

Global Union of Bat Diversity Networks (GBatNet)

Strategic Directions for Bat Conservation & Research

The **vision** of GBatNet is to achieve sustainable bat diversity in a changing world. Our **mission** is to integrate diverse bat research and conservation networks to achieve the following **objectives**:

- (1) capture rules of life governing diversification of bat phenotypes across spatial, temporal, biological, and phylogenetic scales;
- (2) use research findings to develop strategies that secure sustainable bat populations; and
- (3) develop research and conservation capacity and empower the next generation of diverse scientists to implement and lead the GBatNet mission.

The GBatNet **Strategic Directions** prioritize activities that advance GBatNet objectives. While the objectives are not time-limited, the strategic directions are intended to guide activities over the **next five years (2024-2028)**. While the breadth and scope of the directions are vast, GBatNet comprises 18 networks that span the world and encompass expertise from paleontology to genomics to applied conservation. GBatNet further includes 10 active interdisciplinary working groups. The Strategic Directions reflect priorities identified and articulated by this global community, for the global community, and include both research directions and conservation initiatives. They were developed in collaboration with leaders of the 18 GBatNet member networks during a workshop in May 2023, in Baltimore, USA.

Within the strategic directions are priority actions identified by the community, and within those are possible tactics or approaches to those actions as defined and outlined below.

- 1. Strategic Direction** – *a guiding principle designed to further GBatNet’s mission and shape GBatNet’s actions, functions, and decisions.*
 - 1.1 Priority Action** – *approaches and plans to advance in a strategic direction.*
 - 1.1.1 Tactic** – *specific actions, activities, or initiatives that could be undertaken to execute the priority action. These are not exhaustive, other Tactics supporting Priority Actions may be identified by the community.*

SD1 Build and strengthen capacity for bat research worldwide, with particular emphasis on regions with globally high bat diversity

- 1.1 Develop and standardize guidelines for working safely with bats
 - 1.1.1 Develop and regularly update and disseminate best practices for field hygiene
 - 1.1.2 Gather, review, endorse, and disseminate best practices for bat handling
- 1.2 Design a certification system (e.g., similar to that of the [Ecological Society of America](#)) that assigns levels of competency and attests to individuals’ bat research capabilities (including for volunteers and educators)
- 1.3 Foster rapid development of expertise in conservation research and action in regions of high bat diversity
 - 1.3.1 Build in-country capacity through professional development programs (e.g., workshops, courses, conferences) that train more people in various sampling

methods (capture, counts, acoustic, tissue, etc.), analyses, and conservation interventions

- 1.3.2 Engage mentors to improve career retention for early and mid-career researchers and practitioners (e.g. rehabbers, conservationists, managers, pest control, etc.)
- 1.3.3 Strengthen global information infrastructure (tools for sharing data; e.g., Darwin Core standards, Big Bat Database)
- 1.3.4 Develop and enforce data provenance standards, ensuring attribution and acknowledgement of individuals who collected data
- 1.4 Increase taxonomic expertise worldwide
 - 1.4.1 Train more individuals (especially from biodiverse countries) in taxonomic methods (e.g., workshops, apprenticeships)
 - 1.4.2 Make taxonomic tools available (e.g., identification guides, keys)
- 1.5 Connect expertise to address specific spreading threats (e.g., wind energy)
- 1.6 Assist networks in prioritizing strategic actions (e.g. identify knowledge gaps, apply tools for prioritization, develop relevant action plans)
 - 1.6.1 Connect expertise across networks
 - 1.6.2 Provide leadership tools and training for developing strategic actions
 - 1.6.3 Provide feedback to networks on priorities and objectives
 - 1.6.4 Provide tools for monitoring, assessment, and evaluation
- 1.7 Support efforts for greater inclusivity and distribution of equity across sciences

SD2 Position GBatNet as a trusted global body of expertise for decision makers outside research communities

- 2.1 Engage policy researchers, advocates, and lobbyists in bat conservation issues
 - 2.1.1 Establish GBatNet reputation by publishing policy briefs and commentaries, white papers, and position statements
 - 2.1.2 Establish a presence at global policy meetings (e.g., Conference of the Parties (COPs), Meeting of the Parties (MOPs) of the Convention on Biological Diversity, or the United Nations Framework Convention on Climate Change)
 - 2.1.3 Build connections and establish relationships with global conservation and research organizations, and local groups in bat-diverse countries
- 2.2 Engage and train researchers in conservation evidence practices that can support policy recommendations

SD3 Encourage research and evidence-based conservation measures to sustain bat populations in the face of global change

- 3.1 Create and distribute conservation evidence for effective actions to protect bat populations and inform policy (See SD 2.2)
- 3.2 Develop and adopt common frameworks and ontologies for gathering and sharing bat diversity data (e.g., use of Darwin Core standards, standardized published taxonomies and datasets)
- 3.3 Help maintain accurate species conservation assessments particularly at global and regional scales (e.g., Global: IUCN Red List, Green List, Regional Red List Assessments)
 - 3.3.1 Gather assessment-relevant data during research

- 3.3.2 Promote the use of standardized datasets in local and regional listings
- 3.3.3 Ensure and adopt consistent taxonomy
- 3.3.4 Expand the pool of trained assessors
- 3.4 Foster improvement in bat monitoring
 - 3.4.1 Standardize and share protocols
 - 3.4.2 Build and populate shared databases
 - 3.4.3 Develop predictive population modeling
- 3.5 Determine predictors of population vulnerability and responses to threats based on abiotic variation or intrinsic traits
- 3.6 Define and prioritize areas and sites critical to bats
 - 3.6.1 Develop protocols to define areas and sites critical to bat conservation
 - 3.6.2 Create a framework and build capacity for prioritizing areas and sites from local to global scales

SD4 Address the human dimensions of bat conservation, research, and outreach

- 4.1 Reduce and work toward eliminating overexploitation of bats
 - 4.1.1 Characterize trade in bat species as souvenirs along the commodity chain to support outreach campaigns and CITES proposals.
 - 4.1.2 Characterize the locations, quantities, methods of extraction, uses, and drivers of bat consumption for food and medicine
 - 4.1.3 Evaluate the biological sustainability of take in exploited bat populations and communicate findings
 - 4.1.4 Engage and collaborate with target communities, industries, and governments to reduce exploitation of bats
- 4.2 Support activities that reduce persecution of bats
 - 4.2.1 Promote use of social science frameworks and practices to understand human beliefs and behaviors towards bats
 - 4.2.2 Support assessment and evaluation of ecosystem services provided by bats and communicate findings to relevant stakeholders
 - 4.2.3 Support assessment and evaluation of real or perceived disservices (e.g., crop predation and role as reservoirs of potentially infectious diseases) and potential interventions
- 4.3 Equip researchers and practitioners with accurate information about bats and the skills to communicate with diverse audiences
 - 4.3.1 Develop regionally appropriate toolkits of information about bats and techniques to communicate effectively with journalists, the general public, and focal communities
 - 4.3.2 Create tools for researchers to translate scientific findings into products targeted towards policymakers

SD5 Advance One Health approaches to reduce infectious disease risks to bats, people, wildlife, and domestic animals

- 5.1 Promote a collaborative community for sharing bat-related data and expertise essential to understanding disease ecology and disease dynamics, including spillovers

- 5.2 Foster collaboration between scientists and policymakers to implement actions that mitigate risks of disease transmission
- 5.3 Contribute to risk reduction at the human-wildlife interface
 - 5.3.1 Follow standardized guidelines for working safely with bats (SD1.1)
 - 5.3.2 Promote ecological countermeasures for disease risk reduction (e.g., increasing connectivity among networks of protected habitats)
 - 5.3.3 Produce and disseminate evidence-based materials for communities to evaluate and mitigate disease risk

SD6 Foster cross-network collaborations to characterize the genetic/genomic basis of bat traits and diversity

- 6.1 Help to develop a framework for disseminating genomics analytical tools and bioinformatics pipelines to enable the community to generate, use and share genomic assemblies and data, along with best practices for sample collection for genomic work.
- 6.2 Assist networks in developing and sharing sample resources for research (e.g. embryo banks, fresh tissues, etc.)
- 6.3 Develop centralized resources summarizing the bat fossil record for use in calibrating rates of change, understanding patterns of extinction, etc.
- 6.4 Develop standardized phenotypic trait descriptions for bats
- 6.5 Foster development and use of standardized taxonomy across studies of genotype and phenotype, and integrate data from museums and regional researchers to better understand geographic distributions of taxa worldwide
- 6.6 Encourage collaborations among networks to address priority research areas necessary to further understanding of bat diversification
 - 6.6.1 Characterize the role of development as the process through which the genome controls the phenotype
 - 6.6.2 Establish relationships between phenotypic trait function and performance
 - 6.6.3 Determine the phenotypic plasticity vs. genetic adaptation components of responses to global change in bat populations