking, fruitful discussions and fun during the various social events!

Harriet L. Hinz                   Heinz Müller-Schärer
Chair Scientific Committee       Co-organiser
Acknowledgements

The following people and organisations have made this Symposium possible:

**Scientific Committee**

Harriet L. Hinz (chair), CABI Switzerland
Marie Claude Bon, USDA ARS EBCL, France
Graeme Bourdôt, AgResearch Lincoln, New Zealand
Massimo Cristofaro, BBCA, Italy
Gaylord, Desurmont, USDA ARS EBCL
René Sforza, USDA ARS EBCL, France
Daisuke Kurose, CABI UK
Heinz Müller-Schärer, University of Fribourg, Switzerland
Michelle Rafter, CSIRO, Australia
Urs Schaffner, CABI Switzerland
Marion Seier, CABI UK
Lincoln Smith, USDA ARS EBCL, France
Sonja Stutz, CABI Switzerland
Sarah Thomas, CABI UK
Philip Weyl, CABI Switzerland

**Local organisation**

Heike Kuhlmann
Convention Service
Rue des Chênes 12
CH-2800 Delémont
Phone: 0041-32-4234384
Fax: 0041-32-4234385
Email: info@kcs-convention.com

**Other people that helped**

Special thanks are due to the following people who did a lot to get the programme booklet done and in good shape: Cornelia Cloșca, Patrick Häfliger, Sonja Stutz and Philip Weyl (all CABI Switzerland). Lauren Brown (CABI HQ) helped with the logo. Joseph Burgoyne, Teddy Searight, Wayne Coles and others from the CABI Marketing Team in the UK helped with the panel, to promote the event, and provided promotional material. Ghislaine Cortat, Céline Martinez and Jonathan Jolidon helped with donor letters.

**Symposium sponsors**

CABI
CSIRO
IOBC
Swiss Federal Office for the Environment
Swiss Federal Office for Agriculture
Swiss National Science Foundation
US Forest Service
### Programme Overview

#### Monday
- **08:00 - 08:15**: Symposium Welcome & Opening Addresses
- **08:15 - 08:30**: Keynote (30 min)
- **08:45 - 09:00**: 5 talks
- **09:00 - 09:15**: Keynote (30 min)
- **09:15 - 09:30**: 6 talks until lunch
- **11:45 - 12:00**: Poster speed talks & discussion session 9
- **12:00 - 13:00**: Lunch
- **13:00 - 13:15**: Symposium Dinner
- **19:30 - 20:00**: Dinner on your own

#### Tuesday
- **08:00 - 08:15**: Symposium Welcome & IOBC presentation
- **08:15 - 08:30**: Keynote (30 min)
- **08:45 - 09:00**: 5 talks
- **09:00 - 09:15**: Keynote (30 min)
- **09:15 - 09:30**: 6 talks until lunch
- **11:45 - 12:00**: Poster speed talks & discussion session 9
- **12:00 - 13:00**: Lunch
- **13:00 - 13:15**: Symposium Dinner
- **19:30 - 20:00**: Dinner on your own

#### Wednesday
- **08:00 - 08:15**: Symposium Welcome & IOBC presentation
- **08:15 - 08:30**: Keynote (30 min)
- **08:45 - 09:00**: 5 talks
- **09:00 - 09:15**: Keynote (30 min)
- **09:15 - 09:30**: 6 talks until lunch
- **11:45 - 12:00**: Poster speed talks & discussion session 9
- **12:00 - 13:00**: Lunch
- **13:00 - 13:15**: Symposium Dinner
- **19:30 - 20:00**: Dinner on your own

#### Thursday
- **08:00 - 08:15**: Symposium Welcome & IOBC presentation
- **08:15 - 08:30**: Keynote (30 min)
- **08:45 - 09:00**: 5 talks
- **09:00 - 09:15**: Keynote (30 min)
- **09:15 - 09:30**: 6 talks until lunch
- **11:45 - 12:00**: Poster speed talks & discussion session 9
- **12:00 - 13:00**: Lunch
- **13:00 - 13:15**: Symposium Dinner
- **19:30 - 20:00**: Dinner on your own

#### Friday
- **08:00 - 08:15**: Symposium Welcome & IOBC presentation
- **08:15 - 08:30**: Keynote (30 min)
- **08:45 - 09:00**: 5 talks
- **09:00 - 09:15**: Keynote (30 min)
- **09:15 - 09:30**: 6 talks until lunch
- **11:45 - 12:00**: Poster speed talks & discussion session 9
- **12:00 - 13:00**: Lunch
- **13:00 - 13:15**: Symposium Dinner
- **19:30 - 20:00**: Dinner on your own
Detailed Symposium Programme

Monday, 27 August 2018

8:00 AM  Symposium Welcome: Harriet L. Hinz  Chair Scientific Programme
Opening Addresses:  Alex Höchli  President of Engelberg municipality
                        Ulrich Kuhlmann  Executive Director Global Operations, CABI

Session 1: Target and agent selection  (Session Chair: Massimo Cristofaro)

8:30 AM  Prioritizing weed targets and agents for biological control: are we getting better at it?
Louise Morin (keynote)  CSIRO Health & Biosecurity, Canberra, Australia

9:00 AM  Geographic population structure in an outcrossing plant invasion after centuries of cultivation and recent founding events
John Gaskin¹, Mark Schwarzländer², Robert Gibson III, Heather Simpson³, Diane Marshall³,
Esther Gerber², Hariet Hinz⁴
¹USDA ARS, Sidney, US; ²University of Idaho, Moscow, US; ³University of New Mexico, Albuquerque, US; ⁴CABI, Delémont, Switzerland

9:15 AM  Do host races exist in the sagittaria fruit-feeding weevil?
Raelene Kwong, Jackie Steel, Mark Blacket  Agriculture Victoria, Melbourne, Australia

9:30 AM  Screening for agent selection—genetic diversity and structuring of leaf-tiers and chrysomelids from Acacia auriculiformis in Australia
Muhammad Nawaz¹, Graham A. McCulloch¹, Ryan Zonneveld², Christine H. Goosem²,
Gimme H. Walter¹
¹School of Biological Sciences, the University of Queensland, Brisbane, Queensland, Australia;
²United States Department of Agriculture, Australian Biological Control Laboratory, Brisbane, Queensland, Australia

9:45 AM  Eriophyid mites and weed biological control: does every silver lining have a cloud?
Philip Weyl¹, Massimo Cristofaro²,³, Lincoln Smith⁵, Urs Schaffner³, Biljana Vidovic⁴,
Radmila Petanovic⁴, Francesca Marinì², Sonja Stutz¹
¹CABI, Delémont, Switzerland; ²Biotechnological and Biological Control Agency (BBCA) onlus, Rome, Italy; ³ENEA, Rome, Italy; ⁴University of Belgrade, Belgrade, Serbia; ⁵EBCL USDA-ARS, Montferrier-sur-Izez, France

10:00 AM  Prospects for the biological control of invasive giant rat’s tail grasses (Sporobolus spp.) in Australia
Guy Sutton¹, Michael Day², Kim Canavan¹, Iain Paterson¹
¹Department of Zoology and Entomology, Centre for Biological Control, Rhodes University,
Grahamstown, South Africa; ²Department of Agriculture and Fisheries, Biosecurity Queensland,
Brisbane, Australia

10:15 AM  — Morning Coffee Break & Poster Session —
Monday, 27 August 2018

10:45 AM Biological control of prickly acacia (Vachellia nilotica subsp. indica): new gall-inducing agents from Africa
   Kunjithapatham Dhileepan¹, Boyang Shi¹, Jason Callander¹, Mindaye Teshome², Stefan Neser³, Nathalie Diagne⁴, Anthony King⁵
   ¹Biosecurity Queensland, Department of Agriculture and Fisheries, Ecosciences, Precinct, Boggo Road, Brisbane, Australia; ²Central Ethiopia Environment and Forest Research Center, Addis Ababa, Ethiopia; ³Forestry and Agricultural Biotechnology Institute, University of Pretoria, Pretoria, South Africa; ⁴Senegalese Institute of Agricultural Research, National Centre for Agronomic Research, Bambe, Senegal; ⁵Agricultural Research Council, Plant Protection Research Institute, Pretoria, South Africa

11:00 AM Open field evaluation of Aculodes altamurgensis, a new eriophyid species associated to Taeniatherum caput-medusae
   Francesca Marini¹, Gerardo Roselli¹, Fabrizio Freda¹, Enrico de Lillo², Radmila Petanovic³, Biljana Vidovic⁴, Massimo Cristofaro¹⁴, Brian G Rector⁵
   ¹BBCA onlus, Rome, Italy; ²University of Bari Aldo Moro, Bari, Italy; ³University of Belgrade, Belgrade, Serbia; ⁴ENEA Casaccia, Rome, Italy; ⁵USDA-ARS, Reno, US

11:15 AM Using field host range testing to prioritise biological control agents
   Evans Mauda¹, Lenin Chari¹, Grant Martin¹, Raghu Sathyamurthy¹
   ¹Centre for Biological Control, Department of Zoology and Entomology, Rhodes University, Grahamstown, 6140, South Africa; ²CSIRO, Brisbane, Queensland, Australia

11:30 AM Integrating results from host range, efficacy and fitness trials to prioritise biotypes of Dactylopius tomentosus
   Peter Jones¹, Andrew McConnachie², Royce. H. Holtkamp³, Kerri Moore¹, Anna Williams¹, Michael Day¹
   ¹Biosecurity Queensland Department of Agriculture and Fisheries, Brisbane, Australia; ²New South Wales Department of Primary Industries, Orange, Australia; ³Horizon Ecological Consulting, Kendall, Australia

11:45 AM Brazilian peppertree in Florida, USA: research updates on potential biological control agents
   Patricia Prade¹, Carey Minteer¹, James Cuda²
   ¹University of Florida, Fort Pierce, US; ²University of Florida, Gainesville, US

12:00 PM Abrostola asclepiadis (Lepidoptera: Noctuidae) will likely be an ineffective agent due to its impact and diapause traits
   Lindsey Milbrath¹, Jeromy Biazzo¹, Margarita Dolgovskaya², Mark Volkovitsz², Rene Sforza³
   ¹USDA Agricultural Research Service, Ithaca, NY, US; ²Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia; ³EBCL-USDA-ARS, Montferrier sur Lez, France

12:15 PM Poster speed talks and discussion session 1

12:45 PM — Lunch Break —
### Session 2: Opportunities and constraints for classical weed biocontrol in developing countries

**Session Chair: Urs Schaffner**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:45 PM</td>
<td>Opportunities and constraints for classical weed biocontrol in developing countries</td>
<td>Rangaswamy Muniappan (keynote)</td>
<td>Virginia Tech, Blacksburg, US</td>
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<tr>
<td>2:15 PM</td>
<td>Weed biocontrol in India—opportunities and constraints</td>
<td>Kavileveettil Sankaran(^1), Michael Day(^1,2)</td>
<td>Kerala Forest Research Institute, Kerala, India; Department of Agriculture and Fisheries, Queensland, Australia</td>
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<tr>
<td>2:30 PM</td>
<td>Prospects of classical biological control of weeds in Pakistan: challenges and opportunities</td>
<td>Asad Shabbir(^1,2), Abdul Rehman(^3)</td>
<td>Ecology and Evolution, University of the Punjab, Lahore, Pakistan; Weed research, University of Sydney, Narrabri, Australia; (^3)CABI, Rawalpindi, Pakistan</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>Introducing <em>Zygogramma bicolorata</em> and <em>Listronotus setosipennis</em> for biological control of <em>Parthenium hysterophorus</em> in Ethiopia</td>
<td>Wondi Mersie</td>
<td>Virginia State University, Petersburg, US</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>Weed biocontrol in Vanuatu—progress to date and new activity</td>
<td>Lynley Hayes(^1), Michael Day(^2), Quentin Paynter(^3)</td>
<td>Landcare Research, Lincoln, New Zealand; Biosecurity Queensland, Brisbane, Australia; Landcare Research, Auckland, New Zealand</td>
</tr>
<tr>
<td>3:15 PM</td>
<td>Sharing the success of cactus biological control across borders</td>
<td>Iain Paterson(^1), Phillippa Muskett(^1), Coleen Mannheimer(^2), Peter Jones(^3), Andrew McConnachie(^4)</td>
<td>Rhodes University Centre for Biological Control, Grahamstown, South Africa; National Botanical Research Institute of Namibia, Windhoek, South Africa; (^3)Biosecurity Queensland, Brisbane, Australia; (^4)Weed Research Unit, NSW Department of Primary Industries, Orange, Australia</td>
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<tr>
<td>3:30 PM</td>
<td>Poster speed talks and discussion session 2</td>
<td></td>
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<tr>
<td>3:45 PM</td>
<td>— Afternoon Coffee Break &amp; Poster Session —</td>
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### Session 3: Biopesticides

**Session Chair: Graeme Bourdôt**

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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
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<tbody>
<tr>
<td>4:15 PM</td>
<td>Navigating the bioherbicide trail to reach the goal of widespread use</td>
<td>Karen Bailey (keynote)</td>
<td>Agriculture &amp; Agri-Food Canada, Saskatoon, Canada</td>
</tr>
<tr>
<td>4:45 PM</td>
<td>From classical to inundative control—<em>Mycosphaerella polygoni-cuspidati</em> as a potential mycoherbicide for Japanese knotweed</td>
<td>Marion K. Seier, Daisuke Kurose, Harry C. Evans</td>
<td>CABI, Egham, UK</td>
</tr>
<tr>
<td>4:55 PM</td>
<td>Plant associated bacteria as control agents for weeds</td>
<td>Friederike Trognitz(^1), Abdul Samad(^1), Siegrid Widhalm(^1), Fikri El Yahyaoui(^2), Angela Sessitsch(^1)</td>
<td>(^1)AIT Austrian Institute of Technology, Tulln, Austria; (^2)Elephant vert, Meknes, Morocco</td>
</tr>
<tr>
<td>5:05 PM</td>
<td>Requirement of mycotoxin TeA-activated singlet oxygen signalling for disease development induced by necrotrophic fungus <em>Alternaria alternata</em></td>
<td>Shiguo Chen</td>
<td>Nanjing Agricultural University, Nanjing, China</td>
</tr>
</tbody>
</table>
Monday, 27 August 2018

5:15 PM  Effects of medium composition on chromatography and toxicity profiles of extracts of Stagonospora cirsii S-47, a pathogen of perennial sow thistle
Alexander Berestetskiy, Belozyorova Mariya, Prokofieva Darya, Pervushin Alexey, Poluektova Ekaterina, Sabashuk Yuliana
Russian Institute of Plant Protection, Saint-Petersburg, Russia

5:25 PM  Setting the mood: initiating herbivory response increases impact of fungal pathogens on Canada thistle
Amy Clark, Andrew Norton, Courtney Jahn
Bioagricultural Sciences & Pest Management, Colorado State University, Fort Collins, US

5:35 PM  Isolate differences in Sclerotinia sclerotiorum applied as a bioherbicide to Cirsium arvense
Bethanne Smith, Eirian Jones, Graeme Bourdôt, Seona Casonato
1Lincoln University, Lincoln, New Zealand; 2AgResearch Limited, Lincoln, New Zealand

5:45 PM  Persistence and effectiveness of Sarritor [Sclerotinia minor (IMI 344141)] in the southeastern U.S.
Joseph Neal, Christopher Harlow
North Carolina State University, Raleigh, NC, US

5:55 PM  Development of a granular bioherbicide using Sclerotium rolfsii for biocontrol of broadleaf weeds
Sheng Qiang
Nanjing Agricultural University, Nanjing, China

6:05 PM  Discussion session 3

Workshops 6:30pm–8:00pm

Biological control of grasses
Organized by: John Goolsby (USDA-ARS, Edinburg, Texas, USA), Massimo Cristofaro, (BBCA, Italy), and Iain Paterson ( Rhodes University Centre for Biological Control, Grahamstown, South Africa)
Grasses are invasive weeds in all habitats, climates, and across all continents. Several species have been targeted by biological control. What have we learned from these programmes regarding selection of agents, measurement of impacts, and conflicts of interests with those that see many of these target species as valuable to the ecosystem.

Implications of weed biotypic variation for biocontrol programmes using fungal pathogens
Organized by: Kate Pollard, Carol Ellison and Marion Seier (CABI, Egham)
The success of a CBC programme using a fungal agent is highly dependent on the compatibility and virulence of the respective pathogen-host interaction. Selected groups of pathogens can exhibit specificity and differences in virulence at the isolate level being adapted to specific biotypes of their host. Such highly specific co-evolved relationships can lead to limitations where different biotypes of the target weed are present. This workshop will discuss the importance of weed biotypic variation for CBC programmes and review its implications on the efficacy of fungal biocontrol agents. Discussions aim to draw upon previous experiences and potential new techniques which could be utilised to better overcome these barriers in the future.
Tuesday, 28 August 2018

8:00 AM  **IOBC presentation:** George Heimpel and Barbara Barratt

**Session 4: Novel methods to determine efficacy and environmental safety of agents**  
(Session Chair: Michelle Rafter)

8:15 AM  **The value of novel approaches in the development of weed biological control programs**  
Greg Wheeler (keynote)  
USDA/ARS, Ft. Lauderdale, US

8:45 AM  **The potential role of targeted and non-targeted metabolic profiling in host range testing**  
Gaylord Desurmont¹, John Gaskin², Gaëtan Glauser³, Thomas Junier³, Urs Schaffner⁴, Ted Turlings³, Harriet L. Hinz⁴  
¹EBCL USDA ARS, Montferrier-sur-lez, France; ²USDA ARS Sidney, Montana, Sidney, US; ³University of Neuchâtel, Neuchâtel, Switzerland; ⁴CABI, Delémont, Switzerland

9:00 AM  **Integrating sensory ecology to complement pre-release risk assessments for biological control candidates**  
Ikju Park¹,², Mark Schwarzländer³, Sanford Eigenbrode², Stephen Cook², Harriet Hinz⁴, Urs Schaffner⁴  
¹New Mexico State University, Las Cruces, US; ²University of Idaho, Moscow, US; ³CABI, Delémont, Switzerland

9:15 AM  **The role of thistle phylogeny on long-range and short-range host selection behaviour of the biocontrol agent *Cassida rubiginosa***  
Dilani Hettiarachchi¹, Sarah Jackman², Chikako van Koten², Jon Sullivan³, Michael Cripps², Michael Rostas¹  
¹Bio-Protection Research Center, Lincoln University, Lincoln, New Zealand; ²AgResearch, Lincoln Research Center, Lincoln, New Zealand; ³Faculty of Agriculture and Life Science, Lincoln University, Lincoln, New Zealand

9:30 AM  **Phylogenetic reasoning secures release-approval for a biocontrol agent in South Africa, thus circumventing conventional host-specificity testing**  
Catharina Kleinjan  
University of Cape Town, Rhodes Gift, South Africa

9:45 AM  **Understanding limits to species-wide demographic generalizations: the ecology and management of *Parkinsonia aculeata***  
Jean-Baptiste Pichancourt¹,², Rieks van Klinken¹, S. Raghu¹  
¹CSIRO, Brisbane, Australia; ²Agroparistech, Nancy, France

10:00 AM  **Demographic modelling of a prospective biological control agent of a weed, the case of *Ophraella communa* and *Ambrosia artemisiifolia* in Europe**  
Benno Augustinus¹,², Damie Pak³, Yan Sun³, Sandra Citterio³, Rodolfo Gentili³, Ottar Bjornstad⁴, Urs Schaffner⁴, Heinz Müller-Schärer²  
¹CABI, Delémont, Switzerland; ²University of Fribourg, Fribourg, Switzerland; ³University of Milano-Bicocca, Milano, Italy; ⁴Penn State University, State College, Pennsylvania, US

10:15 AM  **Morning Coffee Break & Poster Session**
### Tuesday, 28 August 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenters</th>
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</table>
| 10:45 AM   | Biological control of *Parkinsonia aculeate*: niche model based identification of climatically suitable areas for agent release in Australia | Abhishek Mukherjee\(^1\), S. Raghu\(^2\)  
\(^1\)Indian Statistical Institute, New Barganda, Jharkhand, India; \(^2\)CSIRO, Brisbane, QLD 4001, Australia |
| 11:00 AM   | Strengthening the bonds? Investigations into the *Puccinia chondrillina-Chondrilla juncea* pathosystem in Australia | Gavin Hunter\(^1\), Kylie Ireland\(^1\), Mireille Jourdan\(^2\), Jim Cullen\(^1\), Louise Morin\(^1\)  
\(^1\)CSIRO Health and Biosecurity, Acton, ACT, Australia; \(^2\)CSIRO Health and Biosecurity, European Laboratory, Montferrier-sur-lez, Montpellier, France |
| 11:15 AM   | Molecular investigations into the association of cactus biotypes and cochineal lineages: implications for biocontrol | Samalesu Guelor Mayonde\(^1\), Iain Paterson\(^2\), Marcus Byrne\(^1,3\)  
\(^1\)School of Animal Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa; \(^2\)Rhodes University, Grahamstown, South Africa; \(^3\)DST-NRF Centre of Excellence for Invasion Biology, Johannesburg, South Africa |
| 11:30 AM   | Molecular analysis of ecological interactions for optimizing biocontrol of the invasive weed *Sonchus oleraceus* L. (Asteraceae) in Australia | Melodie Ollivier\(^1\), Vincent Lesieur\(^1\), Mireille Jourdan\(^2\), Thierry Thomann\(^2\), Raghu Sathyamurthy\(^4\), Louise Morin\(^2\), Andy Sheppard\(^4\), Marie Stéphane Tixier\(^1\), Jean François Martin\(^1\)  
\(^1\)UMR CBGP, Montpellier SupAgro, INRA, CIRAD, IRD, Univ. Montpellier, Montpellier, France; \(^2\)CSIRO Health and Biosecurity, European Laboratory, Montferrier sur Lez, France; \(^3\)CSIRO Health and Biosecurity, Brisbane, Australia; \(^4\)CSIRO Health and Biosecurity, Canberra, Australia |
| 11:45 AM   | Insect thermal tolerance—trait plasticity and links to biocontrol agent efficacy | Candice Owen, Martin Hill, Julie Coetzee  
Centre for Biological Control, Rhodes University, Grahamstown, South Africa |
| 12:00 PM   | Gene tech based next generation biological control of weeds—what could it look like? | Andy Sheppard  
CSIRO, Canberra, Australia |
| 12:15 PM   | Poster speed talks and discussion session 4                                   |                                                                                                  |
| 12:45 PM   | — Lunch Break —                                                               |                                                                                                  |

**Session 5: Making classical biological control more predictive: moving from ecological to evolutionary processes** (Session Chair: Marie Claude Bon)

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<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenters</th>
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</table>
| 1:45 PM    | Predicting benefits and risks of biological control of the invasive common ragweed in Europe: from ecological to evolutionary studies | Heinz Müller-Schärer\(^1\), Yan Sun\(^1\), Maria Litto\(^1\), Sarah Bouchmousse\(^1\), Suzanne Lommen\(^1\), Urs Schaffner\(^2\) (keynote)  
\(^1\)Department of Biology, University of Fribourg, Switzerland; \(^2\)CABI, Delémont, Switzerland |
| 2:15 PM    | The potential role of rapid eco-evolutionary dynamics in biological control   | Ruth Hufbauer\(^1\), Marianna Szucs\(^2\), Megan Vahsen\(^3\), Brett Melbourne\(^4\)  
\(^1\)Colorado State University, Fort Collins, US; \(^2\)Michigan State University, Lansing, US; \(^3\)Notre Dame University, South Bend, US; \(^4\)University of Colorado, Boulder, US |
Tuesday, 28 August 2018

2:30 PM  Rapid evolution in biological control: implications for safety and effectiveness
Peter McEvoy, Linda Buergi, Karatina Lunde, Monte Mattsson, Madison Rodman
Oregon State University, Corvallis, Oregon, US

2:45 PM  Rapid evolution of a plant invader in response to biological control and global warming
Yan Sun; Department of Biology, University of Fribourg, Fribourg, Switzerland

3:00 PM  Characterizing hybridization in the tamarisk leaf beetle
Ellyn Bitume1, Amanda Stahlke2, Dan Bean1, Patrick Moran1, Paul Hohenlohe2, Ruth Hufbauer3
1Invasive Species and Pollinator Health Research Unit, USDA-ARS, Albany, US; 2Institute for Bioinformatics and Evolutionary Studies (IBEST), University of Idaho, Moscow, ID, US; 3Colorado Department of Agriculture, Palisade, Palisade, CO, US

3:15 PM  Prospects in understanding the role of eco-evolutionary dynamics in an admixed, range-expanding biocontrol agent
Amanda Stahlke1, Ellyn Bitume2,4, Daniel Bean5, Eliza Clark2, Zeynep Ozsoy3, Ruth Hufbauer4, Paul Hohenlohe1
1Institute for Bioinformatics and Evolutionary Studies, University of Idaho, Moscow, ID, US; 2Bioagricultural Science and Pest Management, Colorado State University, Fort Collins, CO, US; 3Biological Sciences, Colorado Mesa University, CO, US; 4Exotic and Invasive Weeds Research Unit, USDA-ARS, Albany, CA, US; 5Colorado Department of Agriculture, Palisade, CO, US

3:30 PM  Admixtures of Chinese and Nepalese Lilioceris species: helpful or harmful for U.S. air potato biocontrol efforts?
F. Allen Dray Jr., Ellen Lake, Melissa Smith, Min Rayamajhi
USDA-ARS Invasive Plant Research Lab, Fort Lauderdale, US

3:45 PM — Afternoon Coffee Break and Poster Session —

4:15 PM  Anticipating cryptic species and determining their host associations in weed biological control
Michelle Rafter1, Gimme Walter2
1CSIRO, Brisbane, Australia; 2The University of Queensland, Brisbane, Australia

4:30 PM  Bacterial symbionts as potential drivers of biotype formation within the hawkweed gall wasp Aulacidea pilosellae
Rosemarie De Clerck-Floate, Kevin Floate
Agriculture and Agri-Food Canada, Lethbridge, Canada

4:45 PM  Rhinusa pilosa: a case study of environmental bottleneck
Ivo Toševski1,2, Oliver Krstić2, Jelena Jović2, Sharlene Sing3, Susan Turner4, Rosemarie De Clerck-Floate5
1CABI, Delémont, Switzerland; 2Institute for Plant Protection and Environment, Belgrade, Serbia; 3Rocky Mountain Research Station, USDA, Forest Service, Bozeman, MT, US; 4BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, British Columbia, Canada; 5Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada
Tuesday, 28 August 2018

5:00 PM  DNA barcoding determines the native field host range of endophagous insects associated with Senecio madagascariensis
Daniella Egli¹, Sandi Willows-Munro¹, Kerinne Harvey¹,², Terry Olckers¹
¹University of KwaZulu-Natal, Pietermaritzburg, South Africa; ²New South Wales Department of Primary Industries, Orange, Australia

5:15 PM  Application of DNA barcoding to compare the fundamental and ecological host ranges of a proposed biocontrol agent for Sagittaria platyphylla
Jackie Steel¹,², Mark J Blacket¹, Raelene M Kwong¹
¹Agriculture Victoria, Melbourne, Australia ; ²La Trobe University, Melbourne, Australia

5:30 PM  Poster speed talks and discussion session 5

Workshops 6:30pm–8:00pm

Arts and Science of Native Range Explorations
Organized by: Kunjithapatham Dhileepan (Biosecurity Queensland, Brisbane, Australia) and Matt Purcell (USDA-ARS, Australian Biological Control Laboratory, CSIRO Health and Biosecurity, Brisbane, Australia)
Native range surveys underpin all weed biocontrol efforts, and with emerging new techniques, the exploration science is gaining more momentum. Though only a limited number of research agencies are involved in native range surveys, such a workshop will help new and emerging weed biocontrol research agencies to understand and appreciate the complexities, regulations and logistic difficulties in the identification and sourcing of weed biocontrol agents.

Taking biological control to our communities
Organised by: Kim Weaver and Philip Ivey (Centre for Biological Control, Rhodes University, Grahamstown, South Africa)
The Centre for Biological Control will share a few examples of their projects that have and are taking place in four focal areas. These are school outreach, community uptake of biological control, funding and mass-rearing. This will then be open to the floor to discuss what is currently taking place in other organisations and countries. The Centre for Biological Control will facilitate and record the discussion to bring thoughts together to write a review paper with fellow researchers.

8:00 PM  International beverage evening (at hotel including dinner)
Thursday, 30 August 2018

Session 6: Regulations for agent release and access to genetic resources (Session Chair: Philip Weyl)

8:00 AM  Housekeeping

8:15 AM  Biological control of weeds in the Anthropocene: why has introducing new agents become so challenging?
  Peter Mason (keynote)  Agriculture and Agri-Food Canada, Ottawa, Canada

8:45 AM  Horehound biocontrol—a case study in public consultation
  Ronny Groenteman¹, Gavin Loxton², Richard Hill¹
  ¹Manaaki Whenua Landcare Research, Lincoln, New Zealand; ²Sawdon Station, Tekapo, New Zealand

9:00 AM  Regulations for access to genetic resources and exportation of weed biocontrol agents in Argentina
  Fernando Mc Kay¹, Alejandro Sosa¹², Guillermo Cabrera Walsh¹, Freda Anderson³, Juan Pablo Coullet¹, Celeste Franceschini⁵, Germán Barros⁶, Soledad Villamil⁷⁸
  ¹Fundación para el Estudio de Especies Invasivas (FuEDEI), Hurlingham, Buenos Aires, Argentina; ²Consejo Nacional de Investigaciones Científicas y Técnicas (Conicet), Buenos Aires, Argentina; ³Centro de Recursos Renovables de la Zona Semiárida (CERZOS-Conicet), Bahía Blanca, Argentina; ⁴Instituto de Botánica del Nordeste (IBONE), Corrientes, Argentina; ⁵Centro de Ecología Aplicada del Litoral (CECOAL-CONICET-UNNE), Corrientes, Argentina; ⁶Departamento de Microbiología e Inmunología, Facultad de Cs. Exactas Fisicoquímicas y Naturales, Universidad Nacional de Río Cuarto, Río Cuarto, Argentina; ⁷Universidad Nacional del Sur, Bahía Blanca, Argentina; ⁸Comisión de Investigaciones Científicas de Buenos Aires, Bahía Blanca, Argentina

9:15 AM  Regulatory oversight of non-native invertebrate biological control agents in Europe, using England as an example
  Matthew Everatt;  Department for Environment, Food and Rural Affairs, York, UK

9:30 AM  Access and benefit sharing, the Nagoya Protocol and its implementation in Switzerland
  Min Hahn, Franziska Bosshard;  Federal Office for the Environment FOEN, Bern, Switzerland

9:45 AM  The Nagoya Protocol: implications for classical biological control of invasive plant species
  Harriet Hinz¹, Philip Weyl¹, Djami Djeddour², David Smith²
  ¹CABI, Delémont, Switzerland; ²CABI, Egham, UK

10:00 AM  Discussion session 6

10:15 AM  —  Morning Coffee Break & Poster Session  —
Thursday, 30 August 2018

Session 7: Social and economic assessments of biological control (Session Chair: Marion Seier)

10:45 AM  Quantifying the economic and social benefits of biological control
            Brian van Wilgen (keynote)  Stellenbosch University, Stellenbosch, South Africa

11:15 AM  Economics of weed biocontrol in New Zealand: a lot can be done with minimal data, but even more with good data!
           Simon Fowler  Manaaki Whenua - Landcare Research, Lincoln, New Zealand

11:30 AM  Economic analysis demonstrates that ecosystem service benefits of water hyacinth management greatly exceed research and control costs
           Alfred Cofrancesco¹, Lisa Wainger², Nathan Harms¹, Cedric Magen², Dong Liang², Genevieve Nesslage², Anna McMurray²
           ¹Engineer Research and Development Center, US Army Corps of Engineers, Vicksburg, MS, US; ²Chesapeake Biological Lab, University of Maryland Center for Environmental Science, Solomons, MD, US

11:45 AM  Socio-economic impact of water hyacinth on riparian communities of the Wouri River Basin (Douala, Cameroon)
           Sonia Nadege Kenfack Voukeng¹,³, Philip Weyl², Martin Hill³, Napoleon Chi⁴
           ¹Green Connexion, Yaoundé, Cameroon; ²CABI, Delémont, Switzerland; ³Rhodes University, Grahamstown, South Africa; ⁴Watershed Task Group, Douala, Cameroon

12:00 PM  Do good insects go bad? A tale of two cactus biological control agents
           Stephen Hight¹, Laura Varone², M. Belén Aguirre², Guillermo Logarzo², Jim Carpenter³
           ¹USDA-ARS, Tallahassee, US; ²Fundación para el Estudio de Especies Invasivas (FuEDEI), Buenos Aires, Argentina; ³USDA-ARS (retired), Tifton, US

12:15 PM  Nassella trichotoma —modelling the costs and benefits of proposed classical biocontrol in New Zealand
           Graeme Bourdôt, Shona Lamoureaux
           AgResearch Limited, Lincoln, New Zealand

12:30 PM  Projecting the economic benefits of biological control of common ragweed in Europe
           Urs Schaffner¹, Sandro Steinbach¹, Heinz Müller-Schärer³
           ¹CABI, Delémont, Switzerland; ²ETH, Zürich, Switzerland; ³University of Fribourg, Fribourg, Switzerland

12:45 PM  — Lunch Break —

Session 8: Opportunities and constraints for classical weed biocontrol in developed countries (Session Chair: Hariet L. Hinz)

1:45 PM  Opportunities and constraints for classical biocontrol of invasive plants in Europe
           Elizabete Marchante (keynote)  Centre for Functional Ecology, University of Coimbra, Portugal

2:15 PM  The classical weed biocontrol imperative: managing through the invasion curve in the western United States
           Carol Bell Randall  Gonzaga University, Spokane, US; USDA Forest Service, Coeur d’Alene, US
Thursday, 30 August 2018

2:30 PM  Charismatic microfauna: using *Lilioceris cheni* to increase public perception and acceptance of the biological control of weeds
Carey Minteer¹, Ken Gioeli², Emily Gaskin¹, Beth Reeves³, Patricia Prade¹, Eutychus Kariuki¹
¹University of Florida, Fort Pierce, US; ²UF/IFAS St. Lucie County Extension, Fort Pierce, US; ³Florida Department of Agriculture and Consumer Services, Fort Pierce, US

2:45 PM  Field release of a rust fungus for the biological control of Himalayan balsam in the UK: constraints to success
Kate M. Pollard, Sonal Varia, Carol A. Ellison; CABI, Egham, UK

3:00 PM  Modelling the biocontrol of an invasive tree by a bud-galling wasp, *Trichilogaster acaciaelongifoliae*
Jael Palhas¹, João Cabral³, Francisco Alejandro López Núñez¹, Elizabete Marchante¹, Hélia Marchante²
¹Centre for Functional Ecology - Science for People & the Planet, Coimbra, Portugal; ²Escola Superior Agrária, Instituto Politécnico de Coimbra, Coimbra, Portugal; ³UTAD - Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal

3:15 PM  Landowners and researchers in partnership to ensure the success of biological control in South Africa
Philip Ivey¹, Kim Weaver¹, Ellouise de Bruno Austin²
¹Centre for Biological Control, Grahamstown, South Africa; ²Independent marketing consultant, Cape Town, South Africa

3:30 PM  Perceptions of weed biocontrol in Europe: what’s going on?
Richard Shaw¹, Hélia Marchante²³, Laura Verbrugge⁴, Suzanne Lommen⁵⁶, Elizabete Marchante²
¹CABI, Egham, UK; ²Centre for Functional Ecology, University of Coimbra, Coimbra, Portugal; ³Escola Superior Agrária, Instituto Politécnico de Coimbra, Coimbra, Portugal; ⁴University of Twente, Enschede, Netherlands; ⁵Koppert Biological Systems, Berkel en Rodenrijs, Netherlands; ⁶Netherlands Centre of Expertise for Exotic Species, Nijmegen, Netherlands

3:45 PM  — Afternoon Coffee Break & Poster Session —

4:15 PM  Poster speed talks & discussion sessions 7+8

5:00 PM  Panel discussion

6:00 PM  End

6:45 PM  Leave for Symposium Dinner
Session 9: Post-release monitoring and evaluation  (Session Chair: Lincoln Smith)

8:00 AM  Housekeeping

8:15 AM  Agent monitoring and evaluation: a New Zealand perspective
  Quentin Paynter¹, Simon Fowler² (keynote)
  ¹Manaaki Whenua Landcare Research, Auckland, New Zealand; ²Manaaki Whenua Landcare
  Research, Lincoln, New Zealand

8:45 AM  Biological control of weeds: a summary of introductions, rates of establishment and
  estimates of success
  Mark Schwarzländer¹, Harriet Hinz³, Rachel Winston⁴, Michael Day⁵, Sujan Panta¹
  ¹University of Idaho, Moscow, US; ²University of Idaho, Moscow, US; ³CABI, Delémont, Switzerland;
  ⁴MIA Consulting, Sandpoint, US; ⁵Biosecurity Queensland, Brisbane, Australia

9:00 AM  A post-release assessment tool and its implementation in the USA
  Joseph Milan; Bureau of Land Management, Boise, US

9:15 AM  Identifying factors influencing establishment discrepancies of a bud-feeding weevil,
  Dichomada rufa: a case study from South Africa
  Kelby English¹, John Hoffmann¹, Ethel Phiri², Candice Lyons¹³
  ¹University of Cape Town, Cape Town, South Africa; ²Stellenbosch University, Stellenbosch, South
  Africa; ³Agricultural Research Council - Plant Protection Research Institute, Stellenbosch, South
  Africa

9:30 AM  10 years of post-release evaluation on Myriophyllum aquaticum, what have we learnt?
  Grant Martin¹; Julie Coetzee³, Martin Hill¹, Philip Weyl²
  ¹Centre for Biological Control, Rhodes University, Grahamstown, South Africa; ²CABI, Delémont,
  Switzerland

9:45 AM  Suppression of seed production, a basic long-term strategy in weed biocontrol, as
  exemplified by a midge on Acacia mearnsii in South Africa
  Fiona Impson, Catharina Kleinjan, John Hoffmann
  University of Cape Town, Rondebosch, South Africa

10:00 AM  Fungal biological control of the invasive plant mistflower (Ageratina riparia) facilitates
  recovery of native vegetation
  Ben Gooden¹², Louise Morin¹, Andrew White⁴, Melissa Piper¹, Jamie Fagg², Kris French²,
  Alice Yeates³, Shon Schooler¹³
  ¹CSIRO Health & Biosecurity, Canberra, Australia; ²University of Wollongong, Wollongong, Australia;
  ³University of Wisconsin-Superior, Superior, US; ¹³CSIRO Health & Biosecurity, Brisbane, Australia

10:15 AM  —  Morning Coffee Break & Poster Session  —

10:45 AM  Assessing herbivore biocontrol impact on common ragweed combining field experiments
  and population models
  Suzanne Lommen¹, Eelke Jongejans³, Caspar Hallmann³, Heinz Müller-Schärer¹
  ¹University of Fribourg, Fribourg, Switzerland; ²Radboud University Nijmegen, Nijmegen,
  Netherlands

11:00 AM  Beyond the target: developing the right metrics and measurements to determine success
  Bernd Blossey  Cornell University, Ithaca, US
Friday, 31 August 2018

11:15 AM  **Could hybridization between agent biotypes increase biological control efficacy?**  
Marianna Szucs1, Patricia Salerno2, Urs Schaffner3, Brittany Teller5, Jeffrey Littlefield4, Ruth Hufbauer2  
1Michigan State University, East Lansing, US; 2Colorado State University, Fort Collins, US; 3CABI, Delémont, Switzerland; 4Montana State University, Bozeman, US; 5Pennsylvania State University, State College, US

11:30 AM  **Do shared parasitoids represent apparent competition or biotic resistance? Evidence from the waterhyacinth system in Florida**  
Melissa Smith1, Philip Tipping1, Carey Minteer2, Ellen Lake1, Alissa Berro1, Karen Rice1  
1USDA-ARS Invasive Plant Research Laboratory, Fort Lauderdale, US; 2University of Florida IFAS, Fort Pierce, US

11:45 AM  **Using drones in pre- and post-release monitoring and evaluation of the biocontrol of Cylindropuntia spp. in Australia**  
Andrew McConnachie1, Peter Jones2, Rajendra Shilpakar3, Peter Dawson3  
1New South Wales Department of Primary Industries, Biosecurity & Food Safety, Orange, Australia; 2Department of Agriculture and Fisheries, Biosecurity Queensland, Brisbane, Australia; 3North West Local Land Services, Tamworth, Australia

12:00 PM  **Poster speed talks & discussion session 9**

12:45 PM  **Lunch Break**

**Session 10: Integrated weed management and restoration** (Session Chair: Heinz Müller-Schärer)

1:45 PM  **Integration of biocontrol and ecohydrological assessment in restoration of riparian ecosystems invaded by Tamarix**  
Tom Dudley1, Dan Bean2, Bruce Orr3, Glen Leverich3, Matthew Johnson4, Kevin Hultine5, James Hatten6  
( keynote)  

2:15 PM  **Anticipating secondary invasions: cautionary tales for ecosystem restoration**  
Carla D’Antonio1, Rebecca Ostertag2, Susan Cordell1,2,3, Stephanie Yelenik4,5,6;  
1University of California, Santa Barbara, US; 2University of Hawaii, Hilo, US; 3Institute of pacific islands forestry, Hilo, US; 4USGS, Volcano Hawaii, US

2:30 PM  **Integration of mechanical topping methods to accelerate biological control of Arundo donax**  
John Goolsby1, Alex Racelis2, Patrick Moran2, Alan Kirk4, Javid Kashefi5, Lincoln Smith4, Marie Claude Bon1, Massimo Cristofaro6, Ron Lacewell7, Ann Vacek3, Madeline Marshall3, Maricela Martinez Jimenez8, Adalberto Perez de Leon9  
1USDA-ARS, Edinburg, Texas, US; 2USDA-ARS, Albany, California, US; 3University of Texas, Rio Grande Valley, Edinburg, Texas, US; 4EBCL-USDA-ARS, Montpellier, France; 5USDA-ARS, Thessaloniki, Greece; 6BBCA, Rome, Italy; 7Texas A&M University, College Station, Texas, US; 8Instituto Mexicano de Tecnologia, Juitepec, Morelos, US; 9USDA-ARS, Kerrville, Texas, US
Friday, 31 August 2018

2:45 PM  **Restoring sites invaded by *Persicaria perfoliata*, mile-a-minute weed, by integrating management techniques**

Ellen Lake¹, Judith Hough-Goldstein², Kimberley Shropshire², Kiri Wallace¹;

¹USDA Agricultural Research Service, Invasive Plants Research Laboratory, Fort Lauderdale, US; ²University of Delaware, Department of Entomology and Wildlife Ecology, Newark, US; ³University of Waikato, Environmental Research Institute, Hamilton, New Zealand

3:00 PM  **Postmortem impacts of *Melaleuca quinquenervia* on the Everglades landscape**

Philip Tipping¹, Min Rayamajhi¹, Melissa Martin², Paul Pratt³, Lyn Gettys⁴;


3:15 PM  **Integrated control of water hyacinth in peri-urban environments, linking science to society**

Alejandro Sosa¹², Tomás Righetti¹², Mariel Guala¹, Ana Falthauser¹², Fernando McKay¹, Guillermo Cabrera Walsh¹, Cristina Hernández¹, Martin Hill³;

¹Fundación para el Estudio de Especies Invasivas-FUEDEI, Hurlingham, Argentina; ²Consejo Nacional de Investigaciones Científicas y Técnicas-CONICET, Buenos Aires, Argentina; ³Rhodes University, Grahamstown, South Africa

3:30 PM  **The future of *Solanum mauritianum* biocontrol in South Africa: prospects, problems and promise**

Blair Cowie¹², Terence Ockers³, Nic Venter¹, Ed Witkowski¹, Marcus Byrne¹²;

¹School of Animal, Plant & Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa; ²DST-NRF Centre of Excellence for Invasion Biology, University of the Witwatersrand, Johannesburg, South Africa; ³School of Life Sciences, University of KwaZulu-Natal, Scottsville, South Africa

3:45 PM  **Afternoon Coffee Break & Poster Session**

4:15 PM  **Discussion session 10**

4:30 PM  **Concluding remarks and awards for best posters**

4:45 PM  **Discussion on forming a Global IOBC Working Group**

5:30 PM  **Presentation(s) of next venue(s)**

6:00 PM  **End**

**Workshop 6:30pm–8:00pm**

**The Nagoya Protocol and its implications for classical weed biological control**

Organized by: Alejandro Sosa (FuEDEI and CONICET, Buenos Aires, Argentina), Fernando McKay (FuEDEI, Buenos Aires, Argentina), Luciana Silvestri (INCIHUSA -CONICET, Mendoza, Argentina), Stephen Hight (USDA, Tallahassee, Florida), Martin Hill (Rhodes University, South Africa), and Marcelo Vitorino (FURB, Brazil).

Classical biological weed control relies on the ability to access and use biological control agents. Different international and national regulations may apply to the access, utilization, import and export of these useful organisms. The Nagoya Protocol, a supplementary agreement to the Convention on Biological Diversity targeting the fair and equitable sharing of benefits arising of the utilization of genetic resources, may also be applicable to some research activities in the field of biological control. As several countries have already adopted or prepare to adopt new regulation to comply with Nagoya’s obligations, concerns...
have been raised as to the need not limit or even make impossible access and utilization of biological control agents. This could be the case if national regulations are excessively restrictive and/or inefficient. In view of that, this workshop will discuss how the Nagoya Protocol and some national regulations already in force could impact research in the field of biological control—an inherently non-commercial access and utilization of living resources.

Luciana Silvestri holds a PhD in Law. She works as a legal researcher at CONICET (National Scientific and Technical Research Council), the main organization in charge of the promotion of science and technology in Argentina. As a consultant she has assisted a number of countries around the world, including Mozambique, Spain, Argentina, Colombia, Peru, Ecuador, Costa Rica and Cuba, to become Nagoya compliant. She has advised several scientific institutions, including the Marine Biotechnology Center (Spain) on how to comply with ABS international and national policies and helped develop its code of conduct on the issue. She is also a member of the Informal Advisory Committee to the Access and Benefit-Sharing Clearing House of the Nagoya Protocol and has negotiated on behalf of Spain, the Nagoya Protocol.
Posters

Due to the large number of posters, we have scheduled 2 poster sessions:

1) Posters with odd numbers (1, 3, 5 etc.) will need to be set up on Sunday afternoon/evening for display on Monday and Tuesday and taken down on Tuesday evening or latest Wednesday afternoon. Respective poster sessions will be: Monday afternoon coffee break and Tuesday morning coffee break. Presenters are expected to attend their posters during this time.

2) Posters with even numbers (2, 4, 6 etc.) will need to be set up on Wednesday afternoon/evening for display on Thursday and Friday and taken down on Friday evening. Respective poster sessions will be: Thursday afternoon coffee break and Friday morning coffee break. Presenters are expected to attend their posters during this time.

Any poster remaining on the poster boards after the end of the conference will be disposed of!

Session 1: Target and agent selection

1. Exploration for effective biocontrol agents of the climbing fern Lygodium microphyllum: progress, problems, potential
   Jeff Makinson¹, Graham McCulloch¹, Ryan Zonneveld¹, Ellen Lake³
   ¹ABCL CSIRO/USDA-ARS, Brisbane, AU; ²University of Queensland, Brisbane, AU; ³IPRL, USDA-ARS, Fort Lauderdale, US

2. A needle in a haystack: targeted exploration for biocontrol agents of monoecious Hydrilla verticillata, an aquatic weed in the United States
   Matthew Purcell¹, Nathan Harms¹, Jialiang Zhang³, Sun-Hee Hong⁴
   ¹CSIRO/USDA ARS, ABCL, Brisbane, AU; ²US Army Corps of Engineers, ERDC, Vicksburg, US; ³CAS, Wuhan, CN; ⁴Korea University, Seoul, KR

3. Biological control of common sowthistle: what is known, what is new and what is still missing?
   Vincent Lesieur¹,², Thierry Thomann¹, Mireille Jourdan¹, Mélodie Ollivier², Andy Sheppard³, Jean François Martin², Marie Stéphane Tixier⁴, Louise Morin⁵, Sathyamurthy Raghu⁴
   ¹CSIRO European Laboratory, Montferrier sur Lez, FR; ²CBGP, Montpellier SupAgro, Montferrier sur Lez, FR; ³CSIRO Health & Biosecurity, Canberra, AU; ⁴CSIRO Health & Biosecurity, Brisbane, AU

4. What informs our decisions when choosing the best species to control a weed pest?
   Mohannad Ismail
   Université catholique de Louvain, Louvain-La-Neuve, BE

5. Preliminary observations on the impact of Aculus mosoniensis, perspective biological control agent of Ailanthus altissima
   Massimo Cristofaro¹,², Francesca Di Cristina³, Silvia Arnone², Francesca Marini¹, Enrico de Lillo³, Radmila Petanović⁴, Biljana Vidović⁴, Francesca Casella³, Maurizio Vurro⁵
   ¹BBCA onlus, Rome, IT; ²ENEA Casaccia, Rome, IT; ³University of Bari Aldo Moro, Bari, IT
   ⁴University of Belgrade, Belgrade, RS; ⁵CNR, Bari, IT

6. Artificial diet rearing of a cerambycid beetle, (Oberea shirahatai, Ohbayashi, 1956)
   A. Hugh Gourlay
   Manaki Whenua Landcare Research, Lincoln, NZ

7. The potential for classical biological control of Sagina procumbens in the UK Overseas Territory of Tristan da Cunha
   Daisuke Kurose, Marion K. Seier, Carol A. Ellison, Norbert Maczey
   CABI, Egham, UK
A beautiful flower with a bitter taste, *Allium triquetrum* L., angled onion: a new biological control program

Vincent Lesieur¹,², Mireille Jourdan¹, Thierry Thomann³, Andy Sheppard³, Jean François Martin⁴, Marie Stéphane Tixier⁵, Louise Morin⁶, Sathyamurthy Raghú⁶, Ben Gooden⁷

¹CSIRO European Laboratory, Montferrier sur Lez, FR; ²CBGP, Montpellier SupAgro, Montferrier sur Lez, FR; ³CSIRO Health & Biosecurity, Canberra, AU; ⁴CSIRO Health & Biosecurity, Brisbane, AU

Host-specificity testing and taxonomy of *Passalora euphorbiae*, a potential biological control agent of sea spurge (*Euphorbia paralias*) in Australia

Gavin Hunter, Isabel Zeil Rolfe, Louise Morin

CSIRO Health and Biosecurity, Black Mountain Science and Innovation Park, Clunies Ross Street, Acton 2601, ACT, AU

Exploration for natural enemies associated with Guineagrass (*Megathyrys maximus*, syn. *Panicum maximum*) in Central Kenya

Massimo Cristofaro¹,², Francesca Di Cristina¹, Paul-Andre Calatayud³, Boaz Musyoka⁴, Radmila Petanović⁵, Biljana Vidović⁵, Gaskin John⁶, Kennedy Saitoti⁶, Dino Martins⁶, John Goosby⁷

Initiating biological control of *Iris pseudacorus*: a north-south collaboration

Iris Stiers⁸, Gianmarco Minuti¹, Samella Ngxande¹, Julie Coetzee⁹

¹Vrije Universiteit Brussel, Brussels, BE; ²Rhodes University, Grahamstown, ZA

From genomic analysis of the rapid colonization of the exotic Sahara mustard in the United States to the search of its natural enemies

Daniel Winkler¹,², Marie-Claude Bon¹, Massimo Cristofaro⁴,⁵, René Sforza³, Francesca Marini⁴, Matthew Augé⁴, Javid Kashefi³, Lincoln Smith¹, T. Huxman¹


Is being a specific and damaging insect enough to be considered as good candidate for the biological control of water hyacinth?

Marina Oleiro¹,², Alejandro Sosa¹,², Celeste Franceschini³, Ana Marino de Remes Lenicov⁵, Celeste Guerra Alonso⁷, Carolina Mengoni¹,², Guillermo Cabrera Walsh¹, Phil Tipping⁶

¹Fundación para el Estudio de Especies Invasivas-FUEDEI, Hurlingham, AR; ²Consejo Nacional de Investigaciones Científicas y Técnicas-CONICET, Buenos Aires, AR; ³Centro de Ecología Aplicada del Litoral-CECOAL/CONICET/UNNE, Corrientes, AR; ⁴Facultad de Ciencias Naturales y Museo de La Plata-UNLP, La Plata, AR; ⁵USDA-ARS- Invasive Plant Research Laboratory, Fort Lauderdale, US; ⁶Instituto de Biología Subtropical-IBS/UNM/CONICET, Puerto Iguazú, AR

Performance of the gall midge *Orseolia javanica* (Diptera: Cecidomyiidae) on two Florida biotypes of cogongrass, *Imperata cylindrica*

James Cuda⁴, P. Hidayat⁷, K. Simamora⁷

⁴University of Florida, Gainesville, US; ⁷Bogor Agricultural University, Bogor, ID

*Doassansia niesslii* (white smut pathogen): a new potential biological control agent for flowering rush in North America

Carol Ellison¹, Patrick Häfliger², Hariet Hinz²

¹CABI, Egham, UK; ²CABI, Delémont, CH

Exploration of natural enemies of calotrope in its native range: pre-dispersal seed-predation in Pakistan

Asad Shabbir¹,², Shahid Ali², Kunjithapatham Dhileepan³

¹University of Sydney, Narrabri, AU; ²Ecology and Evolution, University of the Punjab, Lahore, PK; ³Department of Agriculture and Fisheries, Brisbane, PK
Recognition of natural enemies and genetic variability of *Conyza bonariensis* (L.) Cronquist (Asteraceae) in their area of origin
Marcelo Diniz Vitorino¹, Murilo Visconti¹, Joice Rezini¹, William Gebien¹, Raghu Sathyamurthy²
¹Universidade de Blumenau - FURB, Blumenau, BR; ²CSIRO, Brisbane, AU

Preliminary studies on *Oporopsamma wertheimsteini* and *Sphenoptera foveola*, two potential biological control agents of *Chondrilla juncea*
Mark Volkovitsh¹, Margarita Dolgovskaya¹, Massimo Cristofaro²,³, Francesca Marini², Matthew Auge², Jeff Littlefield⁴, Mark Schwarzländer⁵, Mark Kalashian⁶, Roman Jashenko⁷
¹Russian Academy of Sciences, St. Petersburg, RU; ²BBCA onlus, Rome, IT; ³ENEA Casaccia, Rome, IT; ⁴Montana State University, Bozeman, US; ⁵University of Idaho, Moscow, US; ⁶National Academy of Sciences of Armenia, Yerevan, AM; ⁷Al-Farabi Kazakh National University, Almaty, KZ

*Acinia corniculata* (Diptera: Tephritidae)—a new potential biocontrol agent for spotted knapweed?
Alecu Diaconu
Institute of Biological Research, branch of NIRDBS, Iasi, RO

Gathering weapons to fight stinking passionflower in Australia: fungal pathogens of *Passifloraoefida* from Brazil
Davi Macedo¹,², Robert Barreto¹, Louise Morin³
¹Universidade Federal de Viçosa, Viçosa, BR; ²Universidade Regional de Blumenau, Blumenau, BR; ³CSIRO Health and Biosecurity, Canberra, AU

Addressing issues with high larval mortality in the rearing of *Bagous nodulosus*
Patrick Häfliger, Harriet Hinz
CABI, Delémont, CH

Biological control of garlic mustard with *Ceutorhynchus scrobicollis*, an update
Elizabeth Katovich⁵, Roger Becker⁵, Mary Marek-Spartz⁵, Ghislaine Cortat⁵, Harriet Hinz², Laura Van Riper³
¹University of Minnesota, St. Paul, US; ²CABI, Delémont, CH; ³Minnesota Department of Natural Resources, St. Paul, US

A new biological control programme for South Africa—high elevation weeds
Grant Martin
Centre for Biological Control, Grahamstown, ZA

The rust fungus *Puccinia rapipes*: a potential biological control agent of African boxthorn (*Lycium ferroccissimum*) in Australia
Kylie Ireland¹, Gavin Hunter¹, Alan Wood², Louise Morin¹
¹CSIRO Health and Biosecurity, Canberra, AU; ²ARC-Plant Protection Research, Stellenbosch, AU

Asynchrony in phenology of target and non-target plants: implications for host-specificity testing with *Platyptilia ochrodactyla*, a potential biocontrol agent for common tansy
Sonja Stutz, Tamar Messer
CABI, Delémont, CH

Molecular studies on *Arundo donax* and an adventive population of a stem-galling wasp, *Tetramesa romana* in South Africa
H. Ramanand¹,², K. Bhikraj², S. Willows-Munro², A. Bownes¹,², T. Olickers²
¹Agricultural Research Council - Plant Health and Protection (ARC-HP), Hilton 3245, ZA; ²School of Life Sciences, University of KwaZulu-Natal, Scottsville 3209, ZA

Potential biological control agents of some invasive and noxious weed species in the southeastern Anatolia region of Turkey
Cumali Özاسlan
Dicle University, Faculty of Agriculture, Department of Plant Protection, Diyarbakir, TU
Session 2: Opportunities and constraints for classical weed biocontrol in developing countries

28 Embarking on classical biological weed control in Brazil - the rust fungus, *Maravalia cryptostegiae* versus *Cryptostegia madagascariensis*
Marion K. Seier¹, Robert W. Barreto⁵, Harry C. Evans¹, Oriel Herrera Bonilla³, Alessandro Rapini⁴, Francisca S. Araujo⁵, Kate M. Pollard¹
¹CABI UK, Egham, UK; ²Departamento de Fitopatologia, Universidade Federal de Viçosa, Viçosa, BR; ³Department of Biology - Ecology Laboratory, State University of Ceará - UECE, Fortaleza, BR; ⁴Departamento de Biologia, Universidade Estadual de Feira de Santana, Feira de Santana, BR; ⁵Department of Biology, Federal University of Ceará - UFC, Fortaleza, BR

29 A weed biocontrol programme for the Cook Islands: progress report
Quentin Paynter¹, Chantal Probst¹, Maja Poesckko²
¹Manaaki Whenua Landcare Research, Auckland, NZ; ²Cook Islands Ministry of Agriculture, Arorangi, Rarotonga, CK

30 Preliminary study on the intrinsic mechanism of appressorium formation in *Exserohilum monoceros*
Jin Zhong, Jun Liu, Huiping Liao, Yong Chen
¹College of Agriculture, South China Agriculture University, Guangzhou, CN

31 Water turbidity affects the establishment of *Neochetina eichhorniae*: implications for biological control of water hyacinth
Jeanne d'Arc Mukarugwiro, Solomon Newete, Marcus Byrne
University of the Witwatersrand, Johannesburg, ZA

32 Current and future work to control the spread of invasive *Tamarix* in South Africa
Danica Marlin¹, Nicolaas Venter¹, Zanele Machiame¹, Lerato Molekoa¹, Marcus Byrne¹²
¹School of Animal, Plant & Environmental Sciences, University of the Witwatersrand, Johannesburg, ZA; ²Centre for Invasion Biology, School of Animal, Plant & Environmental Sciences, University of the Witwatersrand, Johannesburg, ZA

33 Host specificity of the stem-boring weevil, *Listronotus setosipennis* (Hustache)
Lidy Alemayehu¹, Wondi Mersie²
¹Virginia State University, Addis Ababa, ET; ²Virginia State University, Petersburg, ET

Session 3: Biopesticides

34 Could fungi stop Buddleia in its tracks?
Sarah Thomas, Kate Pollard, Marion Seier
CABI, Egham, UK

35 Herbicidal activity of crude ethanol extracts from *Humulus scandens* (Lour.) Merr. and the possible mechanisms involved
Zuren Li, Lifeng Wang, Xile Deng, Qiong Peng, Lianyang Bai
Hunan Agricultural Biotechnology Research Institute, Changsha, CN

36 Fungal pathogens and their bioactive metabolites for controlling *Ailanthus altissima*
Francesca Casella¹, Angela Boari¹, Alessio Cimmino², Francesca Fanelli¹, Massimo Cristofaro³⁴, Antonio Evidente², Maurizio Vurro¹
¹Institute of Sciences of Food Production (ISPA), CNR, Via Amendola 122/O, 70125, Bari, IT; ²Department of Chemical Sciences, University “Federico II”, Via Cintia 4, 80126, Naples, IT; ³Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Via Anguillarese, 301, 00123 Rome, Italy, Rome, IT; ⁴Biotechnology and Biological Control Agency (BBCA) onlus, Via Angelo Signorelli, 105, 00123, Rome, IT
Molecular cloning of genes involved in ophiobolin: a biosynthesis pathway from a bioherbical fungus
Jianping Zhang, Yongliang Lu
State Key Laboratory of Rice Biology, China National Rice Research Institute, 359 Tiyuchang Road, 310006, Hangzhou, CN

Biological Control of Fusarium avenaceum on Avena fatua L. in Qinghai, China
Liang Cheng, Haixia Zhu, Youhai Wei, Qingyun Guo
Institute of Plant Protection, Qinghai Academy of agricultural and Forestry Sciences, Xining, CN

Could Phytophthora species associated with declining populations of invasive European blackberry be used for biological control?
Louise Morin¹, John Lester¹, Patrick Gleeson¹, Treena I. Burgess², Giles E. St. J Hardy², John K. Scott¹
¹CSIRO Health & Biosecurity, Canberra, Australian Capital Territory, AU; ²Murdoch University, Murdoch, Western Australia, AU

Biological control of Solidago canadensis using a bioherbicide increases the biodiversity in invaded-habitats
Sheng Qiang
Nanjing Agricultural University, Nanjing, CN, wrl@njau.edu.cn

Optimization of fermentation process of (Serratia marcescens) Ha1 and bioassay of its herbicidal activity
Li-hui Zhang, Xin Qiao, Juan Yang, Ran Guo, Wei Zhang
College of Plant Protection, Agricultural University of Hebei, Baoding 071000, CN

Isolation and structure identification of herbicide-active compounds from Phoma herbarum
Mingshan Ji, Zumin Gu
Shenyang Agricultural University, Shenyang, CN

Session 4: Novel methods to determine efficacy and environmental safety of agents

Agent specificity: can genetic signatures help us to select specialist agents?
N Kumaran, S Raghu
CSIRO, Brisbane, AU

A biogeographical comparison of herbivory on Phragmites australis
Stacy Endriss³, Patrick Häfliger³, Bernd Blossey¹
¹Cornell University, Ithaca, NY, US; ²CABI, Delémont, CH

Risks and decisions: is Leptinotarsa texana suitable for biological control of silverleaf nightshade in Australia?
Greg Lefoe¹,², Cindy Hauser¹, Libby Rumpff¹
¹University of Melbourne, Melbourne, AU; ²Agriculture Victoria, Melbourne, AU

A weevil’s choice—how accurately do pre-release behavioral bioassays predict post-release host selection?
Jessica Fung¹, Karuna Nepal¹, Urs Schaffer², Sanford D. Eigenbrode¹, Bradley L. Harmon¹, Mark Schwarzländner¹
¹University of Idaho, Moscow, US; ²CABI, Delémont, CH

Volatiles from congeners of its host plant are repellent to a candidate biological control agent
Karuna Nepal¹, Jessica Fung¹, Urs Schaffner², Sanford D. Eigenbrode¹, Bradley L. Harmon¹, Mark Schwarzländner¹
¹University of Idaho, Moscow, US; ²CABI, Delémont, CH
Influence of host plant on wind dispersal by an eriophyid mite, *Aceria salsola*
Lincoln Smith
USDA-ARS-EBCL, Montferrier-sur-Lez, FR

Demographic matrix model for knapweeds (*Centaurea* spp.)
Lindsey Milbrath, Jeromy Biazzo
USDA Agricultural Research Service, Ithaca, NY, US

*Heteroperreyia hubrichi* Malaise (*Hymenoptera: Pergidae*): reassessing its potential as a Brazilian peppertree biological control agent
Fernando Mc Kay¹, Jean-Luc Boevé², Raoul Rozenberg², Guillermo Logarro¹, Gregory Wheeler¹
¹Fundación para el Estudio de Especies Invasivas (FuEDEI), Hurlingham, Buenos Aires, AR; ²Royal Belgian Institute of Natural Sciences (IRSNB-KBIN), Bruxelles, BE; ³USDA/ARS/Invasive Plant Research Laboratory, Fort Lauderdale, US

A biogeographical comparison of herbivory on *Phragmites australis*
Stacy Endriss¹, Patrick Häfliger², Bernd Blossey¹
¹Cornell University, Ithaca, NY, US; ²CABI, Delémont, CH

Defoliating Geometridae caterpillars as potential weed biological control agents
Emily Jones, Greg Wheeler
USDA/ARS, Fort Lauderdale, US

Assessing efficacy and risk with plant demographic models: examples from the water chestnut biocontrol program
Wade Simmons¹, Bernd Blossey¹, Andrea Davalos²
¹Cornell University, Ithaca, US; ²SUNY Cortland, Cortland, US

Will parasitoids released to control *Lilioceris lilii*, lily leaf beetle, attack congeneric weed biological control agents?
Ellen Lake¹, Lisa Tewksbury², Melissa Smith¹, F. Allen Dray Jr.¹, Min Rayamajhi¹, Richard Casagrande²
¹USDA ARS Invasive Plant Research Laboratory, Fort Lauderdale, US; ²University of Rhode Island, Department of Plant Science and Entomology, Kingstown, US

Generations: understanding weed-herbivore interactions using Python
Mary Marek-Spartz², Kyle Marek-Spartz², George Heimpel², Roger Becker¹
¹University of Minnesota, Saint Paul, US; ²Celador LLC, Minneapolis, US

Multiple crossed generations, a novel method to evaluate the performance of a thrips on two invasive species of *Ludwigia* (Onagraceae)
Ana C. Falthuaser¹, Alejandro Sosa¹, M. Cristina Hernández¹, Guillermo Cabrera Walsh¹
¹Fundación para el Estudio de Especies Invasivas (FuEDEI), Hurlingham, AR; ²Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires City, AR

The integrative taxonomy in classic biological control of weeds: *Metaculus* sp. on *Isatis tinctoria*, a case of study
Francesca Marini¹, Philip Weyl², Massimo Cristofaro¹, Enrico de Lillo³, Biljana Vidočić⁴, Radmila Petanović⁵
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Examining pre-alignment host-selection of potential biological control agent of dyer’s woad to cues of non-target confamilial plants
Bijay Subedi¹, Sanford D. Eigenbrode², Bradley L. Harmon¹, Harriet L. Hinz², Philip Weyl², Mark Schwarzländer¹
¹University of Idaho, Moscow, US; ²CABI, Delémont, CH
A novel approach to host-specificity testing for non-target plant species restricted to highly specialized soil types
Sujan Panta¹, Philip Weyl¹, Harriet L. Hinz², Bradley L. Harmon³, Mark Schwarzländer¹
¹University of Idaho, Moscow, Idaho, US; ²CABI, Delémont, CH

Alternative methods to evaluate the host range of Melanagromyza albocilia for the biological control of field bindweed in North America
Ghislaine Cortat, Harriet Hinz
CABI, Delémont, CH

Using native congeners as “surrogates” to identify false positives in host-specificity testing
Rhoda B deJonge¹, Sandy S. Smith¹, Harriet Hinz², Ghislaine Cortat², Robert S Bourchier³
¹University of Toronto, Toronto, CA; ²CABI, Delémont, CH; ³Agriculture and Agrifood Canada, Lethbridge, CA

Geographic and genetic variability of disease resistance in flowering rush in the U.S.
Nathan Harms¹², Judy Shearer¹, James Cronin¹, John Gaskin³
¹US Army Engineer Research and Development Center, Vicksburg, US; ²Louisiana State University, Baton Rouge, US; ³US Department of Agriculture Agricultural Research Service, Sidney, US

Some like it hot, some like it cold: thermal plasticity of biological control agents enhances establishment
Tamzin Griffith, Iain Paterson, Candice Owen, Julie Coetzee
Centre for Biological Control, Rhodes University, Grahamstown, ZA

Session 5: Making classical biological control more predictive: moving from ecological to evolutionary processes

Will the predicted rise in atmospheric CO₂ alter the interaction between Opuntia stricta and its biocontrol agent Dactylopius opuntiae?
Nic Venter, Blair Cowie, Ed Witkowski, Marcus Byrne
University of the Witwatersrand, Johannesburg, ZA

Salt excretion in Tamarix species and its effects on the sap-feeding Opsius stactogalus in South Africa
Solomon Wakshom Newete¹², Stawm Malan², Nic Venter², Marcus Byrne²³
¹Agricultural Research Council (Pretoria), Pretoria, ZA; ²School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, ZA; ³DST-NRF Centre of Excellence for Invasion Biology, Johannesburg, ZA

Cochineal and cactus: are new associations biocontrol winners?
Marcus Byrne¹², Zanele Machimane¹, Iain Paterson¹⁴, Arne Witt⁵, Blair Cowie¹², Nic Venter¹
¹University of the Witwatersrand, Johannesburg, ZA; ²DST-NRF Centre of Excellence for Invasion Biology, Johannesburg, ZA; ³Rhodes University, Grahamstown, ZA; ⁴The Centre for Biological Control (CBC), Grahamstown, ZA; ⁵CABI Africa, Nairobi, KE

Establishment of the moth Hypena opulenta in Canada: diapause induction and mass-rearing methods to enable biocontrol of Vincetoxicum spp.
Robert S Bourchier¹, M. Lukas Seehausen¹², Sandy M Smith²
¹Agriculture and Agrifood Canada, Lethbridge, CA; ²University of Toronto, Toronto, CA

Transgenerational effects of host plant quality in biocontrol agents; does offspring environmental matching matter?
Frank Chidawanyika¹²³, Abongile Mbande²³, Michelle Tedder²
¹University of the Free State, Bloemfontein, ZA; ²University of KwaZulu Natal, Pietermaritzburg, ZA; ³Agricultural Research Council, Pietermaritzburg, ZA
Do low temperatures and variations in leaf quality of Chromolaena odorata play a role in the variable performance of Pareuchaetes insulata?

Osariyekemwen Uyi1,2, Costas Zachariades3,5, Martin Hill4,4, Lelethu U Heshula1,4
1Department of Zoology and Entomology, University of Fort Hare, Alice, ZA; 2Department of Animal and Environmental Biology, University of Benin, Benin City, NG; 3ARC – Plant Protection Research Institute, Pietermaritzburg, ZA; 4Centre for Biological Control, Department of Zoology and Entomology, Rhodes University, Grahamstown, ZA; 5School of Life Sciences, University of KwaZulu-Natal, Pietermaritzburg, ZA

The effects of topping and humidity on establishment of the arundo wasp and scale released to control Arundo donax

Ellyn Bitume, Patrick Moran
Invasive Species and Pollinator Health Research Unit, USDA-ARS, Albany, CA, US

Evolutionary ecology at the expanding edge

Eliza Clark1, Ellyn Bitume3, Daniel Bean4, Amanda Stahlke3, Paul Hohenlohe3, Zeynep Ozsoy5, Ruth Hufbauer1
1Colorado State University, Fort Collins, US; 2University of Idaho, Moscow, US; 3USDA ARS, Albany, US; 4Colorado Department of Agriculture, Palisade, US; 5Colorado Mesa University, Grand Junction, US

Searching for host-pathogen compatibility: how cpDNA analysis can aid successful classical biological control of Impatiens glandulifera

Daisuke Kurose, Kate M. Pollard, Carol A. Ellison
CABI, Egham, UK

Session 7: Social and economic assessments of biological control

Ghosts of the mongoose: perceptions of classical biological control in the 21st century

Jennifer Andreas1, Chris Looney2, Shannon Donovan3

Session 8: Opportunities and constraints for classical weed biocontrol in developed countries

Evaluating the potential for the biological control of floating pennywort (Hydrocotyle ranunculoides) in the UK

Djami Djeddour1, Kate Constantine1, Suzy Wood1, Corin Pratt1, Richard Shaw1, Guillermo Cabrera Walsh2
1CABI, Egham, UK; 2FuEDEI, Buenos Aires, AR

Ludwigia—a prime target for biocontrol in Europe

Corin Pratt1, M. Cristina Hernandez2, Guillermo Cabrera Walsh3, Richard Shaw1
1CABI, Egham, UK; 2FuEDEI, Hurlingham, Buenos Aires, AR

A “mitey” solution for Australian swamp stonecrop in the UK

Sonal Varia1, Suzy Wood2, Corin Pratt1, Sean Murphy1, Robin Adair2
1CABI, Egham, UK; 2Australis Biological, Bittern, Victoria, AU

Outbreaks of Nipponaclerda biwakoensis (Hemiptera: Acleridae) in Louisiana: implications for biological control of Phragmites australis

Rodrigo Diaz, Leslie Aviles, Ian Knight, Blake Wilson
Louisiana State University, Baton Rouge, US
Session 9: Post-release monitoring and evaluation

78 Post-release assessment of classical biological control of *Cirsium arvense* in the western United States
   Joel Price¹, Aaron Weed², Joseph Milan³, Mark Schwarzländer⁴
   ¹Oregon Dept. of Agriculture, Salem, OR, US; ²US National Park Service, Woodstock, VT, US;
   ³BLM/ISDA, Boise, ID, US; ⁴University of Idaho, Moscow, ID, US

79 Release and monitoring of a biocontrol agent in an actively managed environment
   Ashley B. C. Goode¹, Carey R. Minteer¹, Philip W. Tipping¹, Jeremiah R. Foley¹, Brittany
   Knowles¹, Ryann Valmonte¹, Lyn A. Gettys²
   ¹USDA-ARS Invasive Plant Research Laboratory, Fort Lauderdale, FL, US, ashley.goode@ars.usda.gov
   ²University of Florida Fort Lauderdale Research and Education Center, Fort Lauderdale, FL, US;

80 Establishment and early impact of the florivorous weevil *Anthonomus santacruzi* on *Solanum mauritianum* in South Africa
   Terence Olckers, Kelby English, Dineshen Singh
   University of KwaZulu-Natal, Pietermaritzburg, ZA

81 How do climatic conditions affect the establishment of *Catorhintha schaffneri* on *Pereskia aculeata* in South Africa?
   Pippa Muskett¹, Iain Paterson¹, Julie Coetzee¹,²
   ¹Center for Biological Control, Zoology and Entomology Department, Rhodes University,
   Grahamstown, ZA; ²Center for Biological Control, Botany Department, Rhodes University,
   Grahamstown, ZA

82 Folivory impact of the biocontrol beetle *Cassida rubiginoa* on population growth of *Cirsium arvense*
   Mike Cripps, Sarah Jackman, Chikako van Koten
   AgResearch, Lincoln, NZ

83 Establishment and post-release evaluation of *Lilioceris cheni* (Coleoptera: Chrysomelidae), a biological control agent of air potato in Louisiana
   Rodrigo Diaz¹, Veronica Manrique², Min Rayamajhi³
   ¹Louisiana State University, Baton Rouge, US; ²Southern University A&M College, Baton Rouge, US;
   ³USDA-ARS, Fort Lauderdale, US

84 Can *Lilioceris cheni* suppress the climbing growth and bulbil production potential of invasive host, *Dioscorea bulbifera*?
   Min Rayamajhi¹, Eric Rohrig³, Paul Pratt², Philip Tipping¹, Jorge Leidi¹, Christopher Kerr³,
   Ryan Poffenberger³, Melissa Smith¹, Ellen Lake¹, Allen Dray², Ted Center¹
   ¹USDA-ARS Invasive Plant Research Laboratory, Ft. Lauderdale, FL 33314, US, Ft. Lauderdale, FL
   33314, US; ²USDA-ARS Exotic and Invasive Species and Pollinator Health Research Unit, Albany CA
   94710, US; ³FDACS-DPI Methods Development and Biological Control, Gainesville, FL 32608, US

85 The biological control of tutsan (*Hypericum androsaemum*) in New Zealand
   Hugh Gourlay
   Manaaki Whenua Landcare Research, Lincoln, NZ

86 Do augmentative releases of the pompom rust fungus *Puccinia eupatorii* optimally impact pompom weed in South Africa?
   Alana Den Breeyen
   ARC-Plant Health Protection, Stellenbosch, ZA
Biological control of *Cirsium arvense* using *Puccinia punctiformis* as a statewide program in Colorado

Joel Price¹, Karen Rosen², Dan Bean²

¹Oregon Dept. of Agriculture, Salem, OR, US; ²Colorado Dept. of Agriculture, Palisade, CO, US

The biological control of *Azolla filiculoides* in South Africa: the final curtain

Martin Hill

Centre for Biological Control, Rhodes University, Grahamstown, ZA

Leafy spurge (*Euphorbia esula*) control and soil seedbank composition 19 years after release of *Aphthona* biological control agents

Rodney Lym

North Dakota State University, Fargo, ND, US

Analyses of citizen-based monitoring of spotted knapweed biological control over nine years in Idaho, USA

Arjun Pandey¹, Mark Schwarzländer¹, Joseph Milan¹,², Aaron S. Weed⁴

¹University of Idaho, Moscow, US; ²USDI Bureau of Land Management, Boise, US; ³National Park Service, Inventory and Monitoring Program, Fredericksburg, US

Attempts to establish * Dichrorampha odorata* on *Chromolaena odorata* in South Africa

Costas Zachariades¹,², Nontembeko Dube¹,², Slindile Nqayi¹,³, Sthembiso Dlomo¹

¹Agricultural Research Council-Plant Health and Protection, Hilton, ZA; ²School of Life Sciences, University of KwaZulu-Natal, Pietermaritzburg, ZA; ³Department of Zoology & Entomology, Rhodes University, Grahamstown, ZA

Management of two Australian invaders, *Acacia longifolia* and *A. pycnantha* in South Africa using biological control—progress thus far?

Pride Mudavanhu¹,²

¹Agricultural Research Council Plant Protection Research Institute (ARC-PPRI), Stellenbosch, ZA; ²Stellenbosch University, Entomology Department (CONSENT), Stellenbosch, ZA

Current assessment of weed biological control projects and their agents in California

Michael J Pitcairn

California Dept. of Food & Agriculture, Sacramento, US

Development of a predicted suitable habitat model for biocontrol systems in Montana

Melissa Maggio

Montana Biocontrol Coordination Project, Missoula, US

A tool to support learning about the success of biological control agent introduction

Greg Lefoe²,⁴, Cindy Hauser², Libby Rumpff², John Ireson³

²University of Melbourne, Melbourne, AU; ³Tasweed Biocontrol, Hobart, AU; ⁴Agriculture Victoria, Melbourne, AU

Impact of *Pareuchaetes insulata* (Lepidoptera: Erebidae) on *Chromolaena odorata* (Asteraceae) in South Africa: a case study on secondary metabolites

Nontembeko Dube¹,², Fanie van Heerden³, Costas Zachariades¹,², Osariyekemwen Uyi⁴,⁵, Caswell Munyai⁶

¹Agricultural Research Council, Hilton, ZA; ²School of Life Sciences, University of KwaZulu-Natal, Scottsville, ZA; ³School of Chemistry and Physics, University of KwaZulu-Natal, Scottsville, ZA; ⁴Department of Animal and Environmental Biology, University of Benin, Benin City, NG; ⁵Department of Zoology and Entomology, University of Fort Hare, Alice, ZA

The influence of low-density populations and Allee effects on biocontrol agents

Hester Williams³, Eckehard Brockenhoff⁵, Andrew Liebhold⁶, Mandy Barron⁴, Darren Ward¹,³

¹University of Auckland, Auckland, NZ; ²Scion, Christchurch, NZ; ³Landcare Research, Auckland, NZ; ⁴US Forest Service, West Virginia, US
The impact of pre-release testing for pathogens in weed biocontrol agents: evidence from New Zealand
Lindsay Smith¹, Simon Fowler¹, Darwin Hickman², Auste Cerniauskaite²
¹Manaaki Whenua-Landcare Research, Lincoln, NZ; ²University of Birmingham, Birmingham, UK

A decade in biocontrol monitoring and release: a South African case study
Debbie Muir, Nceba Ngcobo
Department of Environmental Affairs, Cape Town, ZA

Suppression of the invasive aquatic weed, Hydrophyta verticillata by the "Asian hydilla moth", Parapoyx diminutalis in South Africa
A. Bowes¹,², M. Mthembu², M. Tedder²
¹Agricultural Research Council - Plant Health Protection (ARC-PHP), Hilton 3245, ZA; ²School of Life Sciences, University of KwaZulu-Natal, Scottsville 3209, ZA

Evaluating establishment and impact of four biological control agents on Parthenium hysterophorus in South Africa
Lorraine Strathie¹, Alana den Breeyen¹, Sakhi Sambo¹, Frank Chidawanyika³, Jeremy Goodall¹, Milly Gareeb¹, Xolile Magoso¹
¹Agricultural Research Council – Plant Health and Protection, Private Bag X6006, Hilton, 3245, South Africa; ²Agricultural Research Council – Plant Health and Protection, Private Bag X5017, Stellenbosch, 7599, South Africa; ³University of the Free State, P.O. Box 339, Bloemfontein, 9300, South Africa

An overview of a success story of biological control of Opuntia stricta (Balas) in Jezan, Saudi Arabia
Abdulaziz Al Zamil¹, Hassan Al-Ayedh², Abdulaziz AlSharidy¹, Hassan Mashyaky³
¹Plant health Department, Ministry of Environment, Water and Agriculture (MEWA), Riyadh, SA; ²Agriculture Technology Center, King Abdulaziz City for Science and Technology(KACST). MEWA consultant at Plant health Department., RIYADH, SA; ³Directorate of Agriculture in Jezan, Ministry of Environment, Water and Agriculture (MEWA), Jezan, SA

Session 10: Integrated weed management and restoration

Restoration after rust: how are native communities responding to Himalayan balsam biocontrol, and can we improve their recovery?
Suzy V Wood¹, Norbert Maczey³, Carol Ellison¹, Amanda Currie², Alan Gange²
¹CABI, Egham, UK; ²Royal Holloway, University of London, Egham, UK

New insights and prospects into Parthenium hysterophorus biocontrol from South Africa
Blair Cowie¹,², Nic Venter¹, Lorraine Strathie¹, Jeremy Goodall³, Ed Witkowski¹, Marcus Byrne¹,²
¹School of Animal, Plant & Environmental Sciences, University of the Witwatersrand, Johannesburg, ZA; ²DST-NRF Centre of Excellence for Invasion Biology, School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, ZA; ³Agricultural Research Council-Plant Protection Research Institute, Private Bag X6006, Hilton, ZA

Endophytes associated with the invasive weed medusahead (Taeniatherum caput-medusae)
Christopher Dunlap¹, Brian Rector²
¹USDA-ARS-NCAUR, Peoria, US; ²USDA-ARS-GBRR, Reno, US
Mid-Symposium Tours

Unfortunately, Europe has close to no history of weed biocontrol, and we will therefore not be able to show you any weed biocontrol in action. Instead, you will learn about some typical Swiss traditions, such as cheese making, be able to try some Swiss specialities, and enjoy the characteristic Swiss landscape.

Recommended material:
- Hiking or robust shoes
- Sunscreen and rainwear
- Warm clothing (especially for the high altitude and cave excursions)

Guided walks in the alpine environment of the Engelberg Valley

Fürenalp – Dagenstal – Obere Zieblen – Horbis (End of the world)

After soaring over the trees with the Fürenalp cable car from 1080 up to 1840 above sea level, we will hike up and down the alpine federal hunting reserve as well as the higher part of the protective forest until we reach Alp Obere Zieblen. Here we will enjoy a simple meal prepared by the Scheubers, a family of mountain farmers, who will then tell us about living and farming in an alpine environment during a round of coffee and cake. With our bellies filled and our knowledge enriched, we will continue on the hiking trail along steep avalanche slopes to the “End of the World” Horbis, where a bus will be waiting for us to bring us back down to Engelberg.

During the walk, a guide will tell us about history, geology, the maintenance of protective forests, and about life and work in the mountains.

Level: medium hiking trail; total hiking time: 3.5
Total excursion time: 6 hours
Subjects: Mountains, Alpine farming, Forestry, History, Fauna and Flora

Transportation:
Engelberg Hotel Bellevue to Cablecar station Fürenalpbahn by bus
Scenic cable car ride to Fürenalp
Coffee at the mountain restaurant Fürenalp
Walk from Fürenalp (1850 m.a.s.l.) – Dagenstal (1580 m.a.s.l.) – Obere Zieblen (1630 m.a.s.l.) – Hinter Horbis (1130 m.a.s.l.). Transfer from Horbis back to Engelberg by bus.
Lunch at Alp Zieblen (with presentation about alpine farming)
Start: 09:00
Return: 15:00

Price: CHF 80.00, includes cable car ride, guided walk and lunch
Students and participants from low-income economies and lower-middle-income economies (please check link) price: CHF 50.00

Hike to Rugghubelhütte

We will first ride the cable car from Engelberg to Ristis and the chair lift from Ristis to the Brunnihütte at 1860 m.a.s.l. From Brunni we will hike through the federal hunting reserve which offers magnificent views of mountains, the Alps, forests and, further down below, the Engelberg valley. Along the way, we will also be able to observe some massive avalanche protection structures. After approximately 2-and-a-half hours we will quench our thirst and sate our hunger at the Swiss alpine club hut Rugghubel (2290 m.a.s.l.). We will then return along the same trail to Ristis, and ride back down to where we started from.

During the walk, a guide will tell us about history, geology, defence against natural dangers, and about life and work in the mountains.
Level: more demanding hiking trail
To get to Rugghubelhütte: 2.5 hours, way back 1.5 hours = total amount hiking time 4 hours

Total excursion time: 7 hours
Subjects: history, geology, alpine farming, fauna and flora of the hunting reserve.
Transportation:
Scenic cable car drive to Ristis, from here chair lift to the mountain restaurant Brunnihütte.
Lunch at mountain restaurant Rugghubelhütte with high alpine scenery
Start: 09:00
Return: 16:00
Price: CHF 80.00, includes cable car and chair lift rides, guided walk and lunch
Students and participants from low-income economies and lower-middle-income economies (please check link) price: CHF 50.00

Hike Brunnpfad
We will reach our starting point at 1590 m.a.s.l in Ristis from Engelberg via cable car. From there we will take the old “Brunnpfad” scenic road, which will lead us through some gorgeous, floristically rich and varied alpine meadows along a 300 meter altitude increase up to Holzghirmi, and then the Swiss alpine club hut Brunni, where we will enjoy a simple meal. The motto of the scenic trail is “A Trail through the Mountain Habitat”, and we will learn about the interactions between man and nature. From the Brunni hut we will proceed up to Rosenbold, then the alp Stoffelberg with its cheese dairy, where we will visit the cheese dairy and receive some explanations and then back down to Ristis to quench our thirst before riding the cable car back to Engelberg.
Level: easy walk, walking time: 2.5 hours
Total excursion time: approx. 5 hours
Subjects: geology, history of the valley, alpine farming, forestry, tourism, fauna and flora.
Scenic cable car drive to Ristis (Engelberg 1050 m.a.s.l. to Ristis 1601 m.a.s.l.)
Hike from Ristis – Alp Rigidalstafel – Holzghirmi (1830 m.a.s.l.) – Brunni hut (1860 m.a.s.l.) – Rosenbold (1850 m.a.s.l.) – dairy visit at Alp Stoffelberg - Ristis. Ride with Cable Car Ristis-Engelberg
Lunch at mountain restaurant Brunnihütte
Start: 10:00
Return: 15:00
Price: CHF 80.00, includes cable car ride and chair lift, guided walk and lunch
Students and participants from low-income economies and lower-middle-income economies (please check link) price: CHF 50.00

UNESCO BIOSPHÄRE Entlebuch
In September 2001, the seven communalities of the region Entlebuch were designated by UNESCO as the first biosphere reserve of Switzerland under the Sevilla strategy.
The Entlebuch UNESCO biosphere is part of the worldwide biosphere reserves network, and represents the pre-alpine moor and karst landscapes. The seven communalities cover 394 square kilometres (nearly 1% of the total Swiss area) with a population of 17’000 people. Compared to the rest of Switzerland, Entlebuch’s economy is still mostly based on farming. 33% of the workforce is employed in the primary sector, 25% in the secondary and 42% in the tertiary. The biosphere reserve Entlebuch employs around 8’000 people.
The biosphere reserve concept is the ideal tool to maintain and develop Entlebuch’s natural and cultural
Entlebuch possesses a rich natural and cultural landscape, curated for centuries by our ancestors; a biosphere reserve concept is the ideal tool to maintain and further develop this richness for the future generations. Biosphere reserves, including the UNESCO biosphere Entlebuch, follow the principles of sustainable development. Thanks to a participative initiative, the seven communalities of Entlebuch apply UNESCO’s “Man and the Biosphere” programme, which “combines the natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems”. With the gradual maintenance of the natural resources, both their protective functions, as well as their benefits to the regional economy, are strengthened. “Protect by use”, together with the population, is the motto of the UNESCO biosphere Entlebuch.

Karst and Caves
Guided hike through the karst and caves of Schrattenfluh, up the Silwängen caves (5 hours). The 6 km long karst formation is one of UNESCO biosphere Entlebuch’s landmarks and is located within its nucleus. More than 200 caves are found there, two of which are open to the public. The cave is accessible from a shaft (8 meters depth, via ladder). In between there will be a nourishing meal on the Silwängen alp with Lisbeth’s yummy Älplermaggronen.
Start: 08:00 from Engelberg to Schüpfheim
09:30 National Parc information centre, the BBZN in Schüpfheim, presentation of UNESCO Biosphäre Entlebuch
10:30 drive to Wagliseiboden, Sörenberg
11:00 Arrival at Sörenberg, Karst and cave tour in the Schrattenfluh
16:00 Departure back to Engelberg
17:30 Arrival Engelberg

Price: CHF 80.00, includes bus transfer, guided tour, access to cave, and lunch
Students and participants from low-income economies and lower-middle-income economies (please check link) price: CHF 50.00

From Entlebuch to Emmental
Hike from Entlebuch to Emmental (2 hours), hike from Salwideli, Sörenberg to Kemmeriboden (Schangnau) at the feet of the majestic Schrattenflue at the heart of the UNESCO biosphere Entlebuch.
Start: 08:00 from Engelberg to Schüpfheim
09:30 National Parc information centre, the BBZN in Schüpfheim, presentation of UNESCO Biosphäre Entlebuch
10:30 drive to Berggasthaus Salwideli (30 min)
11:30 Lunch at Berggasthaus Salwideli, Sörenberg (1.50 h) with the Gastropartner of the UNESCO biosphere Entlebuch. Relax and enjoy the characteristic moor location of Salwidien.
13:00 Guided walk (2h) hike from Salwideli, Sörenberg to Kemmeriboden (Schangnau) at the feet of the majestic Schrattenflue at the heart of the UNESCO biosphere Entlebuch.
15:00 Departure back to Engelberg
16:30 Arrival Engelberg

Price: CHF 60.00, includes bus transfer, cable car ride, guided walk and lunch
Students and participants from low-income economies and lower-middle-income economies (please check link) price: CHF 40.00
Other Social Events

Mixer on Sunday evening
There will be a mixer on Sunday evening, 26 August, from 7:30pm onwards in the reception area of the Bellevue Hotel. Food, soft drinks and two alcoholic beverages will be provided and are included in the registration fee.

International beverage evening
On Tuesday evening, 28 August, we will hold our traditional international beverage ‘degustation’. So please bring a bottle of your favourite local wine or other beverage to the Symposium. Make sure to wrap it up well, otherwise you might have a bad surprise when opening your suitcase! Food will be provided and is included in the registration fee.

Engelberg’s Benedictine Monastery (Wednesday evening, 29 August)
Engelberg’s Benedictine Monastery has influenced the history of this mountain town since its establishment in 1120. The Engelberg valley was once ecclesiastically governed and the Benedictine abbey was the seat of power. Now the resident monks teach instead of ruling, but their 12th-century home has kept its grandeur. Rebuilt after a devastating fire in 1729, it contains rooms decorated with incredibly detailed wood inlays. The centerpiece of this monastery is its baroque church, which underwent renovation from 2005-2009. The altar piece by Spiegler and the largest pipe organ in Switzerland are two of the church’s most noteworthy attractions.

Start guided tour: 18:00
Organ concert: 19:00
Mixer: 19:45 (includes glass of white wine, orange juice and mineral water and some local Swiss snacks with and without meat)

Maximum number of participants: 50
Regular participant price: CHF 40.00
Students and participants from low-income economies and lower-middle-income economies (please check link) price: CHF 20.00
Symposium dinner (Thursday evening, 30 August)
The Symposium dinner will take place at the Mountain Lodge restaurant Ristis (1600m). One group will leave the hotel Bellevue at 6:45pm and walk to the Brunni Gondola, a second group will follow at 7pm by bus. Each gondola can take 65 people and the ride takes about 10 minutes. Once up, we will enjoy the view and a typical Swiss cheese fondue. Of course you can also order something else in case you don’t like cheese or you are allergic. The first gondola will go down again at around 11:30pm.
Panel Discussion

On Thursday 30 August, we will organize a panel discussion with the title “Alien invasive plants: do we need to control them and if yes, how?”

Although biological control of weeds has been practiced since over 100 years, it is still a neglected tool in managing alien invasive weeds in Europe. Taking advantage of the fact that the XV ISBCW is taking place in Switzerland, we will organize a 1 hour panel discussion about the extent of invasive plant problems in Switzerland and elsewhere in Europe, whether it is necessary to manage them, and if yes, how. Special emphasize will be placed on the advantages and constraints of the use of classical biological control for invasive plant management.

We have invited five participants with different backgrounds and viewpoints on the subject:

- Nicola Schönenberger (Consultant at INNOVABRIDGE Foundation, Switzerland): the reality of alien, invasive plant problems in Switzerland
- Elizabete Marchante (University of Coimbra, Centre for Functional Ecology, Portugal): the case of Acacia in Portugal and the first classical biocontrol release in continental Europe
- Christoph Küffer (ETH Zürich, Department of Environmental Systems Science, Switzerland): not all exotic plants cause problems; each case needs to be looked at individually
- Heinz Müller Schärer (University of Fribourg, Department of Biology, Switzerland): predicting outcomes of classical weed biocontrol and scope for basic research
- Richard Shaw (CABI UK): perceptions of classical weed biocontrol in Europe

Sarah Pearson Perret from Pro Natura will lead through the discussion, and will start by giving each participant the chance to introduce him/herself. She will then ask each participant specific questions (about two) based on which they can express their viewpoint on the subject. This will be followed by questions and comments from the audience and the invited press. At the end, each participant will have the possibility to give a one sentence final statement.

The main aim of the panel discussion is to get the press interested to write about the subject of invasive species and biocontrol, and of course our Symposium. With this we hope to raise awareness about the subject with the general public. In addition, we have specifically invited National and European regulators dealing with invasive species and biocontrol introductions to the panel discussion. To make it worthwhile for them to participate, we scheduled two specific sessions, one on biological control regulations and one on opportunities and constraints for classical weed biocontrol in Europe, the same day preceding the panel discussion.
General Information

Assistance
If you require assistance, look for a member of the local organising committee. We will present ourselves on Sunday evening during the mixer.

Bank machines
The local currency is the Swiss Franc. There is a Postomat and a Raiffeisen ATM at the train station (also see map on last page of programme).

Coffee breaks
There will be two coffee breaks per day (10:15-10:45 and 15:45-16:15). Coffee breaks will be held just outside the conference room and are included in the registration. Water will be available on the tables outside of the conference room.

Computer assistance and printing
Patrick Häfliger can provide computer assistance if necessary. There will be two printers in the ISBCW Office in case you have to print something.

Insurances
Delegates shall be regarded in every aspect as carrying their own risk for loss or injury to person or property, including baggage during the Symposium. We strongly recommend that you take out a travel insurance policy or make sure that your current insurance covers: loss of deposits through cancellation, medical and accident insurance, loss or damage to personal property, financial loss incurred through disruptions to accommodation or travel arrangements due to strikes or other industrial or higher action. The organizers are in no way responsible for any claims concerning insurance.

Internet facilities
Free wifi is available in the whole hotel area. A password will be available upon arrival at the hotel reception. We kindly ask you to refrain from checking emails during sessions!

Lunches and dinners
On Monday, Tuesday, Thursday and Friday of the Symposium, lunches are included in the registration fee. In case you have booked a Mid-Symposium Tour on Wednesday, lunch will be included as well. If you are not participating in a Mid-Symposium Tour, please find your own lunch.

On Sunday, Tuesday and Thursday, dinners are provided and are included in the registration fee (see ‘Other Social Events’ for details). On Monday, Wednesday and Friday you will have to find your own dinner. There are a number of good and differently priced restaurants in town. Please ask at the hotel reception for recommendations. Supermarkets (Coop and Migros) are indicated on the map (last page of programme).

Mobile phones
Please switch off or put on silent mode during sessions!
Public transport
Please see hotel staff at reception for information on local transport and gondolas etc.

Smoking
Smoking is not allowed inside the hotel. You can smoke on your balcony in case your room has one and on the terrace.

Registration
Registration will start on Sunday 26 August at 12:00pm – 7:30pm and will also be available from Monday to Friday from 7:30am – 7:30pm.

Shopping
Opening hours of local supermarkets are Mo-Fr: 7:30am – 7:00pm (Migros) and until 8:00pm (Coop), Sa: 7:30am – 6:00pm. On Sunday most shops are closed. However, since Engelberg is a tourist destination, shops selling souvenirs and small snacks and drinks will be open on Sundays.

Speakers’ Preparation
• For each oral presentation, there will be a 15 min time slot (12 min for the presentation and 3 min for discussion).
• A Microsoft Windows computer will be used to project the PowerPoint presentations. It will not be possible to use your own laptop. The computer will be equipped with Windows 10 and Office Version 2010.
• As there will be no Macintosh computer please make sure that your PowerPoint presentation can run on a Microsoft Windows computer. In case of problems please ask Patrick Häfliger.
• Please hand over your PowerPoint presentation on a USB memory stick to Patrick Häfliger for uploading. It will be possible to check the presentation for correct functioning and display of all slides at the symposium office. To minimise potential incompatibilities between software versions, we recommend limited use of animation, use of common Windows fonts for text and symbol fonts for equations.
• Registration will start on Sunday 26 August at 12 pm. Speakers who have a talk on Monday should make sure that their presentation is uploaded on Sunday.
• All other presentations need to be handed over no later than the afternoon preceding the day the presentation is scheduled!
• We ask that you arrive in your session room at least 10 minutes prior to the start of your session time. This will allow time for you to meet and liaise with your session organiser and to become familiar with the equipment in the conference room.

Speed Talks
Participants who submitted an oral presentation that was turned into a poster, will have the possibility to give a 1-slide / 1-minute speed presentation after the respective session. These presentations will also need to be handed to Patrick Häfliger prior to the session!

Taxis
Please ask at the reception and book through them.
Tipping
Tipping is not mandatory in Switzerland. Some people may leave a tip if they particularly enjoyed a meal and/or the service.

Tourist Information
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Hinterdorfstrasse 1
6391 Engelberg
welcome@engelberg.ch
Monday - Saturday, 8:00 am – 5:30 pm
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