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

IOBC–APRS Newsletter

No. 18
August 2026

Message from your President

Hello valued members from Asia and the Pacific!

Earlier this year, I had the privilege of attending the International Symposium on Biological Control of Weeds in my own town of Rotorua, New Zealand, held on 8–13 March. There were a few of us representing the Asia and the Pacific Regional Section of IOBC, and membership was promoted to anyone who was not aware of us. I was delighted to see the number of delegates from Pacific nations and meet Caitlin, whom IOBC–APRS sponsored to attend and give a talk on her PhD research (*see article in this issue).* As the organiser noted, younger researchers are the future of our science, as they will take over the mantle from those of us who are entering our third or more decades as scientists.

There has been an exciting focus in recent years, thanks to a number of international agencies, aimed at applying natural and self-sustaining methods to control weeds that are rampant in Pacific Island nations. New Zealand and Australian scientists have been able to work with many of these nations in the last decade and release biological control agents against a number of weeds there. These were highlighted at the symposium, and we will continue to provide updates in our newsletters. Great work, everyone!

My personal thrill was to be updated on how effective a number of weed biocontrol agents have been, given time to establish. Early in my career, I became acquainted with two moths and a beetle that Australian government colleagues released against parthenium weed, and a lacebug New Zealand colleagues released against woolly nightshade. At the time, I was

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Successful biological control of the butterfly bush (page 2)

not sure how effective they would be in the field. But now, they have really shown their ability to wipe out weeds in some areas, which is a real thrill! I have not been active in weeds research for well over ten years, so to see many agents now really starting to impress makes me think all of your efforts have been or will be worthwhile.

Also, it was two decades ago that Bioeconomy Science Institute (then known as the Forest Research Institute) scientists released a leaf-feeding weevil from China — *Cleopus confusus* — in Whakarewarewa Forest here in Rotorua against the butterfly bush, *Buddleja davidii*, a forestry weed. This has been a spectacular success in the central North Island of New Zealand and has driven the plant to scarcity. On the forestry field trip, we were able to view this outstanding impact the *Cleopus* weevil has had on the buddleia plant after managing to locate a large plant actually still alive (photos of Mike Davy and a heavily infested butterfly bush).

Keep up the great work that you all do!

Toni

An excited Mike Davy revealing how *Cleopus confusus* affects the growth of *Buddleja davidii*

Cleopus confusus (*arrowed*) causing damage to *Buddleja davidii* through continuous feeding

From PhD to International Symposium: empowered by IOBC–APRS funding

I recently attended the XVII International Symposium on Biological Control of Weeds (ISBCW) in Rotorua, New Zealand, 8–13 March 2026, because of the funding awarded by the IOBC–APRS. This was a great opportunity for me, as a recent PhD graduate, to present my research and gain a broader understanding of recent research trends, developments and emerging issues within my field. The event included presentations, discussions and networking opportunities that allowed me to interact with others from different countries, organisations and backgrounds. These interactions allowed me to exchange ideas and gain different perspectives on challenges within the field. This networking aspect was particularly valuable in building connections and understanding potential career or research pathways.

Overall, attending the symposium enhanced my knowledge, strengthened my interest in the field and provided practical insights that I can apply to my future work. Thank you for the funding, as it would not have been possible to attend the XVII ISBCW without it.

Toni Withers, IOBC–APRS President, congratulating Caitlin Henderson after handing over the Endowment Funding Award certificate to her

Caitlin Henderson presenting her award-winning paper at the XVII ISBCW

— Submitted by Caitlin Henderson

Call for submissions: biocontrol news

Members of IOBC–APRS are encouraged to share their country's biocontrol news or success stories from the Asia-Pacific region for a chance to be featured in upcoming *IOBC–APRS Newsletter*.

Welcoming Li-Ping Ban to the IOBC–APRS Executive Committee

The IOBC–APRS Executive Committee is pleased to welcome Li-Ping Ban as a general member. Li-Ping is a professor based at the College of Grassland Science and Technology, China Agricultural University, where her research focuses on the biological control of major arthropod pests in alfalfa and maize.

Her work centres on the development of environmentally sustainable pest management strategies, with particular emphasis on thrips and aphids. She leads research spanning insect olfactory molecular mechanisms, virus transmission pathways, pesticide resistance and the application of natural enemies. By integrating fundamental science with field-based solutions, Li-Ping aims to advance practical and effective integrated pest management (IPM) systems.

Over more than 21 years at China Agricultural University, Li-Ping has supervised five PhD and 16 master's students. She is a strong advocate for IPM and biological control, and is deeply committed to mentoring the next generation of scientists with a global outlook and a focus on sustainable agriculture.

Her research highlights include the development of a green control technology system for corn ear pests, integrating light traps, sex pheromones and releases of natural enemies such as *Trichogramma*. This approach has achieved a 15–20% reduction in corn ear damage. She has also made significant contributions to understanding pest olfactory mechanisms in grassland pests, including locusts and thrips, supporting the design of novel behavioural control strategies. In addition, her work on the screening and evaluation of biological control agents has helped reduce reliance on chemical pesticides in key cropping systems.

Li-Ping has published more than 70 scientific papers and has served as principal investigator on projects funded by the National Natural Science Foundation of China and the Beijing Municipal Natural Science Foundation.

The Executive Committee is pleased to welcome her expertise, enthusiasm and regional perspective to support the IOBC–APRS community.

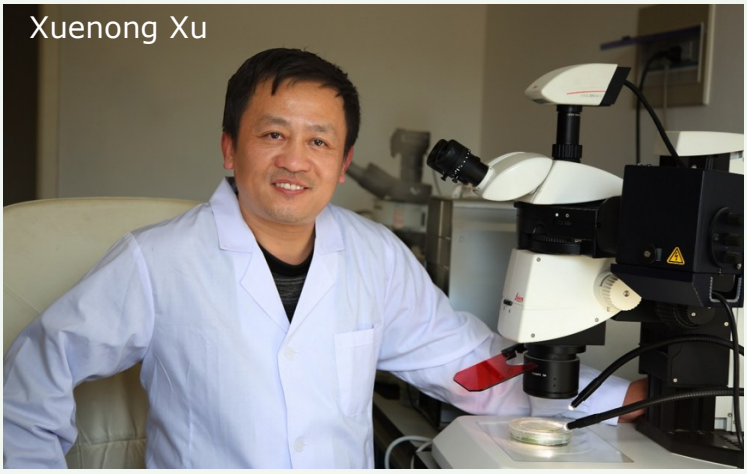
— Prepared by Mark McNeill

Predatory Mites as Biological Control Agents Working Group

The Working Group "Predatory Mites as Biological Control Agents" was established in November, 2014, within the IOBC–APRS. It is the first working group to belong within this regional section, and the only working group established by IOBC in China. Xuenong Xu, Principal Investigator from the Institute of Plant Protection, Chinese Academy of Agricultural Sciences (IPP–CAAS), served as the first coordinator of this working group.

The Working Group aims to engage more scientists in research and application of predatory mites for biological control, and to facilitate and promote the development of the discipline in local regions. This has been seen as occurring through both scientific exchanges and cooperation. With the assistance of IOBC–APRS, the Working Group has made concerted efforts to bring phytoseiid researchers together and actively promote collaboration.

The Working Group holds workshops every three years on different themes based on research directions and hotspots for use of predatory mites for biological control. So far, three workshops have been held, namely in Beijing and Chongqing, China (2016 and 2019), and in Kyoto, Japan (2024). Workshops are focused on predatory mite resource exploration, commercial production of predatory mites and the application of predatory mites in different ecosystems. In addition, invited talks and graduate exchange sessions provide a platform for early-career scientists to highlight their research and collaborate.


Xuenong Xu


Bo Zhang

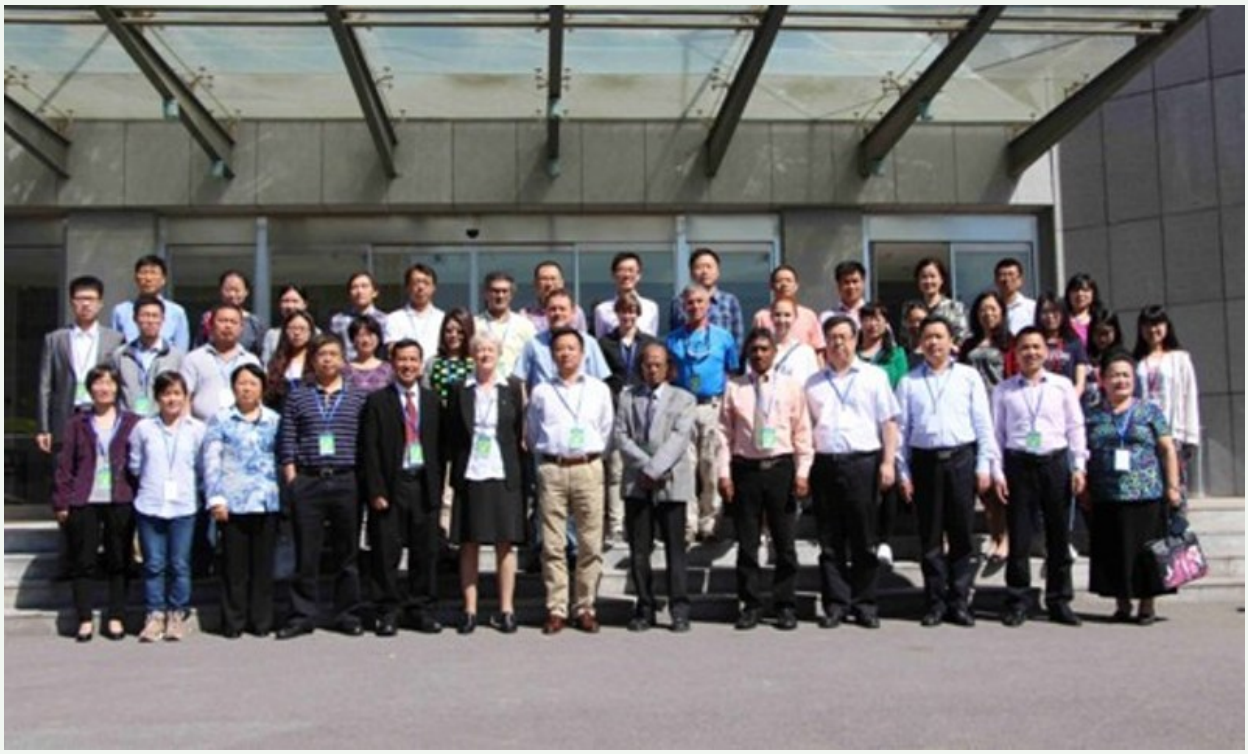
This year, after communication with IOBC –APRS, the position of coordinator has been taken up by Bo Zhang (IPP–CAAS), whose research focus has been evolutionary ecology and commercial application of phytoseiid mite species.

In an era of rapid development of interdisciplinary research, predatory mite research also needs to apply new methods and technologies to advance the effectiveness and improve the traditional exploration and identification of resources. The precise application of predatory mites can be even more effective in the future of intelligent plant protection. We look forward to exchanging ideas with colleagues at the predatory mite session of the 17th International Acarology Conference being held in Montpellier, France from 20 to 24 July 2026.

4th Workshop of Working Group on Predatory Mites as Biological Control Agents 2027

We plan to hold the fourth workshop of the Working Group in August 2027 in China. The venue and dates are still needed to be confirmed. We welcome researchers working in mite biological

control to actively participate in ideas to develop the fourth workshop to make it an outstanding event. To assist our planning for the workshop, please contact Bo Zhang (zhangbo05@caas.cn) with suggestions for themes and colleagues who would like to be part of the organising committee.



Participants at the 1st Workshop of Working Group on Predatory Mites as Biological Control Agents in 2016

Participants at the 2nd Workshop of Working Group on Predatory Mites as Biological Control Agents in 2019

— Submitted by Bo Zhang, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, China

An update on parasitoids for biocontrol of Queensland fruit fly in Australia

Queensland fruit fly (*Bactrocera tryoni*, Qfly) remains one of Australia's most serious horticultural pests, with its range expanding steadily into southern regions over the last decade. Warmer conditions, high backyard fruit abundance and reduced access to older chemical controls have all contributed to this spread. In response, Agriculture Victoria, together with national partners, has been investigating the potential of parasitoid wasps as biological control agents to support area-wide management of Qfly in the southeastern state of Victoria.

Two key hymenopteran parasitoids of tephritid fruit flies, *Fopius arisanus* and *Diachasmimorpha kraussii*, naturally occur in northeastern Australia, where they play an important role in suppressing fruit fly populations[1]. Before 2021, neither species had been detected in Victoria, prompting research to evaluate whether they could survive and reproduce under cooler, more temperate conditions.

Female *Diachasmimorpha kraussii* on a piece of fruit

Over the last four years, Agriculture Victoria has undertaken mass-releases of parasitoids across country towns in northern and north-central Victoria. Releases targeted both orchards and urban hotspots — areas where unmanaged backyard trees produce large numbers of fruit flies capable of dispersing into commercial crops. Monitoring was conducted through fruit collection and laboratory rear-outs to track parasitism, survival and dispersal. A small release of *D. kraussii* was also undertaken in January 2026 in southwestern Australia to target medfly (*Ceratitis capitata*), which is also a host for this parasitoid species.

Fruit fly parasitoids being released in a citrus orchard

Results of monitoring showed that both *F. arisanus* and *D. kraussii* successfully parasitised Qfly eggs and larvae in the field in Victoria and established small local populations within the growing season. Parasitism varied with fruit type, but rates reached up to 38% for *F. arisanus* and 63% for *D. kraussii* at some sites[2].

Of the two species, *D. kraussii* performed particularly well, as it was: recovered at all four monitored release sites; dispersed up to 1.5 km within six weeks; achieved consistently higher parasitism rates than *F. arisanus*; and importantly, overwintered successfully, being recovered up to three years after release at two sites. This overwintering confirms that *D. kraussii* can persist naturally in Victoria and therefore has strong potential as a long-term biological control agent for fruit flies in southern Australia.

[1]Clarke, A.R., Harris, C., Kay, B.J., Mainali, B.P., McLay, L.K., Strutt, F. & Cunningham, J.P. 2022. Opiine parasitoids (Hymenoptera: Braconidae) and biological control of fruit flies (Diptera: Tephritidae) in Australia: Past, present and future. *Annals of Applied Biology*, 180 (1), 44–72.

[2]McLay, L.K., Dawson, J.C. & Cunningham, J.P. 2025. Parasitoid releases to manage Queensland fruit fly, *Bactrocera tryoni*, in southeastern Australia: *BioControl*, 1–13.

— Submitted by Lucy McLay, Invertebrate and Weed Sciences, Agriculture Science and Technology, Bundoora, Australia

Biological control of *Mikania micrantha* in the Asia-Pacific region – Current status

Biological control of *Mikania micrantha* (Kunth (Asteraceae) in the Asia-Pacific region began with the introduction of *Liothrips mikaniae* (Priesner) (Thysanoptera: Phlaeothripidae) into the Solomon Islands (1988) and Malaysia (1990). The thrips failed to establish in either country. The thrips was also sent to Papua New Guinea (PNG) in 1989 but the colony in quarantine died out before any field releases were conducted.

Strains of the rust *Puccinia spegazzinii* de Toni (Pucciniaceae) were collected from several countries in tropical America and tested against *M. micrantha* populations from numerous countries in the introduced range to determine the most virulent strain for each population of *M. micrantha*. For India, the strain from Trinidad was considered to be the most suitable, while for the Pacific, the strain from eastern Ecuador was considered the most damaging. *Puccinia spegazzinii* was released in the states of Assam and Kerala in India from 2005–2006. There was initial infection observed in the field but populations did not persist. It was thought that insufficient releases, along with unfavourable conditions contributed to the agent failing to establish at any site. In 2006, *P. spegazzinii* was introduced into mainland China but also failed to establish. The rust was also introduced into Taiwan in 2008, where it established at numerous sites, particularly in the higher elevation areas and in areas to the south.

The *P. spegazzinii* strain from eastern Ecuador was released in PNG in 2008 and in Fiji in 2009. The rust became widely established in both countries. In the course of time, the rust significantly reduced the *M. micrantha* cover by about 50% in PNG.

Mikania micrantha infestations at Tokua, PNG, before (left) and after (right) the release of *Puccinia spegazzinii*

Subsequently, the rust has been successfully introduced into Vanuatu (2012) and the Cook Islands (2017). In both countries, populations of *M. micrantha* are reported to have decreased in most areas, where the rust has established. The rust has been reported present in the Solomon Islands, where it established naturally.

Puccinia spegazzinii infecting a *Mikania micrantha* leaf in Vanuatu

Puccinia spegazzinii was introduced into Guam and Palau but failed to establish in either country. The rust has been recently released on Christmas Island, an Australian territory in the Indian Ocean, but establishment has not yet been confirmed.

Mikania micrantha is considered a major weed in many countries in the Asia-Pacific region and due to its rapid growth and ability to produce thousands of seeds, current control methods are costly or not sustainable. Therefore, biological control using the rust would be a long-term, sustainable and environmentally friendly method to control the weed in many impacted countries.

— Submitted by Mike Day, Australia

Biological control highlights from the NZPPS Conference 2025

The New Zealand Plant Protection Society (NZPPS) held its Annual Conference at the Rydges Latimer Hotel, Christchurch, under the theme "Protecting Plants with Science". Supported by the International Congress on Biological Invasions 2023, the Horticentre Charitable Trust and Euphresco III, the event brought together researchers, practitioners and policymakers to share the latest findings in plant protection. A number of presentations focused on biological control of insect pests and plant pathogens, reflecting the growing global interest in sustainable pest management and natural enemy utilisation.

Biological control of insect pests

Wesis Pus *et al.'s* paper provided a comprehensive review of the resident noctuid parasitoids in New Zealand and their potential to control the fall armyworm (*Spodoptera frugiperda*, FAW), a recent invasive pest in New Zealand. The paper highlighted the resident parasitoid fauna of noctuids found in New Zealand to assess their potential for biological control of FAW and examined published records and host–parasitoid databases to compile a list of all parasitoid species attacking Noctuidae in New Zealand. The paper also reported on their diversity, host range, general life history traits and prior use in biocontrol to assess possibilities for potential FAW biocontrol. Preliminary studies revealed that indigenous or resident parasitoids, *Cotesia ruficrus* and *Meteorus* pulchricornis, were both parasitising FAW in North and South Island maize fields at a range of 1–10%.

Biological control of plant pathogens

The potential for controlling fire blight caused by the bacterium *Erwinia amylovora* with *Aureobasidium pullulans,* the active ingredient in both Nufarm's Botector® (isolates DSM 14940 & 1494) and UPL's Aureo® Gold (isolate YBCA5), on russet-sensitive apple varieties was discussed in a paper presented by Mary Honer *et al*. The results, inter alia, showed generally that A. *pullulans* gave good fire blight control but can cause an increased incidence of russet on russet-sensitive fruits. Their work also revealed that the incidence of russet associated with *A. pullulans* use can be managed on russet-sensitive varieties by using individual treatments such as gibberellins, kaolin and variations to the concentration or application rates of *A. pullulans*.

Monika Joshi *et al.* conducted *in vitro* assay studies on the inhibition of *Rhizobium leguminosarum,* which forms symbiotic nodules on pea roots to fix atmospheric nitrogen (N2), by soft alternative and synthetic products used for controlling fusarium root rot. The five bioproducts tested inhibited the growth of *R. leguminosarum* to varying degrees, but none of the eight biological extracts and synthetic products inhibited *R. leguminosarum* growth. For effective nitrogen fixation under field conditions, compatibility of natural products applied to the crop and *R. leguminosarum* is recommended.

Two experimental glasshouse studies were conducted by Helen Moe David *et al.* using, firstly, four individual *Trichoderma* isolates and Apron® XL fungicide seed treatment (as control) against a virulent New Zealand *R. solani* strain 043-4 of the soil-borne pathogen *Rhizoctonia solani* in Asian cabbage or Pak Choi (*Brassica rapa* subsp. *chinensis*). The second experiment tested the bio-fumigation properties of leaves of several brassica species.

Overall, both *Trichoderma* seed treatment and bio-fumigation showed promise for control of *R. solani* in Pak Choi, but the authors cautioned that field validation is required.

Innovative investigations on microbiome-engineered grapevines are being investigated by Justine Larrouy *et al.* as a novel solution for healthy future vineyards against grapevine trunk disease (GTD), which is one of the most destructive threats, particularly to Sauvignon Blanc, New Zealand's flagship variety. This research aims to enhance grapevine resistance to GTD by introducing beneficial microbiomes during the nursery propagation stage.

The ability of polysaccharides from two species of domesticated *Ulva* seaweed to reduce disease incidence on kiwifruit caused by *Pseudomonas syringae* pv. *actinidiae* (Psa) and on tomato caused by *P. syringae* pv. *tomato* (Pto) was demonstrated in glasshouse experiments by Joel Vanneste *et al.* on potted kiwifruit plants and tomato seedlings. The study demonstrated that treatment with ulvans significantly reduced disease incidence in tomato seedlings when the plants were treated seven days before inoculation, but also when they were treated just before inoculation, suggesting that, in addition to being elicitors, ulvans could affect the pathogen directly.

Patanun *et al.'s* paper reported the effect of seed treatment on seed germination and emergence of seeds of five agricultural or forestry species: *Lolium perenne* (perennial ryegrass), *Bromus willdenowii* (prairie grass), *Triticum aestivum* (wheat), *Brassica napus* (forage rape) and *Pinus radiata* (radiata pine). Seed treatment is used as a delivery mechanism of a beneficial fungal volatile organic compound 6-pentyl-2H-pyran-2-one (6-PP), produced by *Trichoderma* spp. This would help enhance plant growth and resilience of field crops such as wheat and perennial ryegrass to abiotic and biotic stresses.

Special session on Pacific biocontrol

Lindon Tari *et al.* highlighted the collaborative success in managing coconut rhinoceros beetle (CRB) in Vanuatu. The presentation highlighted the collaborative efforts of Biosecurity Vanuatu, the Vanuatu Ministry of Agriculture, the AgResearch Group, New Zealand Institute for Bioeconomy Science Ltd, and the Pacific Community (SPC) in building and delivering an effective response. The achievements to date included slowing the spread of CRB to outer islands, the successful field establishment of biological control agents (*Metarhizium majus* and *Oryctes rhinoceros nudivirus*), and capacity building through staff training and infrastructure upgrades.

Chantal Probst *et al.* shed light on the biocontrol prospects of the increasingly invasive merremia *(Decalobanthus peltatus)* whereby surveys conducted in 11 countries have mostly found generalist natural enemies, and often little damage, so the search for an effective biocontrol agent continues. The presentation shared findings from the genetic studies and natural enemy surveys, discussed the challenges when considering biocontrol for native species, and outlined next steps and future prospects for the biocontrol of merremia.

The Samoa-based study by Sateki Fangupo investigated the seasonal and relative abundance of natural enemies, viz. *Trichogramma chilonis* and *Cotesia vestalis* and their contribution to the management of *Crocidolomia pavonana* and *Plutella xylostella.* The findings highlighted the crucial role of seasonal rainfall in shaping pest–parasitoid dynamics and provided valuable insights for developing climate-responsive and sustainable pest management strategies in brassica cropping systems in Samoa.

Overall, there was strong emphasis in the Conference on biological and ecological innovations for pest and disease management, increasing focus on compatibility, field validation, microbiome manipulation, integration of natural enemies into IPM frameworks and importantly, regional collaboration, particularly within the Pacific, in enhancing local capacity and resilience against emerging pests.

— Prepared by A. Sivapragasam, Research Associate, CAB International – SEA and East Asia

Upcoming biocontrol meetings

Online registration and the **call for abstracts for oral presentations and posters** is open until Sunday, 16 August 2026 (23:59 CET)!

For more detailed information and abstract submission, please visit the conference webpage: https://isbca2026.com/en/registration-submission

https://sites.google.com/fmach.it/brebca-2026/home-page

14–17 September 2026, Edmund Mach Foundation, San Michele all'Adige, Trento, Italy

BREBCA 2026 will address the following key topics:

- **Assessing benefits and risks** of exotic BCAs through ecological, socio-economic and policy frameworks
- **Rapid deployment** of exotic BCAs against emerging pests, pathogens and invasive plants
- **Ecological interactions** between exotic agents, native species and ecosystems
- **Innovative tools** for safety testing, host specificity and climate-smart agent selection
- **Exotic BCA ecology** under global change, including climate and land-use effects
- **Governance and regulation**, with focus on international coordination and policy harmonisation
- **Ethical and societal perspectives**, including stakeholder engagement and communication
- **Long-term monitoring** and adaptive management for sustained ecological outcomes
- **Integration with IPM**, exploring synergies between exotic agents and other pest management strategies

International Organisation for Biological Control – Asia and the Pacific Regional Section

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70 years of *BioControl* — Founded in 1956, still leading