Terms of Reference: Task group on mobilization and use of biodiversity data for research and policy on human diseases

Approved, October 2022

The discovery, access and appropriate use of primary biodiversity data are critical for research on human health, zoonotic and vector-borne diseases. This field represents a particular type of use of species occurrence data published by institutions around the world through the Global Biodiversity Information Facility (GBIF), and the demand for broader data related to vectors and disease is repeatedly indicated in the scientific literature.

Through GBIF.org, researchers are able to locate, download and freely use a large volume of data showing where occurrences of vector, host and reservoir species have been recorded (through observations, specimen collection, DNA sampling and other sources of evidence) and shared by the GBIF network of data publishers. These records support models exploring existing patterns, assessing risks, and predicting the potential spread of human diseases. GBIF.org does not currently distinguish between occurrences associated with a particular disease, nor does it enable filtering of such data on vectors, reservoirs, and hosts known to be associated with diseases either globally or within countries. While human-related, medical data are aggregated and handled elsewhere, the World Health Organization (WHO) in its Road map for neglected tropical diseases 2021—2030 emphasizes the links to wildlife data, and in the Global vector control response 2017–2030 calls for additional efforts to streamline the complementary biodiversity data on human diseases:

> Entomological, epidemiological and intervention data are often managed separately without linkage, resulting in insufficient information on the impact of vector control interventions on entomological parameters and pathogen transmission… Database development and management experience is needed to ensure linkage of entomological, epidemiological and intervention data into a comprehensive monitoring and evaluation platform that ideally incorporates geo-referencing. Skills in information and communication technologies as well as behavioural change communication and community and local authority engagement are also required.

As part of a broader global strategy on improving the completeness, relevance and fitness for use of biodiversity data, GBIF is reconvening a task group on mobilization and use of biodiversity data for research and policy on human diseases aiming to improve the coverage and representation of such data, supporting the variety of uses required and requested by this research community. The task group will capture the best available experiences, information and recommendations related to the major data holders and users, prioritize the data targets by diseases, taxa, and regions, document improvement needs in existing content, standards, vocabularies, and GBIF services, and suggest improvements in the functionality of GBIF.org for domain-specific needs. While the focus of the task group will be on the needs of research, it may also consider the best means of organizing data necessary for addressing policy needs such as biodiversity indicators for IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) and the post-2020 global biodiversity framework, Essential Biodiversity Variables (EBVs), Sustainable Development Goals (SDGs), in particular SDG3: Ensure healthy lives and promote well-being for all at all ages and its relevant targets, as well as the One Health and Planetary Health agendas.

In addition to improving coverage and use of the data types supported by GBIF today, an important consideration of the task group will be the requirements to identify the data mobilization targets for species occurrences and other types of data relating to human diseases, such as species interactions, traits, sequence- and multimedia-based data, and links to external biomedical and human data. This does not presuppose that all such data will be directly accessible through GBIF.org, but may suggest functionalities that would clearly link data shared through GBIF with other data sources in the future.

Mandate

1. Liaise with other systems of expertise, and define the data mobilization targets and data use priorities essential for achieving the objectives of the health and research sectors.
2. Liaise with on-going initiatives and projects to document best practices using data for research, and, where possible, for interventions on wild hosts, vectors, and reservoirs of human diseases.
3. Suggest improvements for GBIF's current and potential contribution to reaching societal goals, including Sustainable Development Goal 3, *Ensure healthy lives and promote well-being for all at all ages*.
4. Consult with and encourage experts in management and use of biodiversity data on human diseases to document and share tools and data management solutions.
5. Consult widely and determine key questions that need to be addressed for community- specific needs on data availability, sharing, use, and solutions to promote open data.
6. Identify key actors and possible funding sources suitable to support data mobilization and to enhance data use of biodiversity data in research on human diseases.
7. Communicate with stakeholders on data use and data management, and report.

Objectives

1. Identify sources and contacts, and design data **mobilization campaigns** to improve data coverage to support research on human health.
2. Continue **prioritization and scoping** of activities on diseases and taxa.
3. Improve **visibility** of GBIF in the sectors of research and health.
4. Provide advice on existing and prospective GBIF uses and consult with the professional sectors on **priority questions** that can be addressed with data mediated by GBIF.
5. Review and communicate adequate **messages** to support data mobilization campaigns and to promote data publishing and use through GBIF.
6. Suggest **improvements** for data content, standards, vocabularies, and GBIF services in future development of GBIF for research on vector-borne diseases.

Outputs

The main deliverable will be reports to the Executive Secretary of GBIF on activities, including practical recommendations around the issues defined under the Terms of Reference presented, produced every eight months.

Timeline

The task group will operate for a period of 24 months, starting from November 2022 after the members have been confirmed by the GBIF Secretariat. A first report will be presented by 30 June 2023, the second by 28 February 2024, the third and final report by 31 October 2024. Summary findings from the intermediate and final reports will be presented to the GBIF Governing Board in 2023 and 2024, and can be published at GBIF.org. Renewal of the task group will be considered after the final report.

Timeline	*Activity*
November 2022	Candidate members agree to work on the Task group. Election of chair. GBIF Secretariat approves candidate members of the Task Group.
December 2022	Announcement of task group with members and activities
28 Feb 2023	First report
Spring 2023	In-person meeting of the task group
30 June 2023	Second report
27–30 Nov 2023	AMV conference in Chiang Mai, Thailand. In-person meeting of the task group as a satellite event.
23–27 Sept 2024	Satellite meeting to ICTMM 2024, Sarawak, Malaysia (tbc). In-person meeting of the task group as a satellite event and closing the group.
31 Oct 2024	Final report delivered.

Mode of operation

The task group will deliver its recommendations to the GBIF Governing Board through the Secretariat. The group will be coordinated by, and report through, the Scientific Officer at the GBIF Secretariat. The group will mostly operate remotely through email and associated collaborative tools such as Google Docs and conference calls; when international meetings and travel become possible, the group may hold up to two face-to-face meetings per year. Travel, accommodation and other essential costs related to these meetings will be met from the GBIF Work Programme, subject to available resources. The task force may arrange face-to-face meetings as satellites to other events of interest, or use those opportunities to hold additional meetings.

Task Group membership

The task group shall be comprised of initially **six (6) members** reflecting global representation and the variety of research approaches. Additional members could be invited and added to the group, if agreed by the group and approved by the current group chair and GBIF S. The Task Group is expected to consult widely within the research community and the GBIF community, including GBIF stakeholders. The GBIF Secretariat will provide support for this consultation. The task group is intended to be the core team that will author the reports, but will consult widely with other experts, institutions, initiatives & projects. The Chair is elected for each of the six-month periods; rotation is expected, but the same person can be re-elected.

GBIF Secretariat contact

Dmitry Schigel, GBIF Scientific Officer: dschigel@gbif.org

Appendix: Task group membership

- **Quentin Groom** *Chair November 2022 - June 2023*
  Senior Research Scientist, Biodiversity Informatics, Meise Botanic Garden, Belgium
- **Sylvie Manguin**
  Full Research Professor/Director, Institut de Recherche pour le Développement (IRD), France
- **Theeraphap Chareonviriyaphap**
  Professor/Head, Department of Entomology, Faculty of Agriculture-Bangkok, Kasetsart University, Thailand
- **Florence Fouque**
  Scientist, Focal Point for Vectors, Research For Implementation Unit, The Special Programme for Research and Training in Tropical Diseases, World Health Organization, Switzerland
- **Paloma Helena Fernandes Shimabukuro**
  Researcher and collection curator, Instituto René Rachou, Fundação Oswaldo Cruz, Brazil
- **Marianne Sinka**
  Senior Postdoctoral Researcher, Oxford Long-Term Ecology Lab, University of Oxford, United Kingdom
- **Dmitry Schigel**, *Task group coordinator*
  Scientific Officer, GBIF Secretariat, Denmark
- **Kate Ingenloff**, *Task group co-coordinator*
  Scientific Officer, GBIF Secretariat, Denmark