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Editorial

Achievements and new challenges for *Entomologia Generalis*

Giovanni Benelli[1], François Verheggen[2], and Nicolas Desneux[3,*]

[1] Department of Agriculture, Food and Environment, University of Pisa, via del Borghetto 80, 56124 Pisa, Italy
[2] Gembloux Agro-Bio Tech, TERRA, Université de Liège, Avenue de la Faculté d'Agronomie 2B, 5030, Gembloux, Belgique
[3] Université Côte d'Azur, INRAE, CNRS, UMR ISA, 06000 Nice, France
* Corresponding author: nicolas.desneux@inrae.fr

Since 1978, *Entomologia Generalis* publishes important contributions in the field of entomology and arthropod science *sensu lato* (Desneux & Biondi 2018). Following the refocus of journal scope in 2017, *Entomologia Generalis* has been publishing high quality research articles on advances in basic and applied entomology (also encompassing arthropods) (Desneux 2018). The journal has been also increasingly publishing review articles on key topics, as well as more recently shorter documents such as *Letters, Short notes*, and *News* (e.g. Erasmus et al. 2022).

From 2018 to 2022, the number of submitted manuscripts increased by 80%. Of note, *Entomologia Generalis* rejection rate has stabilized around 87–88% in past two years (2021–2022). A significant raise in the journal's impact factor (IF) has also been noted: according to ISI Web of Science, the 2021 IF is 6.608, ranked #2/100 in the Entomology field. According to Scopus (as October 2022), *Entomologia Generalis* is now ranked as #6/172 in the "Insect Science" field, fitting the 96th percentile. The 2021 CiteScore is 7.1. Overall, *Entomologia Generalis* is now recognized as a key journal in the field of entomology.

Such an outstanding performance reflects the huge efforts done by the Associate Editors to select ground-breaking contributions dealing with basic and applied entomology for publication in the journal, the expert reviewers who provided excellent manuscript evaluations, as well as the publishers who ensured that submitted manuscripts were efficiently processed, rapidly published and indexed in databases as early access (ahead of print).

Nowadays, *Entomologia Generalis* dedicates particular emphasis to studies providing major advances on key themes in entomology (and more broadly related to arthropods), notably (but not only) (1) *Basic knowledge and sustainable control strategies of arthropod pests;* (2) *Basic knowledge and sustainable control strategies of arthropod vectors of plant pathogens;* (3) *Biology, ecology and management of arthropod vectors and vector-borne pathogens of medical and veterinary importance;* (4) *Biology and ecology of beneficial arthropods*; (5) *Spread and impact of invasive arthropod species*; and (6) *Side effects of pest management strategies.* These topics are detailed below.

Basic knowledge and sustainable control strategies of arthropod pests. Studying the bio-ecology of arthropod pests is the fundamental prerequisite for the implementation of any successful pest control strategy (Witzgall et al. 2010; Ragsdale et al. 2011; Benelli et al. 2014; Wallingford et al. 2017; Biondi et al. 2018; Kim et al. 2019; Galland et al. 2020). Recently, *Entomologia Generalis* published several studies examining the impact of abiotic factors (e.g. temperature, time of the day) affecting life history, physiological and behavioural traits of key moth pests, such as the European grapevine moth, *Lobesia botrana* (Lepidoptera: Tortricidae) (Iltis et al. 2021), and the spotted wing drosophila *Drosophila suzukii* (Diptera: Drosophilidae) (Sánchez-Ramos et al. 2019), as well as in stored product beetles, like *Oryzaephilus surinamensis*, (Coleoptera: Silvanidae) (Nika et al. 2021). Further research in physiological entomology investigated the importance of protein genes involved in preventing water loss in the tephritid fly *Bactrocera dorsalis* (Diptera: Tephritidae) (Li et al. 2021a), as well as on transcription factors routing moulting and ovarian development in brown planthoppers, *Nilaparvata lugens* (Hemiptera: Delphacidae) (Li et al. 2021b). In another recent study, RNAi-mediated silencing technique was used to shed light on the relation between cuticular hydrocarbons and melanisation in the harlequin ladybeetle, *Harmonia axyridis* (Coleoptera: Coccinellidae) (Zhang et al. 2021). In mathematical and theoretical biology, current knowledge on age-stage two-sex life table was summarized in an authoritative review article by Chi et al. (2020), which had a major impact in the field of entomology; the document has been cited more than 120 times in past two years. *Entomologia Generalis* also welcomes studies based on meta-analyses. Saska et al. (2021) focused on the bias introduced by the simplified method for the estimation of the intrinsic rate of increase of aphid populations. The journal devotes particular attention to the development and field validation of sustainable pest control tools. In this framework, the effectiveness of cop-

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per and kaolin treatments for olive fruit fly, *Bactrocera oleae* (Diptera: Tephritidae), has been investigated (González-Núñez et al. 2021). At the edge of modern pest management, the exploitation of herbivore-induced plant volatiles (HIPVs) to trigger plant defences has been considered in a study by Pérez-Hedo et al. (2021). Novel approaches for simultaneous pest and pathogen management have been also developed. A good example is the proposal of a transformed strain of *Bacillus thuringiensis* (Bt) for the simultaneous management of a beehive beetle pest (*Galleria mellonella*) and sacbrood virus (SBV) through Bt-produced dsRNA targeting the SBV vp1 gene (Park et al. 2021). *Entomologia Generalis* is also interested in providing its readership with insights from the research area of bioinsecticides for managing stored product insects, agricultural, livestock and urban insect pests (e.g. Benelli et al. 2019; Petrovićet al. 2019). Finally, considering the growing importance of RNAi-based tools for insect pest management, *Entomologia Generalis* launched in spring 2022 the Special Issue "*RNAi pesticides, current development and their applications*", with Drs. Dong Wei, Jinzhi Niu, and Su Wang as guest editors.

Basic knowledge and sustainable control strategies of arthropod vectors of plant pathogens. Besides acting as pests, arthropods can also vector severe plant pathogens. In this scenario, *Entomologia Generalis* welcomes studies improving our knowledge of vector-plant pathogen interactions, as outlined in the 2021 Special Issue "*Recent advances on arthropod-borne diseases*" edited by Drs. Giovanni Benelli and Daniele Cornara. Bodino et al. (2021) showed the temporal dynamics of the transmission of *Xylella fastidiosa* by *Philaenus spumarius* to olives. Furthermore, two recent reviews focused on the role of psyllids and phytophagous mites as vectors of plant pathogens (Moreno et al. 2021; de Lillo et al., 2021). Novel tools for plant pathogen vector management has been proposed, as the vibrational disruption approach against (Avosani et al. 2021) and the ATP synthase β silencing, which induced female sterility in a leafhopper phytoplasma vector (Galetto et al. 2021).

Biology, ecology and management of arthropod vectors and vector-borne pathogens of medical and veterinary importance. Besides agricultural, forest and stored product entomology, Entomology Generalis represents a high-quality journal covering the area of medical and veterinary entomology, publishing research and reviews dealing with the biology and ecology of arthropod parasites (Di Giovanni et al. 2021) and vectors (Gutiérrez-Cabrera et al. 2021), their control programs (Wilke et al. 2020), but also on the spread of vector-borne diseases (Wilke et al., 2021), and the development of new protocols for the detection of vector-borne pathogens (Latrofa et al. 2021).

Biology and ecology of beneficial arthropods. Biological control program implementation strongly benefits from detailed insights on biocontrol agent biology and ecology (Messing & Wright 2006; Desneux et al. 2010; Giunti et al. 2015; Wang et al. 2021; Zang et al. 2021).Original research on biocontrol agents published on *Entomologia Generalis* focused on the impact of various factors, such as temperature and availability of different food sources, on the biological and ecological traits of insect predators (Wang et al. 2020; Lumbierres et al. 2021), parasitoids (Damien et al. 2020), and phytophagous insects used for weed control (Jin et al. 2021). Novel protocols for molecular gut-content identification of preys ingested by insect predators have been considered (Xiao et al. 2021). In addition, *Entomologia Generalis* currently hosts a Special Issue entitled "*Achievements and Current Development on Biological Control of Major Invasive Pests*" edited by Drs. Joe Kaser and Xingeng Wang.

Spread and impact of invasive arthropod species. Assessing the spread of invasive insects and mites worldwide is a key task nowadays (Kenis et al. 2009; Benelli et al. 2020; Venette & Hutchison 2021). The journal aims to provide an updated literature on major invasive insects. Recent contributions focused on several major invasive insect species, including – but not limited to – the fall armyworm, *Spodoptera frugiperda* (Lepidoptera: Noctuidae) (Kenis et al. 2022), *Drosophila suzukii* (Diptera: Drosophilidae) (Delbac et al. 2020) and the South America tomato pinworm, *Tuta absoluta* (Lepidoptera: Gelechiidae) (Rostami et al. 2020), as well as on the invasive parasitic mite *Varroa destructor* (Acari: Varroidae) (Hall et al. 2022). To date, *Entomologia Generalis* dedicates to the invasive South America tomato pinworm the Special Issue "*Basic and applied research on* Tuta absoluta*, an ongoing threat in Afro-Eurasia*" edited by Drs. Peng Han, Yi-bo Zhang, Ramzi Mansour, Judit Arnó, Emmanouil Roditakis and Raul Guedes.

Side effects of pest management strategies. Pest control programs lead to a wide number of side effects for human health and the environment (Desneux et al. 2007; Kim et al. 2017). The journal is strongly committed in publishing research dealing with the potential side effects of pesticides, and other pest management tools, including the impact of pesticides on beneficial arthropods, such as biological control agents (Mohammed et al. 2018; Palma-Onetto et al. 2021) and pollinators (Varikou et al. 2019), as well as the mechanisms at the basis of insecticide resistance development (Liu et al. 2017; Paula et al. 2021). On this latter topic, *Entomologia Generalis* recently launched the Special Issue "*Global perspectives on insecticide resistance in agriculture and public health*" edited by Drs. Khalid Haddi, Ralf Nauen, Raul Guedes, and Giovanni Benelli.

Overall, we are proud of the progresses achieved by *Entomologia Generalis* in the last four years and we cordially invite all researchers working in the field of basic and applied entomology to consider *Entomologia Generalis* as key journal for the publication of their ground-breaking research and reviews.

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