Editorial. Two urgent topics: climate change and biodiversity loss

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Abstract. For quite some time, there has been an active discussion on two urgent topics: climate change and biodiversity loss. Regarding climate change and biodiversity issues we observe the convergence of multiple trends. An interesting practical solution for these devastating environmental problems advocated by our members lies in the digitalization of our everyday life. Artificial Intelligence firmly entered into the entomological practice.

Samenvatting. Er wordt al geruime tijd actief gediscussieerd over twee urgente onderwerpen: klimaatverandering en verlies aan biodiversiteit. Met betrekking tot klimaatverandering en biodiversiteitskwesties zien we de convergentie van meerdere trends. Een interessante praktische oplossing voor deze verwoestende milieuproblemen die door onze leden wordt bepleit, ligt in de digitalisering van ons dagelijks leven. Kunstmatige intelligentie deed zijn intrede in de entomologische praktijk.

Résumé. Depuis un certain temps, une discussion est en cours sur deux sujets urgents : le changement climatique et la perte de biodiversité. Concernant les enjeux du changement climatique et de la biodiversité, de multiples tendances convergent. Une solution pratique intéressante à ces problèmes environnementaux dévastateurs prônée par nos membres réside dans la numérisation de notre vie quotidienne. L'Intelligence Artificielle est fermement entrée dans la pratique entomologique.

Key words: Biodiversity loss— Digitalization – Communication – New technologies.

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Introduction

Two urgent topics: climate change and biodiversity loss

For quite some time now there has been an active discussion on two urgent topics: climate change and biodiversity loss. Both of them have been brought about by human activity. Our attentive readers in Phegea 49-4 had the opportunity to read the Phegea Prize 2021 winning article on one species response to climate change in Belgium and the Netherlands (Couckuyt 2021). The response to this environmental crisis became a social obligation for us all that changed our perceptions towards nature, energy, waste, plastic and our way of life. Living at a time when 75% of Earth's land surface has been fundamentally altered by human activity and the threats to species are of a similar magnitude to that of the great Cretaceous-Paleogene extinction, our response to rapid degradation of ecosystems should be strong (Nielsen *et al*. 2021). It became clear that human prosperity and well-being depend on wild habitats and the diversity of species, including insects, and this approach is beginning to take a much stronger position now in wider environmental debates. The present pandemics taught us, humans, a bitter lesson about what kind of devastating effects with unforeseen consequences can happen when humans enter the sphere of wild habitats and their highly overexploited biodiversity.

How can we tackle these topics

Regarding both climate change and loss of biodiversity, gestures are made by an assortment of unrelated interests, all of which are intended to have practical consequences: for example, the EU Parliament declares a climate emergency situation, thousands of young climate activists march in the streets of Brussels, documentary films about nature "Living Planet" and Sir David Attenborough's series are popular as never before, scientists are alerted by disturbing reports of IPCC and IPBES, etc. An interesting practical contribution towards a solution to these serious environmental threats, advocated by our members lies in the digitalization of our everyday life (George *et al*. 2021), our social life and of course entomology. The variety of digital technologies that our members use and present via channels of digital media becomes a significant challenge to classical entomological approaches. Interestingly, Artificial Intelligence and Machine Learning (AI/ML) firmly entered into the cell phones of our members in the form of moth and plant identification apps (ObsIdentify 2022). And it is only a beginning since these digital technologies are advancing rapidly, and many (non-)governmental and non-profit organizations, including our VVE, are eager to exploit the digital potential. We are also looking forward to "smart" entomology that reorganizes our activities in a fairer, more decentralized, open, accessible, efficient and reliable way (Fig. 1).

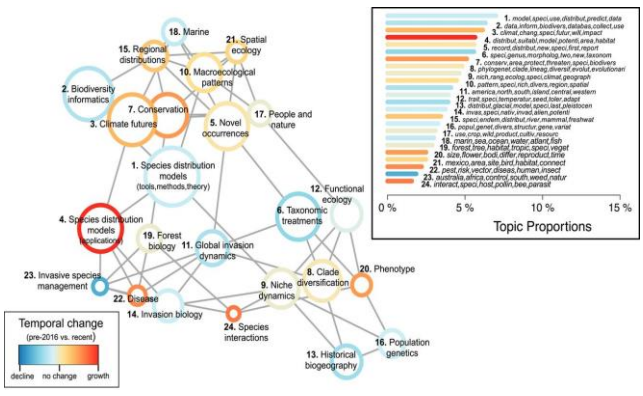

Fig. 1. Structural topic model results from 4,035 studies (following Heberling *et al*. 2021 available from https://www.pnas.org/content/118/6/e2018093118

Given the scientific and societal urgency to combat the man-made climate change and biodiversity loss our scholarly society does not remain on the side lines. From the moral point of view, technological innovations develop our activities with a new purpose: to tackle crucial sustainability challenges by providing society with reliable biodiversity data in electronic format that can be used, transmitted and creatively deployed.

Biodiversity data are interlinked with all scientific disciplines

The accessibility of existing biodiversity data information requires an urgent integration of disconnected datasets, consolidation of data and cooperation by data administrators.

The VVE developed a biodiversity data presentation platform, the *Catalogue of the Lepidoptera of Belgium* https://projects.biodiversity.be/lepidoptera/ and signed the first agreement with Lepiforum https://lepiforum.org/ on digital data sharing, which will enable both platforms to complement each other with reliable photographs and taxonomic information. Both platforms are aligned now. From a broader perspective, biodiversity research has been transformed to a big data revolution, extracting previously inaccessible "dark data" from collections and archives through the participation of citizen scientists as our members are. This is leading to unprecedented biodiversity data mobilization all over the world and in all scientific disciplines (Heberling 2021). The cross-disciplinary biodiversity data presentation and mobilization via scientific networks has resulted in an integrated cross-linked biodiversity science landscape (Fig. 2) based on data aggregation, integration, use and reuse in diverse disciplines of science including conservation, food security, human health and science policy interface.

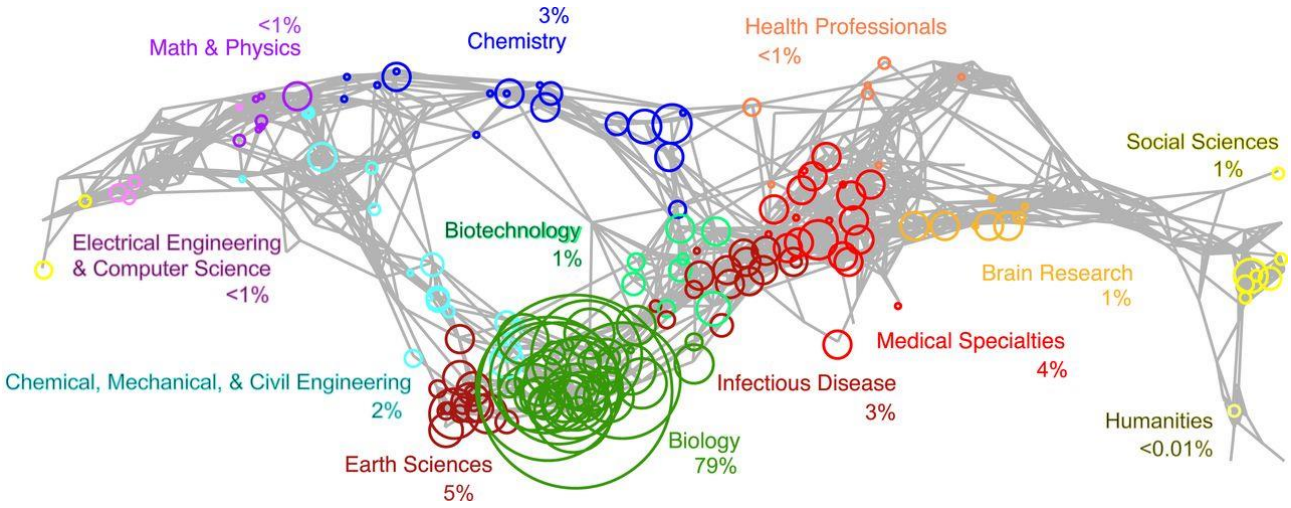

Fig. 2. Visualizing the network of interdisciplinary knowledge facilitated through GBIF-mediated data in the context of a broader research landscape (following Heberling *et al*. 2021 available from https://www.pnas.org/content/118/6/e2018093118.

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