

Editorial. A policy of post-pandemic biodiversity science in non-profit organisations: Code of Conduct – Code of Research

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Abstract. For more than five decades the VVE has been actively involved in biodiversity projects. The digital revolution created a new environment where we, in real-time, are networking together. We realise the importance of two-way communication between virtual-real and real-virtual spaces. Part of the correct and result-linked communication strategy is to follow the Code of Conduct and Code of Research that are presented below in this editorial.

Samenvatting. Al meer dan vijf decennia is de VVE actief betrokken bij biodiversiteitsprojecten. De digitale revolutie creëerde een nieuwe omgeving waarin we in reële tijd samen netwerken. We beseffen het belang van tweerichtingscommunicatie tussen virtueel-echte en echt-virtuele ruimtes. Onderdeel van de juiste en resultaatgerichte communicatiestrategie is het volgen van de Gedragscode en Onderzoekscodes die hieronder in dit redactioneel commentaar zijn weergegeven.

Résumé. Depuis plus de cinq décennies, VVE s'implique activement dans des projets de biodiversité. La révolution numérique a créé un nouvel environnement dans lequel nous travaillons en réseau en temps réel. Nous nous rendons compte de l'importance de la communication bidirectionnelle entre les espaces virtuels-réels et réels-virtuels. Une partie de la stratégie de communication correcte et axée sur les résultats consiste à suivre le code de conduite et le code de recherche présentés ci-dessous dans cet éditorial.

Key words: Post-pandemic biodiversity science – Two-way communication – Code of Conduct – Code of Research.

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A policy of post-pandemic biodiversity science

When we all sat in lockdown, many leaders of governmental and non-governmental non-profit organisations related to biodiversity research, stressed the importance of switching to a green-thinking policy, because greener economies are more resilient to climate change, social unrest, and epidemics (Kelly *et al.* 2023). There is no need to convince our members that in post-pandemic times 'return to normal' or 'business as usual' is clearly not the preferable option. The transition to a new way of working, to a new way of communication requires the implementation of new actionable measures and the participation of all our members. Your input is of great value. One of the most common terms we are using today is "sustainable". We all understand that such kind of development is the common goal for biodiversity science, scientific service and tools we are creating.

For more than five decades VVE entomologists have been actively involved in biodiversity projects. *Phegea* was the medium to report their results. Nevertheless, the titanic work of our members only now breaks a certain wall of negligence. This is probably due to the fact that our members gladly and joyfully embraced the advantages of the digital revolution, easily and smoothly switching to visual and digital recording using advanced high-tech applications of micro-photography. In this way, it was possible to create updatable, in real-time, biodiversity platforms like "Catalogue of the Lepidoptera of Belgium" (see <https://projects.biodiversity.be/lepidoptera/>), the usual consulting source for our members and affiliates. VVE members also participated in recording the rarity and density of species in Flanders and provided the Flemish government with the Red List of moths (see <https://publicaties.vlaanderen.be/view-file/56350>).

Digital identification apps are widely used by our work group of Young Entomologists in their educational moth monitoring activities (see <http://www.phegea.org/Root/Jeugdeducatie.htm>).

Digital revolution coupled with real-world biodiversity research created a new environment where we in (near) real time are networking together. Now we are on the threshold of transition to automated digital electronic devices that can be used in entomology, cyber systems, smart sensors and cognitive computing (Metcalf *et al.* 2023).

The interaction between the real and virtual environment in entomology became blurred and took many forms like creating digital models that simulate species occurrences in the real world. We use 3D scanners and printers, we create digital information packages that collect, store and disseminate biodiversity information about species of our interest.

Two-way communication

Having said the above, we realise the importance of communication between virtual-real and real-virtual spaces. The methods of two-way communication in entomology may vary: it can be via networked data collecting, data upload, data entry, or in the form of visualisation of our research results. The frequency of two-way communication also may vary depending on the use case. High-frequency communication is required where rapid changes occur, and actionable knowledge is required to make a proper decision. Actionable knowledge in our scholarly society refers to research work and management. This means that we use an action to obtain intended consequences and these consequences are defined by the biodiversity science we are performing.

Code of Conduct

The book on Carabidae that the VVE published last year caused great interest, not only due to its contents but also due to “The insect collector’s code” published therein (see Peeters 2022: 223). We all feel that working in a multidimensional, multicultural, international environment of entomologists we need a roadmap on how to behave, how to react (or not react), and how to communicate with each other. The editorial board of *Phegea* is strengthened now by a new member, an editor and a professional communicator. Let’s summarize now the Code of Conduct of international scholarly or research organisations (e.g. GBIF, CSIRO, many entomological societies abroad) and see which lessons we can learn:

- We comply with all applicable laws, regulations and European policies;
- We maintain high standards of scientific, and professional practice;
- We are an impartial, authoritative, respected, and trusted source of independent information and advice on biodiversity science for our communities and governmental organisations;
- We conduct our communication and affairs in a way which enhances the reputation of the Flemish Entomological Society, and entomological science in general.

Specifically we

- ensure our scientific and management decisions are well-informed, transparent and able to withstand public scrutiny;
- subject our research to peer review and we are open about areas of uncertainty and gaps in our knowledge;
- manage and use the resources entrusted to us by our members responsibly and in a manner that is efficient, effective, economical and ethical;
- are open about our scientific and general performance, whilst recognising confidentiality requirements;
- are accountable for our actions.

We

- act in a way that upholds VVE’s integrity and good reputation;
- act ethically, in good faith and for a proper purpose;
- treat everyone with respect and courtesy, recognising social and cultural differences;
- recognise, value and respect the diversity, heritage, knowledge, cultural property and connection to the generations that worked before us;
- treat colleagues fairly, equitably and with due consideration;
- are politically impartial and neutral;
- comply with any lawful and reasonable direction given by the Council of VVE that has the authority to give us such directions;

We do not

- make improper use of the VVE membership to gain, or seek, benefit or advantage for ourselves or any other person;
- provide false or misleading information;
- bully, victimise or discriminate against any member;
- behave in a way that intimidates, offends, degrades, insults or humiliates another person.

Code of Research

The border between professional scientists and citizen scientists has become vague. We perform science, so we are all scientists and we all should follow the Code of Research. What are the main demands from society to us, scientists and researchers affiliated with the VVE?:

- maintain high standards of research ethics and conduct consistent with the principles and responsibilities of European laws;
- uphold the scientific reputation of the VVE;
- support and promote a culture of responsible research conduct at VVE and in the field of practice, including undertaking and promoting education and training in this area;
- provide guidance and mentorship on responsible research conduct to other members;
- communicate research methodology, data and findings accurately, responsibly and where appropriate openly and broadly, taking action to correct the record in a timely manner when it is necessary;
- avoid, manage and disclose actual, potential or perceived conflicts of interest or biases in our research;
- appropriately acknowledge the role of others in research;
- respect and properly manage the intellectual property and research data of ourselves and others;
- consider the consequences and outcomes of our research.

We do not engage in research misconduct, including fabrication or falsification of results, and plagiarism.

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