Disciplines must be integrated to successfully conserve biodiversity

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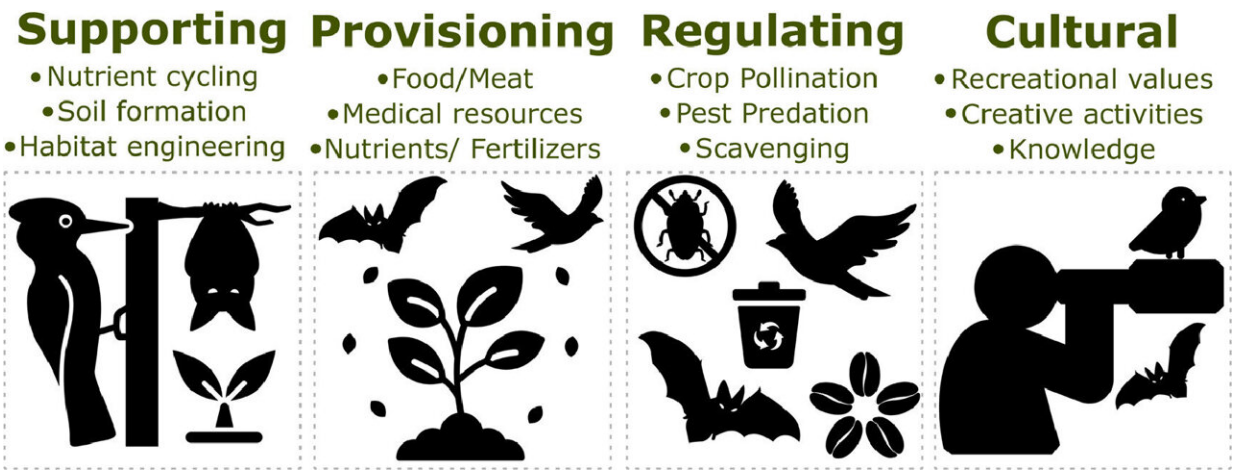

Fig. 1. Examples of bird- and bat-mediated ecosystem services linked to human well-being. All services present opportunities for the development of more sustainable agricultural management. Credit: DOI: 10.1016/j.baae.2021.06.010

Innovation arises through the transfer of research results into practice.

Valuable research results threaten to gather dust in university libraries if they are not put into practice. While transdisciplinary research seems to become increasingly important in sciences, funding programs and media, there are still many misunderstandings to be clarified. In their recently published article, ecologist Bea Maas from the University of Vienna and her international co-authors discuss the opportunities and challenges of

this disciplinary integration. With numerous examples from bird and bat research, they show how different disciplines such as biology, psychology and technology can jointly contribute to and improve the sustainable development of agricultural landscapes.

The United Nations Global Goals set specific requirements for sustainable development, often at the crossroads of society, economy and the environment. Strong partnerships are highlighted as key to achieving the Sustainable Development Goals. "From research to practice is no different," explains Bea Maas, lead author of the recent perspectives article in Basic and Applied Ecology. She and her colleagues argue for more cross-disciplinary collaboration between different disciplines and stakeholders. Whether and how this collaboration can contribute to achieving sustainability goals depends, the authors say, on whether findings from other disciplines are merely taken into account or actually integrated.

"What seems obvious is often not easy to implement due to widespread misunderstandings and structural hurdles," Maas emphasizes. According to the authors, multi-, inter- and transdisciplinary research approaches are often confused or used as synonyms—even though they are distinguished by the increasing degree of integration of different disciplines. In addition, they say, there is a lack of support for mediation between expert groups and respective decision-makers. "Increased funding and particularly expert guidance of more integrative, trans-disciplinary research has enormous potential to foster research and innovation in ecology and beyond," says co-author Carolina Campo-Ariza of the University of Göttingen.

Using the example of bird- and bat-mediated ecosystem services, the three authors illustrate the close links between society, the economy and the environment in sustainability development. "We know a lot more about how to use these opportunities than we actually implement,"

explains co-author Christopher Whelan of Chicago University. The authors discuss benefits of transdisciplinary work, such as increased data quality, innovation and productivity, as well as potential pitfalls of these approaches. "A stepwise approach is critical to the success of integrative collaboration," Maas explains. She and her colleagues use international examples from bird and bat research to describe how this can save costs and promote the implementation of research results. Maas concludes, "Many bird and bat species, as well as their economically valuable ecosystem services, could not have been protected in the first place without integrative approaches! This win-win way of thinking can take us a decisive step forward in sustainable development."

More information: Bea Maas et al, Cross-disciplinary approaches for better research: The case of birds and bats, *Basic and Applied Ecology* (2021). DOI: 10.1016/j.baae.2021.06.010

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