

Biodiversity Days 2025: Where Science Meets Society

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The biodiversity crisis poses severe threats to livelihoods, societal stability, and environmental sustainability, with scientific skepticism often hindering urgently needed conservation measures. Participatory science communication and accessible dissemination of research can bridge the gap between science and society, fostering engagement, trust, and informed decision-making. Educational formats – such as programs, events, guided tours, and workshops – make science tangible and relevant for diverse audiences, as demonstrated during *Biodiversity Days 2025*, where a session organized by the Faculty of Life Sciences at the University of Vienna attracted 25 contributions, highlighting the strong demand for dialogue. Three initiatives at the University of Vienna exemplify effective approaches: the *Experience Science Network*, which connects outreach activities across disciplines and brings research into public spaces; the *Teaching and Learning Lab „Future Lab Life Skills: Nutrition & Sustainability“*, which links university and school education to raise awareness of the interconnections between nutrition, climate change, and biodiversity; and the *Konrad Lorenz Research Center*, which provides hands-on experiences in behavioral biology focusing on wild animals in their natural habitats, and fosters public participation through citizen science with positive impacts on regional development. Together, these initiatives demonstrate that targeted communication and participatory formats can strengthen the science–society connection, increasing acceptance of biodiversity conservation and supporting sustainable development.

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Die Biodiversitätskrise bedroht Lebensgrundlagen, gesellschaftliche Stabilität und ökologische Nachhaltigkeit und wird durch wissenschaftsskeptische Haltungen, die dringend notwendige Schutzmaßnahmen behindern, zusätzlich verschärft. Partizipative Wissenschaftskommunikation und der barrierefreie Zugang zu Forschungsergebnissen können die Kluft zwischen Wissenschaft und Gesellschaft überbrücken, Engagement und Vertrauen fördern sowie fundierte Entscheidungsfindung unterstützen. Bildungsformate wie Programme, Veranstaltungen, Führungen und Workshops machen Wissenschaft für unterschiedliche Zielgruppen greifbar und relevant. Dies zeigte sich während der *Biodiversitätstage 2025*, bei denen eine von der Fakultät für Lebenswissenschaften der Universität Wien organisierte Sitzung mit 25 Beiträgen das große Bedürfnis nach Dialog deutlich machte. Drei Initiativen der Universität Wien verdeutlichen wirksame Ansätze: das *Netzwerk Experience Science*, das Outreach-Aktivitäten über Disziplinen hinweg vernetzt und Forschung in den öffentlichen Raum bringt; das *Teaching and Learning Lab „Future Lab Life Skills: Ernährung & Nachhaltigkeit“*, das Universitäts- und Schulbildung verbindet, um das Bewusstsein für die Zusammenhänge zwischen Ernährung, Klimawandel und Biodiversität zu stärken; sowie die *Konrad Lorenz Forschungsstelle*, die altersgerechte, praxisorientierte Erlebnisse in der Verhaltensbiologie mit Fokus auf Wildtiere in ihrem natürlichen Lebensraum bietet und durch Citizen-Science-Projekte das öffentliche Interesse fördert und Impulse für die regionale Entwicklung gibt. Gemeinsam zeigen diese Initiativen, dass zielgerichtete Kommunikation und partizipative Formate die Verbindung zwischen Wissenschaft und Gesellschaft stärken, die Akzeptanz des Biodiversitätsschutzes erhöhen und nachhaltige Entwicklung unterstützen können.

Keywords: sustainability, education, subject didactic, science, society, science communication, third mission, biodiversity.

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Introduction

The biodiversity crisis threatens essential ecosystem services, leading to health and economic repercussions (Abbasi et al. 2023). It has profound implications for livelihoods, societal challenges, and potential conflicts, emphasizing the need for effective science communication. As biodiversity declines at an alarming rate due to habitat destruction, pollution, overexploitation, climate change, and invasive species, the consequences ripple across all aspects of life (Pörtner et al. 2023). Economic instability, displacement, and increased vulnerability to natural disasters are only a few examples (Pörtner et al. 2023).

Addressing the biodiversity crisis requires coordinated and informed action on multiple levels – from policymakers, decision makers in education and scientists to local communities and individuals (Pörtner et al. 2023). Engaging the public through educational programs, workshops, and guided tours can enhance understanding and acceptance of scientific facts (Geschke et al. 2023). However, scientific skepticism, misinformation, and a general disconnect between science and the public hinder progress. Despite the abundance of data and warnings from experts, many people still struggle to grasp the urgency of biodiversity loss to their own lives (Bradshaw et al. 2021). Scientific findings often remain locked within academic publications or communicated in ways that are inaccessible to non-specialists. As a result, the gap between scientific knowledge and societal action gets broader. Thus, fostering a culture of understanding and collaboration between science and community is vital. It is also an essential task of educational systems to encourage engagement with core challenges and should be part of curricula over all types of schools (Rudolph 2023).

Participatory science communication can play a crucial role in bridging the gap between the limits and opportunities of scientific knowledge and the need for emotional engagement and understanding at both individual and community levels, fostering awareness and motivating action against biodiversity loss (Lees et al. 2021). Moreover, participatory approaches invite collaboration, dialogue, and shared ownership of current levels of awareness and knowledge. When people are actively involved in scientific inquiry – through citizen science projects, co-designed research, and/or local conservation initiatives – they are more likely to understand and trust the robustness of the results. This trust, in turn, fosters a sense of responsibility and empowerment, encouraging them to act on the knowledge they have gained. Such an understanding of science should be cultivated from an early age through appropriately designed school education (Campbell & Howitt 2024).

Tab. 1: Overview of the different initiatives, target groups and formats, including the number of people reached. – **Tab. 1:** Überblick über die verschiedenen Initiativen, Zielgruppen und Formate, einschließlich der erreichten Personenzahlen

Initiative – Organisation	Target Groups	Formats	People reached (directly and indirectly)
Experience Science Network*	Children	Events	> 20.000 per year
	School Classes	Courses, Workshops,	
	Groups	Online presence,	
	Interested Participants	publications	
FuLaLiS	Students	Events	> 1.000 per year
	Teachers	Courses, Workshops,	
	Children	Online presence,	
	School Classes	publications Subject-Didactic Research Teaching	
KLF Grünau	Children	Events	> 9.000 per year
	School Classes	Courses, Workshops,	
	Groups	Online presence,	
	Interested Participants	publications	
	Students		

* included in this context: AECC Biologie, Monkey Mountain Affenberg, Botanical Garden, Haidlhof Research Station, Zoologische Sammlung

Another key element of effective science communication is low-threshold dissemination – the practice of making scientific information accessible to a broad audience, regardless of prior knowledge, education level, or social background. This involves highlighting relevant aspects, using clear, jargon-free language, employing visual storytelling, incorporating culturally relevant examples, and offering multiple formats to reach different learning styles and communities. It also means meeting people where they are – both literally and figuratively: in schools, libraries, museums, community centers, public parks, and online spaces as well as in places where research “happens” and “lives” such as teaching and learning laboratories (*Lehr-Lern-Labore*). The goal is to remove barriers to engagement and make science feel inclusive, relevant, and meaningful to everyday life (Wilkinson & Webber 2024).

When participatory methods and accessible communication are combined, they can transform passive awareness into active engagement (McKinnon & Voos 2014). People who feel heard, respected, and informed are more likely to support biodiversity-friendly policies, make environmentally conscious choices, and advocate for systemic change. Various formats have proven effective in bringing science to life and inspiring action. Educational programs in schools and universities can nurture curiosity and environmental literacy from a young age. Public events such as science festivals, exhibitions, and open labs create opportunities for informal learning and personal interaction with researchers. Guided nature tours and citizen science workshops allow participants to observe biodiversity firsthand, collect data, and contribute to real-world projects (Bonney et al. 2016). These experiences not only convey

scientific facts but also foster emotional connections to the natural world – connections that are crucial for motivating long-term behavioral change.

The session “Begegnungen von Wissenschaft und Gesellschaft: Orte, Programme, Mehrwert, Perspektiven” at the “Tage der Biodiversität 25” held in Vienna (Austria) in February 2025 brought together actors involved in science communication to discuss the advantages and challenges associated with this approach. The call for abstracts was highly successful in terms of registrations: 25 contributions reflected the strong interest in, and need for, exchange in the field of science communication. We present here the outcomes of the presentations, focusing on the following three contributions from the session:

1. The *Experience Science Network* at the Faculty of Life Sciences
2. The Teaching and Learning Lab *Future Lab Life Skills: Nutrition & Sustainability*
3. The hands-on experiences in behavioral biology at the Konrad Lorenz Research Center

We base the present contribution on the current discourse of science communication and sustainability, share our experiences and report lessons learned for future research. An overview of the different initiatives, target groups and formats, including the number of people reached is presented in Tab. 1.

Public engagement at the Faculty of Life Sciences, University of Vienna

The Network “Experience Science” at the Faculty of Life Sciences, University of Vienna – Bringing Science to Life: The Role of Outreach and Networking in Fostering Scientific Literacy

In an increasingly scientific and technologically advanced society, fostering scientific literacy from an early age is essential. It empowers individuals to make informed decisions about their health, environment, and everyday lives, while also encouraging active political and civic engagement. Scientifically literate citizens are better equipped to understand the implications of global challenges – from climate change to pandemics – and to critically evaluate information in an era of misinformation (Howell & Brossard 2021). Science communication plays a pivotal role in supporting this vision. It not only enriches education and supports the development of informed citizens but also helps train highly qualified professionals and contributes to a nation’s overall innovation capacity and well-being.

At the Faculty of Life Sciences of the University of Vienna¹, Austria, research, teaching, and so-called “third mission” activities take place both at the main campus in Vienna and at several satellite locations (hereafter: *Außenstellen*) distributed across the country and

¹ <https://lifesciences.univie.ac.at/innovation-impact/experience-science/>

internationally, such as the La Gamba Tropical Field Station² in Costa Rica. These external sites are designed to serve as bridges between academia and the public, offering diverse and professionally curated formats for science communication. They span various disciplines, including behavioral biology, botany, zoology, biology and nutrition education, biodiversity, environmental protection, and sustainability.

Through tailored educational programs, public events, guided tours, exhibitions, and interactive workshops, these *Außenstellen* bring science out of the lab and into the lives of people from all walks of life. Their work is not only about presenting scientific facts but about engaging audiences emotionally and intellectually, creating memorable experiences that spark curiosity and inspire action.

In 2024, thanks to the initiative and collaboration of numerous individuals and with strong leadership from the Faculty of Life Sciences, a coordinated effort was launched to reflect on and analyze the current outreach activities, objectives, and target groups of these external units. This process of self-evaluation and strategic development resulted in the creation of a unified and forward-looking network known as *Experience Science*.

The *Experience Science Network* reflects a shared vision of interdisciplinary collaboration, mutual learning, and increased visibility of the Faculty's science communication initiatives. By pooling resources and expertise, the network aims to enhance the coherence, impact, and sustainability of outreach activities across all participating locations. It supports the development of participatory formats and the integration of cutting-edge research topics into public-facing events, ensuring that science is not only understood but also felt to be meaningful and relevant in today's world.

Key institutions within the network – such as the Konrad Lorenz Research Center³, the Botanical Garden⁴, the Haidlhof Research Station⁵, the Affenberg Research Station⁶, and the La Gamba Tropical Field Station – play a critical role in making science tangible and accessible. Whether it's studying endangered species, investigating animal cognition, or promoting the sustainable use of biodiversity, these efforts highlight the relevance of research to both local and global issues. Science communication here is not a one-way transmission of knowledge, but a dialogue – an invitation to explore the natural world and understand the science that shapes our future.

The work of the *Außenstellen* is further strengthened through collaborations with units like the Austrian Educational Competence Center Biology⁷ and the Working Group Subject Didactics in Home Economics and Nutrition⁸ which is located at the Department of Nutritional Sciences and the Center for Teacher Education. These departments contribute pedagogical and subject didactic expertise and creative formats in teaching and learning that

2 <https://www.lagamba.at/en/>

3 <https://klf.univie.ac.at/de/>

4 <https://botanischergarten.univie.ac.at/en/>

5 <https://haidlhof.org/>

6 <https://affenberg.univie.ac.at/>

7 <https://aeccbio.univie.ac.at/>

8 <https://nutrition.univie.ac.at/forschung/fachdidaktik-haushaltsoekonomie-und-ernaehrung-asso-z-prof-dr-paed-habil-claudia-maria-angele/>

highlight key issues in sustainability, nutrition education, and environmental awareness. Their collaboration enriches the broader outreach landscape and deepens the pedagogical and the subject didactic impact of the network's activities.

The formation of the *Experience Science Network* highlights the importance of strategic networking and synergy development within academic science communication. In a field where visibility, relevance, and public trust are all crucial, effective collaboration multiplies impact. Through shared infrastructure, coordinated programming, and a unified identity, the network enhances each location's reach while maintaining the unique character and disciplinary focus of each site. Furthermore, it opens up new possibilities for joint funding, evaluation, and long-term planning, positioning the Faculty as a leader in innovative science communication within Austria and beyond.

Importantly, the initiative also aligns with broader European and global trends that emphasize open science, citizen engagement, and responsible research and innovation (RRI). Science communication is no longer viewed as an optional extension of research, but as an integral part of the scientific process – one that ensures relevance, accountability, and public involvement. The *Experience Science Network* stands as a model of how universities can rise to this challenge by embedding engagement into their institutional tasks.

As demands for societal dialogue, scientific accountability, and ecological literacy grow, the Faculty of Life Sciences' commitment to outreach exemplifies the potential of science communication to transform not only minds but communities. The *Experience Science Network* provides an infrastructure and ethos for this transformation. By connecting research, education, and society through engaging, locally rooted, and globally relevant programs, it demonstrates how science can be both rigorous and resonant – something to be experienced, shared, and lived.

Nutritional sciences and sustainability, nutrition education, teacher education: The Teaching and Learning Lab “Future Lab Life Skills – Nutrition and Sustainability”

Against this background, the teaching and learning laboratory *Future Lab Life Skills (FuLaLiS) – Nutrition and Sustainability* is currently being established at the Department of Nutritional Sciences (Faculty of Life Sciences) and the Center for Teacher Education at the University of Vienna. This future-oriented lab focuses on the didactic development of topics related to the complex interrelationships between nutrition and sustainability. The didactic concept developed by Angele (2023) is innovative in the context of nutrition education and secondary school teacher professionalisation internationally. Construction of the lab was completed in autumn 2025. Development and implementation of the first seminar project for student teachers in summer term 2026 – including workshops for school classes – will be scientifically monitored as part of a PhD project (Enghart 2025).

FuLaLiS offers an innovative link between research, teaching, and third-mission activities in the Subject Didactics of Home Economics and Nutrition. It is designed as a multi-purpose space: a venue for subject-specific teacher training, an extracurricular learning centre for pupils, a platform for science communication, and a place for professional development for nutrition educators and for subject-didactic research. Teaching and learning labs bring

together actors from multiple groups – students, pupils, teachers, educators, researchers, and experts from diverse sectors. Research-based, subject-related, and interdisciplinary learning are central for all participants. For teacher education, the lab provides explicit opportunities to link theory and practice by allowing prospective teachers to design, test, and refine their teaching strategies based on scientific criteria.

The thematic focus includes nutrition, consumption, and sustainability – key issues for both global society, individual health and sustainable lifestyle. In addition to nutritional sciences, the lab draws on transdisciplinary frameworks such as Planetary Health and the One Health approach, highlighting that human health, diets, and food security ultimately depend on the health of the planet (Gruetzmacher et al. 2015; Willett et al. 2019). Education plays a crucial role in both approaches, as lack of knowledge about these interconnections is considered a major factor in exceeding planetary boundaries. It is a didactic question to clarify what competences people need in order to fulfill their responsibilities as global citizens and to act responsible in terms of sustainable nutrition and consumption. The associated challenges for the Subject Didactics of Home Economics and Nutrition lie above all in the research-led development and testing of innovative learning settings that focus on promoting informed judgement, and responsible action (Wagner-Kerschbaumer et al. 2023).

The lab's didactic principles follow the “knowing – valuing – acting” model, integrating science orientation, competence orientation, subject orientation, and action orientation (Angele et al. 2021).

FuLaLiS features three closely linked learning spaces:

- **Learning Room 1:** Seminar/discourse room with modern technology for analogue, digital, and hybrid learning.
- **Learning Room 2:** Demonstration and learning kitchen with fixed and mobile units.
- **Learning Room 3:** Laboratory for sensory experiments and other hands-on activities.

The integration of these spaces enables combined theoretical, sensory, and practical learning experiences. The lab will also support joint workshops across the *Experience Science Network* via digital connectivity, contributing directly to the sustainability goals of the University of Vienna through targeted knowledge transfer and science communication on topics such as sustainable diets, climate impacts, global health, and planetary health.

Behavioral Biology and Societal Literacy: The Konrad Lorenz Research Center: Bridging Science, Education, and Society through Behavioral Biology

The Konrad Lorenz Research Center (KLF), named after Nobel Laureate Konrad Lorenz, has, for over 50 years, stood as a bridge between the scientific study of animal behavior and the public's understanding of it. Established in 1973 and a core facility of the University of Vienna since 2012, the KLF has carved out a unique role in science and society: to study wild birds in their natural environment using evolutionary, phylogenetic, mechanistic, and developmental perspectives – while sharing that knowledge directly with the people whose lives and landscapes these birds inhabit.

At its heart, the KLF operates on a simple but profound conviction: science should not be confined to lecture halls and journals – it should be lived, experienced, and shared. Through a combination of cutting-edge research, hands-on outreach, and participatory approaches, the center shows how behavioral biology can become part of people's lives, sparking curiosity, understanding, and care for the natural world.

Citizen science is one of KLF's hallmarks. Whether through large-scale events like the *Long Night of Research* or intimate settings such as *KinderUniAlmtal*⁹, people of all ages are invited to observe, ask questions, and even collect data. Open-access publications such as *Frontiers for Young Minds*¹⁰ distil complex research into age-appropriate formats, ensuring that even the youngest readers can engage with science (Puehringer-Sturmayer et al. 2021; Frigerio et al. 2023, 2024). These are not only educational encounters – they are emotional ones, fostering a sense of wonder and responsibility that often lasts a lifetime.

Each year, KLF reaches around 10,000 people, many through collaborations with local schools. These partnerships give students and teachers authentic, first-hand experience with research while enriching the centre's own datasets. Such collaborations also strengthen the University of Vienna's presence in rural regions, contributing to regional development while building a scientifically informed public.

A major step forward in this mission is the creation of the *Open Science Center*¹¹ in the *Cumberland Wildpark*¹², supported by the State of Upper Austria. This physical space invites visitors to meet researchers, witness science in action, and understand how knowledge is built – deepening the dialogue between science and society.

The evidence from KLF's projects is clear:

1. **Data quality** – With proper training, volunteers of all ages produce reliable, publishable data.
2. **Educational impact** – Participating in research strengthens conceptual understanding, critical thinking, teamwork, and communication skills (Hirschenhauser et al. 2019, 2022).

These findings reinforce what the literature already shows (Agre & Leshner 2010; Richter et al. 2019): public engagement is not an optional extra but a core part of science, especially in areas – like climate change and biodiversity loss – where societal action is essential. Behavioral biology is particularly powerful here because animal behavior is immediately observable, relatable, and rich with stories.

Challenges remain – public mistrust in science, polarised media, and competing narratives – but the KLF's example shows that scientific rigour and public accessibility are not mutually

9 <https://www.kinderuni-ooe.at/kinderuni-ooe/almtal/>

10 <https://www.kinderuni-ooe.at/kinderuni-ooe/almtal/>

11 <https://klf-opensciencecenter.univie.ac.at/>

12 <https://wildpark.at/>

exclusive. They are mutually reinforcing. The center's programs have inspired national prize-winning student projects and long-term conservation support.

The forthcoming *Open Science Center* will take this work further, offering real-time data, workshops, and participatory research opportunities. This integration of open data, technology, and education will help ensure that conservation becomes a shared societal responsibility (Levis et al. 2024; see also the UNESCO Recommendation on Open Science, 2021). In the end, the story of citizen science and bird behavior is the story of how science, when opened to the public, can transform not only what we know – but how we care (Ballard et al. 2024).

Discussion

In science – as in nature – connections matter. The exploration of synergies and networking in academia, particularly in outreach and science communication, reveals that relationships are not peripheral to the work of science; they are central to it. More than just a professional strategy, networking has become a cornerstone of how knowledge is created, shared, and applied within both academic and public domains. It facilitates meaningful collaborations and amplifies the outreach and impact of scientific communication efforts, making science more visible, accessible, and responsive to societal needs.

Academic networking serves multiple functions. At its core, it fosters relationships that can lead to collaborative research, joint publications, new project development, and even career advancement. According to Borger (2024), individuals who engage in sustained networking efforts often find themselves better positioned to access institutional resources and cross-disciplinary opportunities. They are also more likely to find mentors, form research consortia, and gain exposure to cutting-edge developments outside of their immediate academic circles.

In the context of science communication, collaboration is indispensable. Translating complex scientific findings into accessible and engaging content for non-specialist audiences requires input from diverse professionals, including scientists, educators, journalists, and digital media experts. Bridging the gap between academic research and public understanding requires fostering interdisciplinary partnerships that merge technical expertise with storytelling, design, and audience engagement strategies (Trench 2023).

The digital era has broadened this landscape. Academic social platforms such as ResearchGate and LinkedIn have become vital spaces for exchanging ideas and building networks across borders. They enable researchers to share publications, receive feedback, and connect with potential collaborators across disciplines and continents. By leveraging digital connectivity, researchers can now extend their influence far beyond their institutions and participate in global conversations about science and society (Fährnich 2021). Digital platforms allow for more targeted communication strategies and facilitate interactions with diverse audiences. The ability to tailor content and connect with stakeholders in real time can significantly enhance the effectiveness of outreach efforts. Podcasts, webinars, virtual workshops, and social media campaigns are all part of a growing toolkit that can help researchers build relationships with communities, educators, and policymakers alike (Trench 2023).

In the life sciences, networking is particularly critical. The problems we face – biodiversity loss, climate change, emerging diseases – are too complex for any one institution or discipline to solve alone. Progress depends on what Gubbins & Dooley (2013) describe as “knowledge-generating networks,” where tools, data, methods, and insights are openly shared. These networks deliver clear synergies, but they also evolve, presenting new opportunities and new barriers at different stages. Navigating these shifts requires trust, adaptability, and sustained commitment.

Equally important is who gets to be part of these networks. Academic conferences, often the gateways to such opportunities, can be intimidating or exclusionary to researchers from underrepresented backgrounds. Implicit bias, lack of representation, and restricted access to established circles can reinforce inequities (Dennissen et al. 2019). Changing this requires intention: mentorship programs, inclusive event design, and policies that place diversity at the core of leadership and participation. The entire academic ecosystem benefits when underrepresented voices are welcomed and supported: innovation expands, perspectives deepen, and the culture of science grows more just (Posselt 2020).

Conclusion

Networking in academia – especially in outreach and science communication – is not an optional extra. It is the ecosystem through which ideas, people, and opportunities connect. When tended with care, these networks do more than amplify research – they create communities of practice that are collaborative, inclusive, and resilient. They make science visible and accessible, and they keep it accountable to the societies it serves. Educational outreach shows this power vividly. A child who bands a bird, counts pollinators, or maps a wetland is not simply “helping with data collection”, they are stepping into the role of biodiversity ambassador. They carry that experience, and the sense of stewardship it builds, into the rest of their lives. Teacher education students, who explore sustainability topics from a subject-didactic perspective, serve as advocates and multipliers in these areas, as they will be teaching future generations of young people. As science communication becomes more participatory, more digital, and more immediate, the ability to form and sustain authentic connections will decide how well we serve both science and society. The future of biodiversity conservation will belong to those who see networking not as a strategy, but as a responsibility – to each other, to the public, and to the living world we study, echoing the vision of the Kunming-Montreal Global Biodiversity Framework¹³ to foster inclusive, participatory, and society-wide action for nature.

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¹³ <https://www.cbd.int/gbf>

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