TETTRIX

Source: Image from Getty Images

POLICY BRIEF

Taxonomy in action for the Kunming–Montreal Global Biodiversity Framework

HOW TETTRIX STRENGTHENS THE KNOWLEDGE, CAPACITY AND CONNECTIONS NEEDED FOR BIODIVERSITY ACTION

Funded by the European Union

Executive summary

Achieving the goals of the Kunming–Montreal Global Biodiversity Framework (KMGBF) depends on knowing what species exist, where they occur and how they can be reliably identified. Taxonomy provides this essential foundation. Yet taxonomic knowledge and expertise remain unevenly distributed, important knowledge gaps persist, while relevant data, tools and services are often difficult to access.

The TETTRIs (Transforming Taxonomy through Training, Research and Innovation) and TETTRIX (TETTRIs neXt level for the taxonomy of tomorrow) EU-funded projects seek to strengthen the European taxonomic ecosystem and its capacity to respond to urgent biodiversity challenges. Building on the experimentation and foundations established through TETTRIs, TETTRIX aims to integrate knowledge, modernise tools, develop skills and connect relevant taxonomic resources with decision-making.

TETTRIX contributes strongly to **KMGBF Targets 20 and 21,** by improving scientific and technical capacity to accelerate discovery and understanding of biodiversity, while increasing the availability and accessibility of biodiversity knowledge. These enabling functions, in turn, support action under **Target 4 on species conservation and recovery, Target 6 on invasive alien species, and Target 14 on mainstreaming biodiversity in decision-making**. Through a connected set of services and community mechanisms, TETTRIX will allow turning taxonomic knowledge into a practical foundation for biodiversity action.

Why taxonomy is an implementation issue

Species must be identified before their distributions can be mapped, their status assessed and their recovery monitored. Invasive alien species must be reliably distinguished from native or closely related taxa. Biodiversity data must refer to consistent taxonomic concepts if information from different sources is to be combined and used with confidence.

This is particularly challenging for poorly studied groups and so-called **“dark taxa”**, where large parts of biodiversity remain undescribed, difficult to identify or insufficiently represented in reference systems. At the same time, expertise in many taxonomic groups is scarce, while emerging technologies such as genomics and artificial intelligence are changing how species can be discovered, identified and monitored.

Scaling up our capacity to react goes further beyond producing more taxonomic information. **The taxonomic system itself must become more connected, accessible, technologically capable and responsive to the needs of biodiversity policy and practice**. TETTRIX tackles this systemic challenge by bringing together knowledge, people, technologies and communities into an integrated European taxonomic ecosystem.

Source: Naturalis Biodiversity Center

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Five KMGBF targets where stronger taxonomy can make a difference

The distinctive contribution of TETTRIX is to strengthen the **knowledge and capacity that make information trustworthy and implementation possible.**

Targets **20 and 21** provide the enabling foundation: ensuring that scientific capacity, technologies and cooperation are strengthened, and that relevant biodiversity knowledge is available and accessible. TETTRIX contributes directly to both by reinforcing taxonomic expertise, modernising identification approaches, structuring knowledge and making tools, data and services easier to access.

These capacities then support action across the Framework. Better taxonomic knowledge strengthens the evidence needed for **species conservation and recovery under Target 4** and the reliable identification, surveillance and early detection required under **Target 6 on invasive alien species**. By connecting taxonomic expertise with policy, planning, business and other users, TETTRIX also supports the wider integration of biodiversity into decision-making envisaged under Target 14.

How TETTRIX turns taxonomic knowledge into action

TETTRIX organises its contribution around four interlinked areas. Together, they connect the production of reliable biodiversity knowledge with the people, tools and interfaces needed to put that knowledge to use.

1 UNDERSTAND BIODIVERSITY

Generate, structure and connect reliable species-level knowledge

↘ Targets: T21 + T4 + T6

Reliable biodiversity action starts with reliable taxonomic knowledge. TETTRIX overcomes data shortages in species discovery and identification, improving the structure and interoperability of taxonomic information, and developing methods for poorly described and "dark" taxa, moving from the unknown to the known Europe.

The **European Taxonomic Reference Catalogue** will provide a harmonised backbone for authoritative and interoperable taxonomic knowledge. **TaxoTrack** will help identify and track gaps in taxonomic knowledge and research, while **GHOST** focuses on approaches for bringing dark and poorly known taxa into biodiversity knowledge systems. Through the **Species AI Lab (SAIL)**, TETTRIX will advance the application of artificial intelligence and genomic aspects to species, incorporating new data dimensions into an integrative taxonomic system of references.

Together, these outputs consolidate the knowledge base underpinning biodiversity identification, monitoring, species assessment and conservation, while also increase the capacity to recognise and rapidly respond to invasive alien species.

2 BUILD CAPACITY TO ACT

Equip people and organisations with skills, expertise, tools and services

↘ *Targets: T20 + T21 + T14*

Knowledge has little impact if the expertise and infrastructure required to use it are unavailable. TETTRIX therefore invests in both **human capacity and access to taxonomic resources**.

The **TETTRIX Academy** will bring together training, skills development and professional capacity-building for current and future taxonomists and other biodiversity practitioners. Its role is not only to transfer established expertise, but also to prepare the community to work with emerging digital, genomic and AI-supported mechanisms.

Complementing this, the **TETTRIX Marketplace** will provide a unique gateway to taxonomic expertise, tools, services, data and other resources. By making existing capacity easier to discover and mobilise, it helps tool up the research communities while offering a dynamic hub for matching taxonomic supply and demand.

Together, the Academy and Marketplace help turn dispersed expertise into usable European capacity for biodiversity research, policy and practice.

3 APPLY AND DEMONSTRATE

Test taxonomic solutions against real biodiversity challenges

↘ *Targets: T4 + T6 + T20 + T21*

TETTRIX combines infrastructure-building with practical experimentation. Through a **€2.4 million cascade-funding programme**, Satellite Projects will test innovative tools, workflows and capacity-building initiatives in real-world settings.

The projects will address priority areas including invasive alien species, dark and underrepresented taxa, climate-indicator taxa and biodiversity populations and distribution in freshwater, marine and soil environments. This provides an opportunity to demonstrate where improved taxonomy can remove concrete barriers to biodiversity monitoring and action.

The Satellite Projects also create an important feedback mechanism: validated tools, data, methods and training resources will be integrated into the wider TETTRIX ecosystem, including the Marketplace and the Academy. In this way, successful advances can move beyond individual pilots, be replicated and enlarged, and contribute to lasting European capacity.

4 CONNECT KNOWLEDGE WITH DECISIONS

Bring taxonomic expertise into policy, practice and wider biodiversity decision-making

↘ *Targets: T14 + T20 + T21*

Technology accelerates data production but only experts make it trustworthy for science and society. Taxonomic expertise is the connecting element to link with the needs of policymakers, practitioners, businesses and other biodiversity actors, and ensure evidence-based delivery at multiple levels.

The **Knowledge Exchange Network for Taxonomy** will facilitate interaction between knowledge producers and users, enabling taxonomic expertise to respond to emerging biodiversity-policy needs. The **Taxonomy Cluster** will connect relevant European projects, infrastructures and initiatives, creating synergies, reducing fragmentation and supporting continuity beyond individual project lifetimes.

Alongside dedicated policy and business engagement, these mechanisms can help ensure that species-level evidence is not confined to specialist scientific communities but is increasingly integrated into conservation, planning and wider biodiversity-related decisions.

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From taxonomic knowledge to lasting implementation capacity

The KMGBF has raised global ambition for biodiversity, but ambition alone cannot deliver implementation. Countries and institutions need reliable evidence, skilled people, appropriate technologies and mechanisms capable of connecting knowledge with decisions.

TETTRIX responds to this need by treating taxonomy not simply as a scientific discipline, but as **essential biodiversity infrastructure.** Its contribution lies in building an interconnected system in which authoritative knowledge can be generated and accessed, expertise can be maintained and expanded, new technologies can be tested and adopted, and the taxonomic community can respond more effectively to policy and societal needs.

This also means thinking beyond the lifetime of individual research projects. Reference systems, training structures, expert networks, digital services and science–policy interfaces become most valuable when they remain available, trusted and responsive over time. TETTRIX therefore seeks to deliver high-quality products, anchoring on a community of reference and an integrative taxonomic ecosystem to sustain their use.

Source: LUOMUS, Finnish Museum of Natural History

What this means for KMGBF implementation

1

Recognise taxonomy as enabling infrastructure for the KMGBF.

Investment in biodiversity monitoring and conservation must be matched by investment in the expertise, reference knowledge and identification capacity on which those activities depend.

2

Connect implementation needs with the taxonomic community.

Taxonomic institutions, scientific collections and expert networks help address knowledge gaps, improve the reliability of species-level evidence and support policy responses across multiple KMGBF targets.

3

Build continuity into biodiversity knowledge systems.

Sustainable training, interoperable reference systems, accessible services and long-term science–policy exchange are essential if taxonomic capacity is to remain available beyond individual funding cycles.

Effective biodiversity action starts with knowing what species exist, where they occur and how to identify them. TETTRIX turns that knowledge into capacity for action.

#NameItToSaveIt
#TaxonomyTakesActionCOP17

TETTRIX
NeXt generation
european taxonomic system
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CONSORTIUM OF EUROPEAN TAXONOMIC FACILITIES

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