International Organisation for Biological Control (IOBC)
Asia & Pacific Regional Section, IOBC-APRS

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Message from your President

Hello valued members from Asia and the Pacific! I hope this newsletter finds you all well and you have welcomed in a new year, 2025! In culturally diverse New Zealand where I live, most people celebrate both Christmas and celebrate a New Year on 31st of December, though every culture represented does so in their own way. We usually enjoy some good food celebrated with either family or friends. This time of year also sees a native Myrtaceae called the pohutukawa also known as the "New Zealand Christmas Tree" in full bloom. Delightfully warm summer days are also accompanied by the deafening stridulation calls of the male native chorus cicadas (*Amphisalta* species).

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Sadly this iconic pōhutukawa tree is under threat from the wind-borne incursion of the pathogen Myrtle Rust (*Austropuccinia psidii)* since it arrived in New Zealand in 2017. This tree has a unique role in cliff stabilisation as it grows in precarious positions above coastal waterways and the sea. Chemical control options will undoubtedly not be feasible for protecting these trees from losing their leaves and flowers to myrtle rust. What is exciting is that scientists are investigating biological control for tree protection!

Biological control agents exploiting rust parasitism (mycoparasite, hyperparasites) can attack rust fungi in and on the host tissue. In New Zealand scientists have identified the fungus *Sphaerellopsis macroconidialis,* and fungi in the genera *Cladosporium*, *Fusarium* and

Leptobacillium parasitising *A. psidii.* Other options proposed or being investigated around the world to combat Myrtle Rust include the fungus *Albonectria rigidiuscula. Bacillus subtilis,* endophytes (fungi, bacteria, actinomycetes and viruses present in plant tissues), fungal derived elicitors or antimicrobial peptides to induce resistance, or mycoviruses. We look forward to finding out if biological control can be used against this disease to protect New Zealand's precious pōhutukawa tree.

IOBC Global President Dr Raghu Sathyamurthy from APRS region

At this years' IOBC Global General Assembly at ICBC3 (the meeting that takes place every four years) the membership voted in the new IOBC Global executive for the next four years (2025-2028 incl.). We are delighted to have one of our long-standing members **Dr Raghu Sathyamurthy** from CSIRO, Australia, accepted as president. Raghu's research interests span invasion dynamics, plant-herbivore interactions, integrated population management, and biological control of invasive species. Over the past two decades he has advanced the discipline of weed biological control through a prioritised focus on asset protection, better integration of cutting-edge genomics and modelling tools and methods, and through a focus on active engagement of stakeholders, policymakers and regulators involved in risk-cost-benefit decision making for weed management.

Raghu currently manages a national and international research program (comprising some 125 researchers) on Biosecurity within CSIRO, Australia's national science agency. He has been on committees for national and international meetings (e.g. International Congress of Entomology, International Symposium on the Biological Control of Weeds), and served as Associate Editor for three of the main global biocontrol journals (Environmental Entomology (2011-2021), Biological Control (2005-2021), and BioControl (2014-2021)). He has been actively involved in the IOBC since 2008, initially as a member (of NRS, APRS), prior to serving as Associate Editor for IOBC's flagship journal, BioControl, and more recently as a co-convenor of the IOBC Study/Working Group on Weed Classical Biological Control (2018-2023).

Raghu states his primary aspiration for his term as IOBC President is to champion the appropriate and scientific use of biocontrol as a sustainable and cost-effective intervention to address biosecurity problems. He will also be promoting our Asia-Pacific region as much as possible, starting with giving a key note address at 2ICBC2025 in Bengaluru, India in March.

Congratulations Raghu and thank you for being a biological control champion!

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Welcome to our new IOBC-APRS treasurer Cody-Ellen Murray

IOBC-APRS are delighted to welcome our new treasurer onto the committee.

Cody's research experience includes the application of chemical, behavioral and molecular tools to biological and ecological research questions for applied outcomes. She has experience in behavioral entomology, the chemical ecology of insects (sex pheromones) and their hosts (foliar volatile organic compound emissions), the biological control of weeds, conventional and molecular diagnostics, species delimitation, the development of novel herbicides and insecticides, and the development of accessible programs for implementing safe and practical integrated pest management strategies in rural and developing communities. Cody has recently completed her PhD on the chemical ecology of *Eueupithecia cisplatensis* and *E. vollonoides* and the biological control of *Parkinsonia aculeata.* from The University of Queensland, Brisbane. Please welcome Cody to IOBC!

Since our last Treasurer left the committee earlier this year we are conscious that a number of new members have applied to join IOBC-APRS and unfortunately were not contacted in return or sent an invoice to complete their membership. Please rest assured we will be making contact with each of these individuals and welcoming them whole-heartedly to the Asia-Pacific section. We are grateful to all of you for the part you play in IOBC and want to ensure that you get value from your membership.

treasurer-aprs@iobc.info

An update of weed biological control in the Pacific

As part of a project funded by New Zealand Ministry of Foreign Affairs and Trade and managed by Manaaki Whenua Landcare Research, weed biological control in Vanuatu continues to forge ahead. In November, the psyllid *Heteropsylla spinulosa* was introduced and released in Vanuatu for the control of *Mimosa diplotricha* or giant sensitive plant by the Queensland Department of Primary Industries (QDPI). Two biological control agents for *Lantana camara* were also introduced in the hope of establishing colonies in the laboratory at Biosecurity Vanuatu to facilitate future field releases.

Figure 1. Jeffline Tasale, Biosecurity Vanuatu releasing *Heteropsylla spinulosa* on *Mimosa diplotricha* at Bouffa Landfill, Efate, Vanuatu.

The psyllid had been previously released in Vanuatu on several occasions, but establishment was never achieved. Multiple cyclones in early 2024 may have affected one release site on Espiritu Santo while a fire destroyed another release site on Efate. There are plans for further releases in 2025.

Figure 2. *Heteropsylla spinulosa* on *Mimosa diplotricha*.

Mimosa diplotricha is a sprawling thorny shrub, invading food gardens and pastures. It has been the target of biological control since the 1980s when the Queensland Government introduced the psyllid to control the weed in Australia. Due to the success of the psyllid, it was later released into numerous countries in the Pacific and into Timor Leste. The psyllid has been a very successful biological control agent in most of these countries and in some, *M. diplotricha* is considered under control and no longer a problem. Biosecurity Vanuatu staff are hoping for similar results in their country if the psyllid can establish.

In addition to the psyllid, the budmite *Aceria lantanae* was recently imported on excised leaves of *Lantana camara* from a laboratory culture maintained by QDPI in Brisbane. Budmites were painstakingly transferred to new plants grown at Biosecurity Vanuatu. Once a colony has established, plant material infested with the budmites will be taken out into the field and placed on healthy lantana plants in the

Figure 3. Galls on *Lantana camara* caused by *Aceria lantanae* in Brisbane, Australia.

The budmite was first introduced into South Africa and later was released in Australia. It has established in both countries. From South Africa, the budmite spread naturally and is now found in Zimbabwe, Zambia, Mozambique and Malawi. Recently, *A. lantanae* was found in Madagascar, presumably blown from continental Africa. The budmite can stop flowering and subsequent seeding, thus reducing the spread of lantana to new areas. As lantana is predominantly spread by birds eating the berries, reducing seed set and the spread of lantana in Vanuatu is important as the weed is not found on all islands

Figure 4. Cages of *Lantana camara* containing *Ophiomyia camarae* at Biosecurity Vanuatu

The third biological control agent to be introduced into Vanuatu recently, was the herring-bone leaf-mining fly, *Ophiomyia camarae*. Leaves containing mines caused by the larvae of the fly, were placed in containers to allow the adults to emerge. Newly-emerged adults were placed in a cage containing healthy lantana plants in order to establish a colony.

Figure 5. Mines caused by *Ophiomyia camarae* on *Lantana camara* in Brisbane, Australia.

In other projects, also funded by the New Zealand Government and managed by Manaaki Whenua Landcare Research, researchers at QDPI in Brisbane are undertaking host specificity trials to determine the suitability of potential biological control agents for *Sphagneticola trilobata* (Singapore daisy), *Coccinia grandis* (ivy gourd) and lantana. If found suitably host specific, the biological control agents will be introduced into various countries where these weeds are problematic.

Michael Day

Biosecurity Queensland, Department of Agriculture, Fisheries & Forestry, Brisbane, Qld 4001,

AUSTRALIA

Email: michael.day@daf.qld.gov.au

Long-term, large scale monitoring is needed for biocontrol against alien invasive species

The proliferation of alien invasive species is increasingly threatening biodiversity and ecosystem function, becoming a major global concern (Pyšek *et al.* 2020). Biological control (BC), which involves the introduction and release of co-evolved specialist enemies, is widely used to manage alien invasive species. BC is believed as an environmentally sound and effective approach to reducing or mitigating the impacts of alien species. However, this view is primarily based on small-scale, short-duration experimental studies or single-point field observations (Stiling & Cornelissen 2005; Clewley *et al.* 2012), which overlook the complex biotic interactions involving BC agents in their new ranges.

Alligator weed invasion in the field in China

Once introduced to new environments, BC agents not only attack the target invasive species but also interact with native above-ground communities, both directly and indirectly, through multi-trophic interactions (non-target effects) (Lu *et al.* 2015). In the past decades, an increasing body of research has highlighted the importance of soil biota in influencing species coexistence, alien species invasion, and the maintenance of ecosystem functions (van der Putten *et al.* 2023). Gao *et al.* (2023) found that damage caused by the introduced BC agent *Agasicle hygrophila* altered the rhizosphere fungal communities of the target invasive species *Alternanthera philoxeroides* in China. These shifts in rhizosphere communities, in turn, asymmetrically suppressed the co-occurring native species (*A. sessilis*) and reduced the performance of the BC agent on the invasive species. Furthermore, multiple alien species often co-invade the same community, where they may compete with or facilitate one another (Yelenik & D'Antonio 2013; Zhang *et al.* 2020). However, the impact of controlling one alien species on the dynamics of other co-occurring alien species remains unexplored.

The diversity and composition of native communities often vary across temporal and spatial scales. For example, species diversity and the strength of biotic interactions generally decrease with latitude or elevation at a global scale (Schemske *et al.* 2009). Consequently, the interactions among biocontrol (BC) agents, target invasive species, and native communities may also vary across space and time. However, studies addressing these dynamics are still scarce (but see Schooler *et al.* 2011; Gao *et al.* 2023). In a field survey performed between 1991 and 2003, Schooler *et al.*(2011) reported that the salvinia weevil, a BC agent against the invasive weed *Salvinia molesta*, provided only incomplete control in the billabongs (oxbow lakes) of Kakadu National Park, Australia. This was due to the existence of alternative stable states: one in which *S. molesta* is suppressed by the weevil, and another in which the plant escapes weevil control. The two states shift in response to annual flooding events. Recently, we have shown that the diversity and composition of the plant, soil biota, and arthropod communities associated with the invasive *Alternanthera philoxeroides* (alligator weed) vary with latitude (Gao *et al.* 2024).

Furthermore, the range of the BC agent *Agasicle hygrophila* has expanded rapidly northward, and its attack on *A. philoxeroides* increased from 2012 to 2019 in China (Gao *et al.* 2023). Over the same period, the relative abundance of *A. philoxeroides* has increased, rather than decreased, in the invaded communities. Interestingly, the co-occurring native species *A. sessilis* is more likely to be attacked than the invader, possibly reflecting rapid adaption of the BC agent to the invader (Lu *et al.* 2016).

In summary, long-term and large-scale monitoring of biocontrol programs is essential to enhance our understanding of the complex interactions among biocontrol agents, target alien invasive species, co-occurring alien species, and native above- and below-ground communities. Furthermore, additional studies are needed to examine the effects of biocontrol practices on the population growth and range shifts of target invaders, as well as on the multiple functions of the affected ecosystems. This is particularly important, given that most existing studies primarily focus on individual species performance.

Xinmin Lu,
State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University; Hubei Hongshan Lab, Wuhan 430070, China E-mail: lxm3412@mail.hzau.edu.cn

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Niue becomes the first in the Pacific region to welcome *Lilioceris cheni,* a natural enemy against the invasive air potato vine

Niue welcomed the air potato beetle (*Lilioceris cheni*) to control the invasive air potato weed (*Dioscorea bulbifera*) in November, marking the first ever release of this agent in the Pacific region and the first biocontrol release against weeds in Niue in 20 years. Previously, Niue has introduced biocontrol agents against *Lantana camara* and giant sensitive plant (*Mimosa diploticha*) which have been largely successful in managing these weeds which are now considered to be under control there. The research work on air potato is a part of the Pacific Regional Invasive Species Management Support Service's (PRISMSS) Restoring Island Resilience programme, which is funded by New Zealand's Ministry of Foreign Affairs and Trade and administered by Secretariat of the Pacific Regional Environment Programme (SPREP). The introduction of the air potato to Niue is also supported by the Global Environment Facility's Regional Invasives Project (GEF-6).

In 2020, a consultation workshop with stakeholders highlighted air potato (known locally in Niue as *hoi*) as a major concern in Niue, and it was then prioritised as a target for biological control. Air potato is widely naturalised in tropical and subtropical regions around the world and is also invasive in several Pacific Islands including Fiji, French Polynesia, Palau, Tonga, and Wallis and Futuna. Air potato is a fast-growing vine with large heart-shaped leaves and aerial bulbils that look like potatoes. It can climb tall trees and can block out sunlight below. The weed also forms thick mats that smother native vegetation, making herbicide application difficult. Additionally, air potato control is a financial burden on local growers as it can reduce crop yields when it infests agricultural land.

The beetles were reared in New Zealand by Manaaki Whenua – Landcare Research (MWLR) and released in Niue in collaboration with Niue's Department of Environment, with the help of National Invasive Species Co-ordinator Mr Huggard Tongatule: "Hoi is widespread here and has proven to be a very costly and labour-intensive weed to remove, especially for farmers with crop plantations."The beetles were directly released in the field where it is hoped they will gradually build up in numbers, dispersing to other air potato infestations on the island over time. The bright red beetle reduces growth of the weed by attacking the leaves of the plant – both adults and larvae will eat the leaf tissue, leaving behind the skeletonised veins of the leaf. The adults will occasionally feed on the bulbils of the plant but prefer fresh leaves.

The Natural Enemies – Natural Solutions group were joined for the release of the air potato beetle in Niue by Dr Allen Dray, an ecologist with the United States Department of Agriculure, who helped develop *L. cheni* as a biocontrol agent for use in Florida. The air potato beetle was first released in Florida in 2012, and its establishment has resulted in at least a 60% reduction in vine biomass, bulb production and spread of the vine in this area – highlighting this as major biocontrol success. Dr Dray's team completed testing of some yam species present in Niue and supplied the starter colony to MWLR.

A return trip by MWLR staff to monitor the establishment of the beetle is being planned for 2025. While the beetles are expected to play a useful role in the management of a key invasive species in Niue, this project also paves the way for similar projects in other Pacific islands also affected by this weed. This release highlights how the PRISMSS Natural Enemies – Natural Solutions programme can expand the reach of our impact in the Pacific region through multilateral collaboration by mobilizing the research efforts of successful biocontrol projects so that multiple countries can benefit from them.

Fig 1: A natural enemy of the air potato (Dioscoria bulbifera), the air potato leaf beetle (Lilioceris cheni) larvae eats the leaf tissue which stops the vines from growing large.

Fig 2: Adult beetles chew lots of round holes in the leaves. Adults will also nibble on the bulbils, but both prefer leaves especially the fresh ones.

Fig 3: Niue's Hon Minister of Natural Resources Mona Ainuu releasing the air potato beetle on air potato in Niue

Indigo Michael,

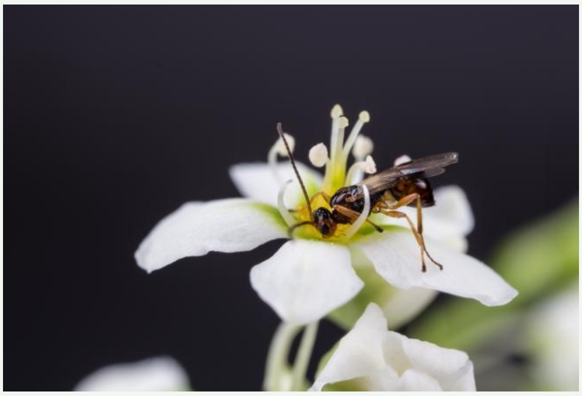
Programme Coordinator: Pacific Natural Enemies - Natural Solutions, Manaaki Whenua - Landcare Research, Tāmaki Campus, 231 Morrin Rd, Tāmaki Makaurau Auckland, www.landcareresearch.co.nz

Integrative biological control of mirid bugs: from promise to practice

Plant bugs (Heteroptera : Miridae) cause direct feeding damage and/or mechanically facilitate phytopathogen colonization in a wide range of annual and perennial crops e.g., grape, peach, jujube, cotton, cacao, tea, sorghum or alfalfa. More often than not, synthetic pesticides are used for their field management. Here, drawing on recent work from Chinese cotton and fruit orchard systems, we demonstrate how an effective pairing of augmentation and conservation biological control offers a powerful and safe management alternative.

Since the mid-1990s, transgenic Bt cotton has been widely adopted in China where it has permitted a drastic reduction in insecticide use. This, in turn, has triggered the emergence of secondary pests that were previously kept under pesticidal control. At present, polyphagous mirids such as *Apolygus lucorum*, *Adelphocoris suturalis*, *Ad. fasciaticollis*and *Ad. lineolatus* commonly build up their population levels in Bt cotton throughout the summer and then spill over into a broader range of arable crops, such as fruit orchards. To manage these newly emergent pests, local farmers largely resort to repeated applications of chemical insecticides – which prove costly, hazardous and environmentally harmful. Pioneering work at the Chinese Academy of Agricultural Sciences is trialing biological control strategies that may eventually allow for drastic reductions in pesticide use on fruit and cotton crops in China.

Biological control research initiated in 2010-2013, when two nymphal parasitoids of mirids i.e., *Peristenus spretus* and *Peristenus relictus* were discovered. Widely distributed across four cotton-growing provinces, both parasitoids attacked *A. lucorum* and all three *Adelphocoris* species on cotton, perennial fruit crops and a range of (wild, cultivated) herbaceous plants. However, natural parasitism levels were consistently low - ranging between 0.1% and 8.8%. A multi-year R&D program was launched to build upon these initial findings and advance biological control using *Peristenus* spp.

Figures: *Peristenus spretus* attacked *Apolygus lucorum (right), Peristenus spretus* feed on buckweed flower

Overall, the biological control program was composed of four consecutive steps: 1) development and fine-tuning of parasitoid mass-rearing protocols; 2) efficacy trials in cage and open-field conditions; 3) assessment of optimal release numbers; and 4) post-release enhancement of parasitoid performance through floral nectar provisioning. Regardless of initial skepticism at the program onset, the efficacy trials gave a first, strong indication of the feasibility and (economic) viability of augmentation biological control. Field cage trials showed that three successive releases of female *P. spretus* at 1:50, 1:100 and 1:200 (parasitoid : mirid) ratios attained respective parasitism levels of 77.8%, 63.8% and 39.5%. In jujube orchards, repeated parasitoid releases over a 3-month period raised mirid parasitism levels nearly 10-fold as compared to those in control orchards. These releases drastically reduced mirid infestation pressure and crop damage, without any need for chemical intervention.

Initial attempts at parasitoid mass-rearing were hampered by strong intra-specific competition among *P. spretus* females and by sub-optimal environmental conditions. The former led to a 15-fold reduction in reproductive output at high parasitoid densities. To mitigate this, mass-rearing protocols were adapted to keep the wasp:nymph ratio at a low 4:100. Laboratory assays further logged the highest lifetime fecundity (no less than 671.2 eggs on average per individual) and longevity of *P. spretus* females at 23°C. This progressive fine-tuning of *Peristenus* spp. mass-rearing was a critical step in the development of the biological control program.

Lastly, experimental work unveiled that the fitness of *P. spretus* females (in both laboratory and field conditions) drastically improved when offered access to carbohydrate-rich foods. Presence of buckwheat flowers for example extended parasitoid lifespan up to three times and increased parasitism rate by 10% as compared to control treatments. This now permits a tactical integration of scheduled parasitoid releases with habitat management such as the establishment of flowering cover crops (in fruit orchards), flower strips (e.g., in or near cotton fields) or the use of nectary-bearing cotton varieties. This integrated biological control carries ample promise to manage China's cotton mirids and sets the stage for more effective, nature-based management of a far broader set of (mirid or other) pests globally.

Shuping Luo[1], Kris A.G. Wyckhuys[1,2,3], Yanhui Lu[1]

[1]State Key Laboratory for Biology of Plant Diseases and Insect Pests, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing 100193, China

[2.]School of the Environment, University of Queensland, Saint Lucia, Australia;

[3] Chrysalis Consulting, Danang, Vietnam

Biological Control of Fall Armyworm: A sustainable approach to manage an Invasive Insect Pest

Introduction

The fall armyworm (*Spodoptera frugiperda*), a destructive pest native to the Americas, has become a global agricultural hazard. This pest has seriously harmed staple crops, including maize, sorghum, and rice since it was first introduced to Africa in 2016 and then moved to Asia and Oceania. Conventional management techniques, especially their reliance on chemical pesticides, have sparked worries about non-target impacts, pest resistance, and environmental degradation. In this regard, biological control is a viable substitute for reducing fall armyworm infestations while fostering ecological equilibrium.

Natural Enemies of Fall Armyworm

Predators, parasitoids, and pathogens are used in biological control to reduce pest populations. Several natural enemies of fall armyworm have been identified and studied:

Predators

- Ladybird beetles (Coccinellidae): These predators feed on fall armyworm eggs and early instar larvae.
- Spiders: Various spider species feed on the larvae of fall armyworms, particularly in maize fields with diverse vegetation.
- Ants: Predatory ants that aggressively hunt fall armyworm larvae, like the red imported fire ant *Solenopsis invicta*, can drastically lower pest numbers.
- Assassin Bugs: Fall armyworm is one of the many insect pests that assassin bugs prey on. *Zelus spp.* are among the species that are efficient predators in maize fields.
- Damsel Bugs: Damsel bugs prey on small soft-bodied insects, including young fall armyworm larvae.
- Stink Bugs: Fall armyworm larvae are consumed by predatory stink bugs such as the spined soldier insect (*Podisusmaculiventris*). They use their piercing-sucking mouthparts to inject enzymes and consume the internal contents of the larvae.

Parasitoids

- Egg Parasitoids: *Telenomusremus* and *Trichogramma pretiosum* parasitize fall armyworm eggs, delaying the development of larvae. With parasitism rates above 60% in field settings, *T. remus* has proven especially successful in several regions.
- Larval Parasitoids: Larvae of fall armyworm are parasitized by wasps such as *Cotesia marginiventris* and *Chelonus insularis*. These parasitoids can kill larvae directly or stunt their development. *Aleiodes laphygmae*, also called the armyworm mummy wasp, parasitizes early instars of fall armyworm.
- Pupal Parasitoids: Fall armyworm pupae are targeted by tachinid flies like *Archytas marmoratus*, which helps to control the population.

Pathogens

- Fungal Pathogens: Fall armyworm larvae are infected and killed by entomopathogenic fungi such as *Beauveria bassiana* and *Metarhizium anisopliae* through mycosis. These fungi are both ecologically benign and extremely

- Viral Pathogens: Fall armyworm larvae are effectively combated by the naturally occurring virus known as nucleopolyhedrovirus (NPV). Field tests have revealed encouraging outcomes for NPV formulations, with up to 90% larval mortality. The *Spodoptera frugiperda* multiple nucleopolyhedrovirus (SfMNPV) (family Baculoviridae; genus Alphabaculovirus) is a common pathogen of the fall armyworm.

Implementation Strategies for Biological Control

Conservation of Natural Enemies: The goal of conservation biological control is to maintain and increase the numbers of natural enemies. Reducing pesticide use, preserving habitat diversity, and planting flowering plants are among practices that can give resources and refuges to parasitoids and predators. Intercropping maize with legumes or other crops has also been demonstrated to increase the effectiveness of biological control.

Augmentative Release: Fall armyworm populations can be efficiently suppressed by mass-rearing and periodically releasing natural enemies, especially parasitoids like *T. remus*. Significant decreases in pest densities have been shown in countries like Brazil and India that have adopted augmentation release programs.

Introduction of Exotic Natural Enemies: Classical biological control entails introducing natural enemies from the pest's native range in areas where the presence of native natural enemies is insufficient. Strict risk evaluations and quarantine regulations are necessary to prevent alien species from spreading and upsetting native ecosystems.

Biopesticides

IPM programs increasingly include pathogen-based biopesticides, such as Bt and NPV formulations. These products present no risk to human health, are safe for the environment, and work well with other biological control agents. Fawligen, a commercially available biopesticide, based on SfMNPV, is manufactured by AgBiTech, specifically for fall armyworm control in maize. Dipel and Xentari are bacterial biopesticides based on specific Bt strains, producing toxins that disrupt the gut lining of fall armyworm larvae. Botanigard and Mycotrol are fungi-based biopesticides used to manage the fall armyworm populations in the field. Moreover, some plant-based biopesticides such as NeemAzal and Azadirachtin formulations are also in use for fall armyworm management.

Challenges and Future Directions

Despite its potential, the adoption of biological control for fall armyworm faces several challenges:

- Knowledge Gaps: Lack of knowledge about the ecology and effectiveness of natural enemies in various agroecosystems prevents their widespread use.
- Economic Constraints: The high upfront expenses of biopesticide production and mass-rearing can discourage farmers with little resources.
- Resistance Management: Fall armyworm populations may develop resistance if single control measures, such as Bt toxins, are used excessively.
- Climate Change: The ability of pathogens and natural enemies to survive and function can be affected by variations in temperature and humidity.

To overcome these challenges, research and extension initiatives must focus on:

- Improving the cost-effectiveness and mass-rearing efficiency of biopesticides and natural enemies.
- Supporting training initiatives for farmers to increase their knowledge and use of biological control techniques.
- Creating IPM plans tailored to a particular area that incorporate chemical, cultural, and biological control methods.
- Improving international cooperation to share knowledge, resources, and best practices for controlling this global pest.

Conclusion

A sustainable and eco-friendly solution to the fall armyworm crisis is biological control. Utilizing the strength of pathogens and natural enemies can help us decrease our reliance on chemical pesticides, increase agricultural productivity, and enhance biodiversity. By incorporating biological control into all-encompassing IPM programs, the negative ecological and economic effects of fall armyworm can be significantly reduced, providing food security for millions of farmers throughout the world.

Zainul Abdin[1*], Manahal Siddique[1]

Department of Entomology, University of Agriculture, Faisalabad, Pakistan

zainentomology@uaf.edu.pk

Figure: A beneficial wasp, *Aleiodes laphygmae*, parasitizing a fall armyworm caterpillar pest. This hard-bodied, flying adult wasp is likely to survive after a natural insecticide application. Credits: Lyle Buss, UF/IFAS

Image uploaded from DOI: 10.32473/edis-in197-2018

Message from the Editor-in-Chief of BioControl

I am the Editor-in-Chief of BioControl, the official international journal of the IOBC, and you receive this message because you are a member of a Regional section. Some time back, we organized the yearly Editorial Board meeting for the journal, and the journal is in good health and remains an internationally recognized media to publish relevant results on biological control.

Besides original research articles, BioControl is also publishing review articles and Special Issue, and – since our journal is the official journal of the IOBC – I sincerely think that such reviews and Special Issues should mainly come from IOBC members. For example, the IOBC is organizing international meetings and conferences on a regular basis, and I guess this can trigger potential ideas to publish such review articles and/or Special Issues.

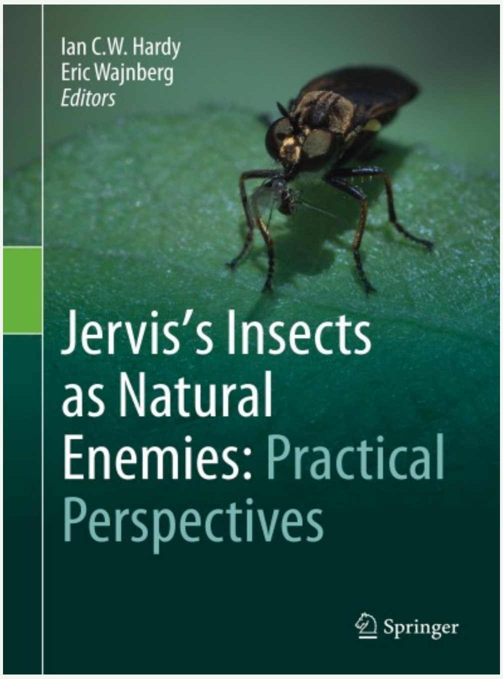
For example, you could maybe explicitly mention BioControl as a preferred media for submitting review articles and Special Issue proposals during your General Assembly, etc.Please feel free to contact me as much as needed if you think your members (or even yourself) can propose us ideas about possible reviews or Special Issue proposals. This will always be welcomed as this is important to keep BioControl among the top-level journals in the field of biological control. I will be happy to provide editorial help for this, if needed.

Thanks in advance for any help, and looking forward to some news from you about this.

Eric Wajnberg

Editor-in-Chief of BioControl
https://link.springer.com/journal/10526

Springer



New Book: "Jervis's Insects as Natural Enemies: Practical Perspectives"

There has been a dramatic increase in theoretical and practical studies on insect natural enemies over the last decades. The appeal of insect predators and, in particular, parasitoids, as research animals derives from the relative ease with which many species may be cultured and experimented on in the laboratory, the simple life-cycles of most parasitoid species, and the increasing demand for biological pest control as a key component of the integrated pest management approach.

There is now a very substantial literature on insect natural enemies and thus a great need for a general text that enquiring students or research workers can use in deciding on approaches and techniques that are appropriate to the study and evaluation of such insects. This book, which is almost 800 pages long, fulfils that demand. It is a considerably updated and expanded version of a previous best-seller and provides an account of major aspects of the biology of predators and parasitoids, punctuated with information and advice on which experiments or observations to conduct and, importantly, how to carry them out. Guidance is provided, where necessary, on the most recent further literature that may need to be consulted on given topics.

While researchers can now refer to several books on parasitoids and predators, Jervis's Insects as Natural Enemies is unique in emphasising practicalities. It is aimed at students and professionals working in universities and both government and commercial institutes in the fields of integrated pest management, agriculture, horticulture and forestry, as well as those interested in fundamentals of behavioural, population, community and evolutionary ecology.

If you are interested, the description of the book can be found at the following link: https://link.springer.com/book/10.1007/978-3-031-23880-2.

Editors : Ian C.W. Hardy, Eric Wajnberg

XVII INTERNATIONAL SYMPOSIUM ON
BIOLOGICAL CONTROL OF WEEDS
8-13 MARCH 2026 ROTORUA NEW ZEALAND

Kia ora | Greetings,

Please visit the ISBCW2026 website: **isbcw-rotorua.com** to explore the latest news and information. Don't miss out on future updates!

Abstract submission and submission of workshop ideas are now open!

For abstract submission:

Check the 'Session Topics' page https://isbcw-rotorua.com/session-topics/ to find out what topics we expect to cover.

Find the topic that best fits the work you wish to present.

Consider also which session topic may be a secondary fit for you in case we cannot fit you in the session of your first preference.

We seek submissions for

full length oral presentations (20 min including 5 min question time)

short form oral presentations (5 min, no question time allowed)

posters (size A1, Landscape orientation)

Key dates: Submission for both workshops and presentation abstracts is open until **04 August 2025**.

We will notify you if your abstract/workshop idea has been accepted by the **first week of September 2025**. Note that we can consider early notification of acceptance where advanced notice is needed for travel approvals.

We will send future updates only to those who have registered.

Thank you

If you might need assistance contact**: info@isbcw-rotorua.com**

Lynley Hayes
Co-Chair, ISBCW2026
hayesl@landcareresearch.co.nz

Fourth International Workshop of the IOBC Global Working Group on Biological Control and Management of Parthenium Weed

Jessore, Patuakhali Science and Technology University, Patuakhali and Dhaka in Bangladesh, **2-5 March 2025**

The International Organization for Biological Control (IOBC) and the USAID Bangladesh Mission-supported Feed the Future Bangladesh Integrated Pest-Management Activity (IPMA), managed by Virginia Tech, USA are jointly organizing the Fourth International Workshop of the IOBC Global Working Group on Biological Control and Management of Parthenium Weed (*Parthenium hysterophorus*) in Bangladesh from 2-5 March 2025. The event will review biological control and management of the weed regionally and globally, with an emphasis on accelerating research and development, as well as fostering international collaboration. Presentations on parthenium weed will include, but are not restricted to, the biology, ecology, distribution, and impact of the weed, biological as well as other control methods, and integrated management of this weed.

Registration fees, bus transport and two workshop lunches are sponsored by the Feed the Future Bangladesh IPM Activity, so are at no cost to delegates. Airfares, accommodation and other meals are for delegates' own cost.

For full details of the Second Announcement and registration form please contact Madhab Chandra Das (e-mail madhabcd@vt.edu) and for abstract submission details please contact Lorraine Strathie (e-mail StrathieL@arc.agric.za), to be submitted by 31 December 2024

Date	Time	Programme of activities	Accommodation
Sat 1 March 2025		Foreign delegates arrive in Dhaka.	Hotel Bengal Blueberry, Dhaka
Sun 2 March	Morning	Fly from Dhaka to Jessore. Meet at Jessore airport at 10am. Bus will take delegates to view parthenium infesta-	
	After-noon	Bus will take delegates to Barisal.	Overnight at Hotel Grand Park, Barisal
Mon 3 March	Morning	Visit Patuakhali Science and Technology University by bus to observe *Zygogramma bicolorata* rearing.	

Program Scheduled

Tus 4 March Morning- Inaugural session of Workshop (Hotel Bengal Blueberry, Dhaka)- Afternoon- Presentations and discussions (Venue: Hotel Bengal Blueberry, Dhaka)

Wed 5 March Morning - Continuation of presentations and discussions. Late Afternoon - Conclusion of Workshop- Evening- Departure of delegates

8th International Congress on Entomophagous Insects

The **8th International Congress on Entomophagous Insects (IEIC8)**

University of Tours (France) from July 1 to 4, 2025.

This biennial conference aims to bring together scientists from around the world to share and disseminate information and new discoveries on the **biology of parasitoids and predators of insects.** Topics include behaviour, evolution, physiology, chemical ecology, genetics/genomics, systematics, population, community and landscape ecology, biological control and integrated pest management, biodiversity and conservation biology. The aim of this conference is therefore to stimulate discussion and generate new collaborations that will lead to innovative and effective research on entomophagous insects.

Abstract submission and registration are open until March 1, 2025.

You can find all practical information on the website: https://ieic2025.sciencesconf.org/?lang=en

8th INTERNATIONAL ENTOMOPHAGOUS INSECTS CONFERENCE *Tours, France, July 2025*

Entomologia Experimentalis et Applicata will publish **the proceedings of IEIC8 as a special issue** of the journal, as has been the case for previous IEIC meetings. The submitted manuscripts will be subjected to the journal's standard reviewing procedures. The organizers of IEIC will act as guest editors for this special issue. All contributions accepted for publication will become freely available on the EEA website for a limited time. Invited keynote speakers and presenters of oral communications and posters are invited to submit their review-type, full research papers or technical notes. Preparation of manuscripts should follow the guidelines of Entomologia Experimentalis et Applicata as set out in the Author Guidelines.

Authors may submit the manuscript before or shortly after the symposium, but please note the deadline: manuscripts must be submitted at the latest by 31 August 2025.