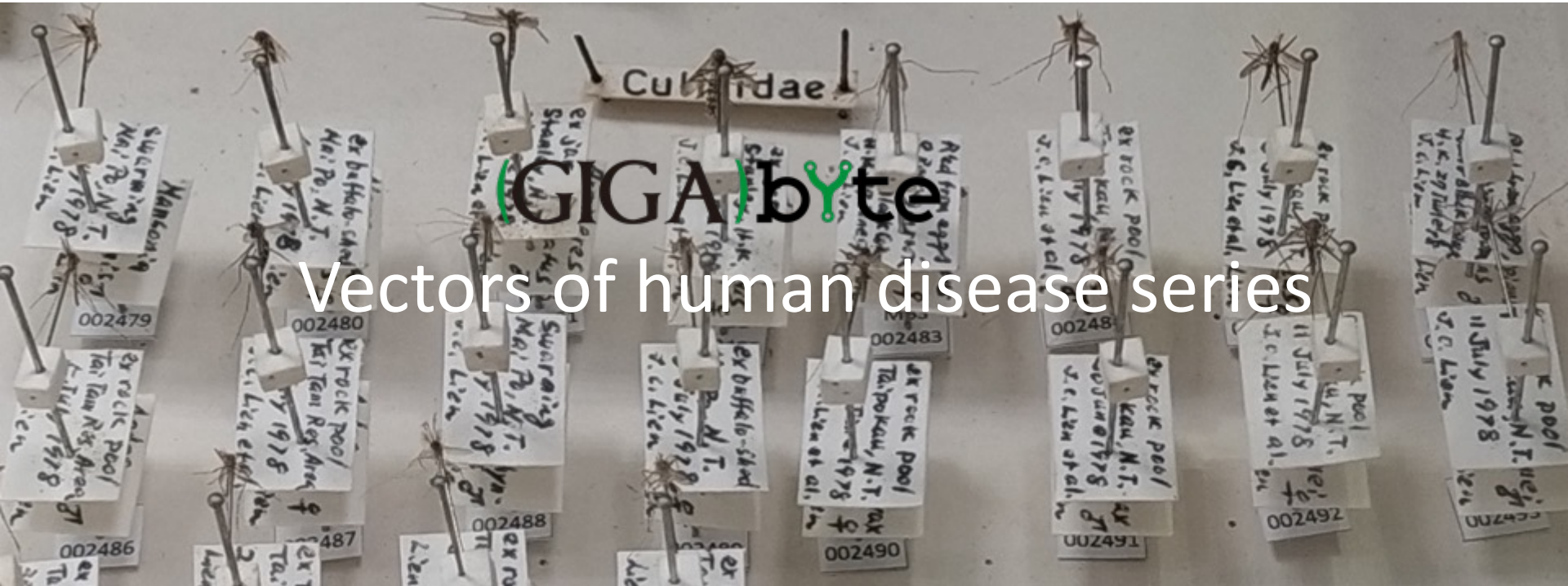


Data papers about vectors of diseases



Scott Edmunds

 0000-0001-6444-1436

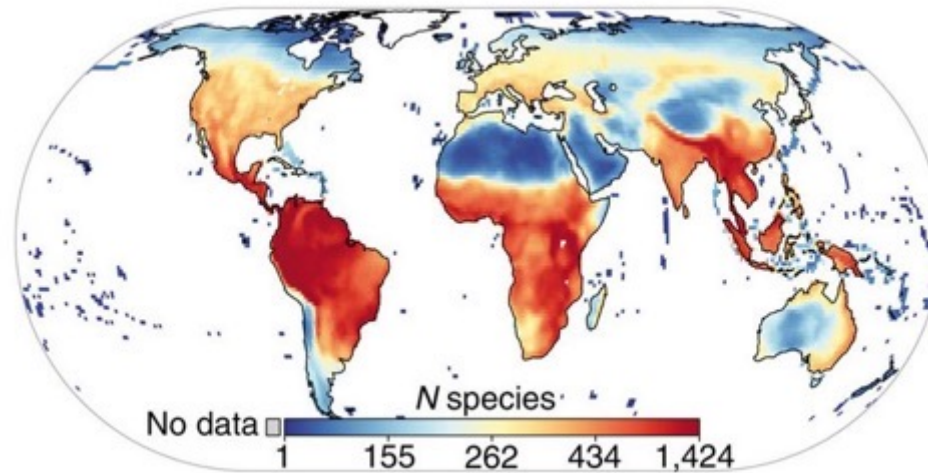
scott@gigasciencejournal.com

30th March 2023

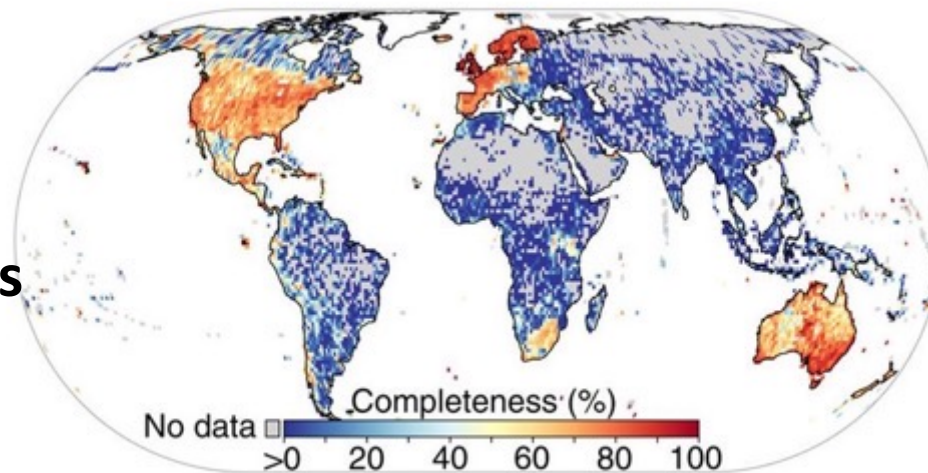


Why we need to fill biodiversity data gaps

Expert predictions
of species richness

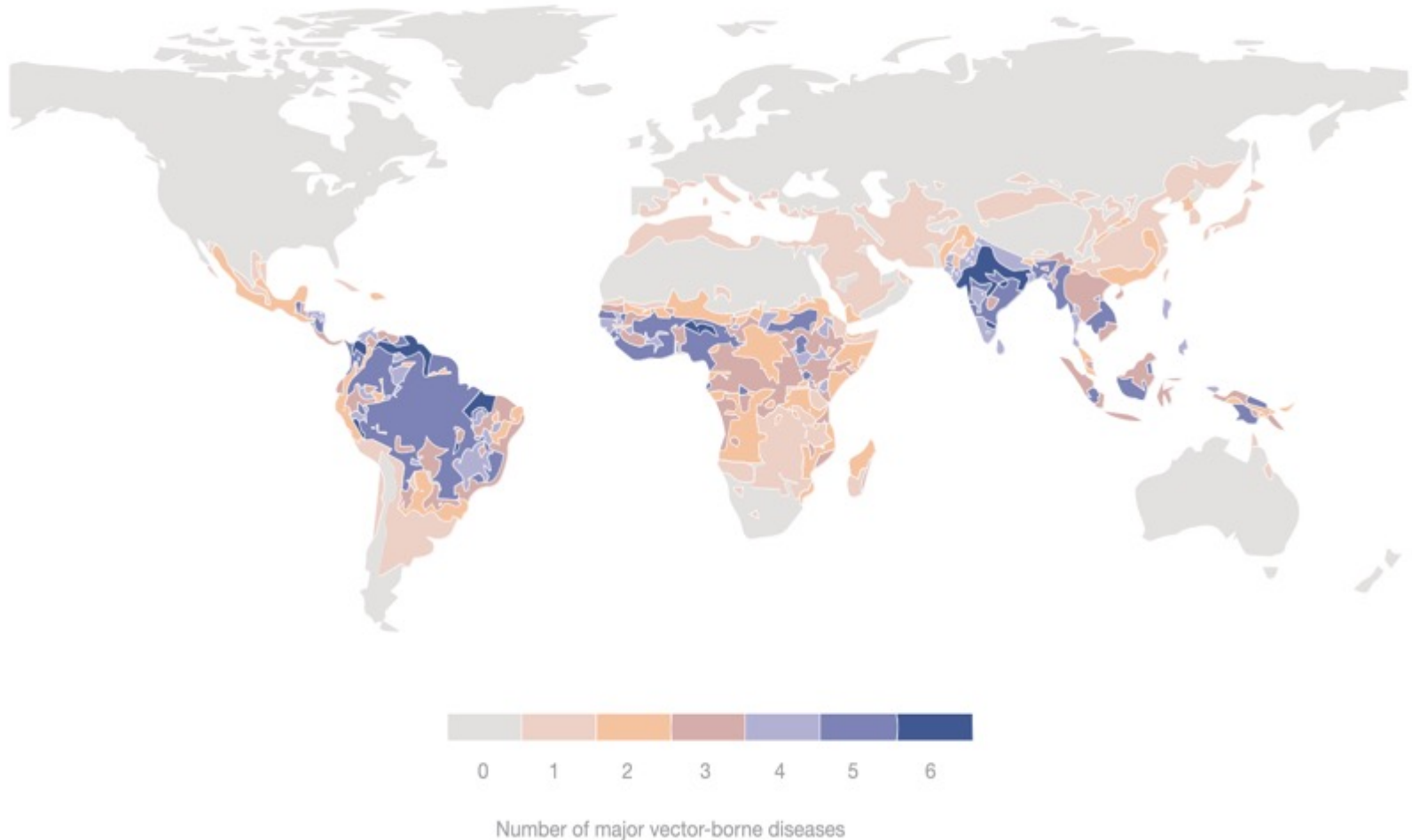


Completeness of
biodiversity records



Why we need to fill biodiversity data gaps

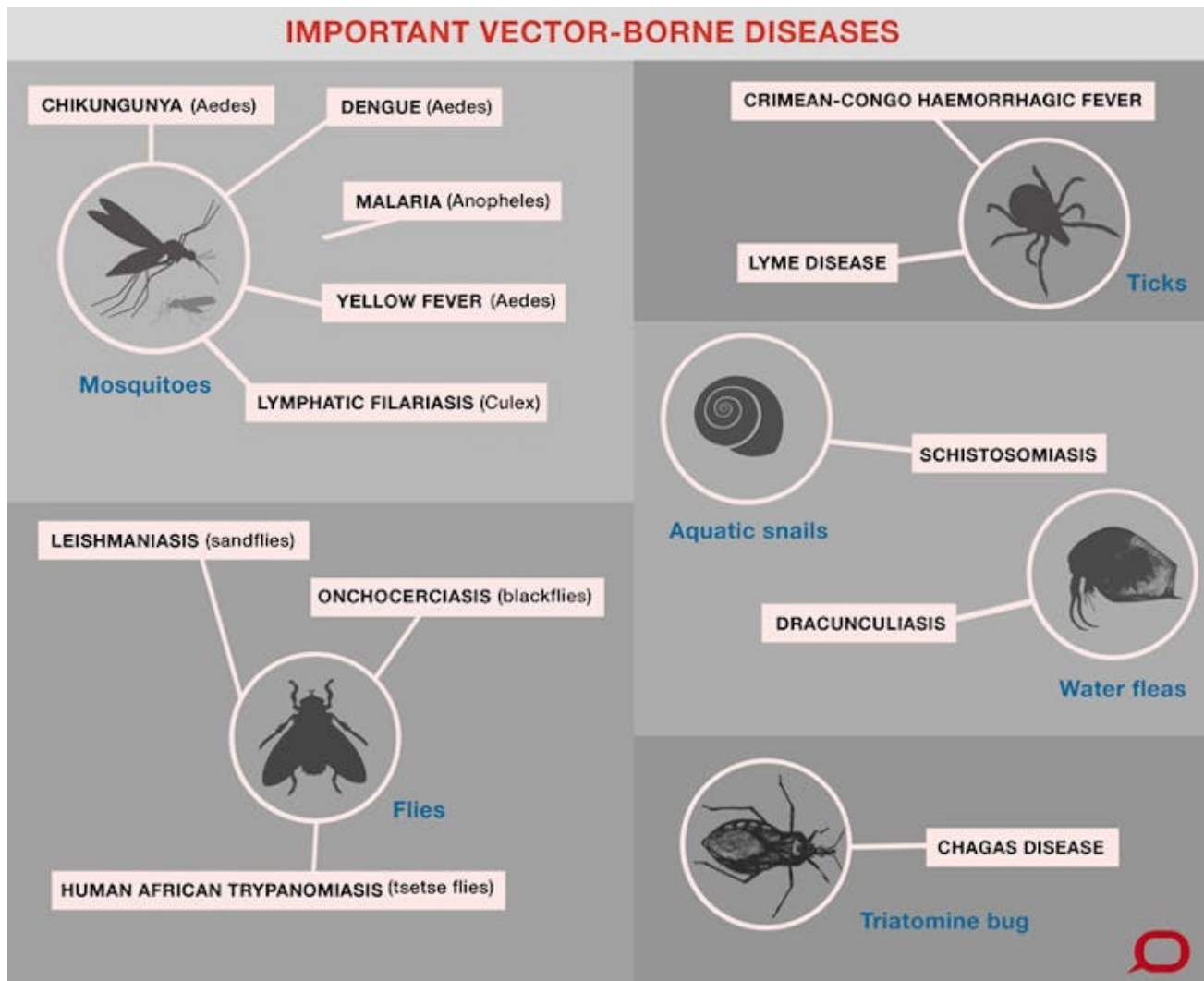
Vector-borne diseases account for $\sim\frac{1}{4}$ of all infectious diseases



Global distribution of malaria, lymphatic filariasis, leishmaniasis, dengue, Japanese encephalitis, yellow fever and Chagas disease

<https://theconversation.com/bites-and-parasites-vector-borne-diseases-and-the-bugs-spreading-them-24072>

What are disease vectors?





Rewarding open data: *GigaScience*

Launched July 2012, now partnering with OUP. Publishes “Data Notes” for CC0 data.

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Volume 11, Issue 1
2022

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Rewarding open data: *GigaScience*

APC covers curation and 1TB of storage in our GigaDB repository

Since 2011,
and working
with



The screenshot shows the GigaDB website interface. At the top, there is a navigation bar with 'Login / Signup' and social media icons. Below the header, the GIGATM DB logo is displayed with the tagline 'Revolutionizing data dissemination, organization, and use'. A main banner features the text 'GIGADB DATASETS' and a description: 'GigaDB contains 2130 discoverable, trackable, and citable datasets that have been assigned DOIs and are available for public download and use'. Below the banner, there is a 'Dataset types' section with a grid of icons and counts for various categories: Genomic (1305), Software (342), Transcriptomic (231), Imaging (1196), Neuroscience (42), Epigenomic (37), Metagenomic (67), Genome mapping (17), Workflow (79), Proteomic (28), and Metabarcoding (8), Metadata (21). To the right, an 'RSS' section lists recent dataset additions with their DOIs and brief descriptions. At the bottom of the main content area, four large statistics are presented: 2130 Datasets, 127517 Samples, 344277 Files, and 47 T Data volume(TB). The footer contains the GIGA SCIENCE logo, BGI 华大 logo, and contact information: database@gasciencejournal.com, along with social media icons.

<http://gigadb.org/>



UNESCO Recommendation on Open Science

<https://unesdoc.unesco.org/ark:/48223/pf0000379949>

Signed on the 23rd November 2021 at the 41st session of UNESCO by 193 Members States

The Recommendation affirms the importance of open science as a vital tool to improve the quality and accessibility of both scientific outputs and scientific process, to bridge the science, technology and innovation gaps between and within countries and to **fulfill the human right of access to science.**

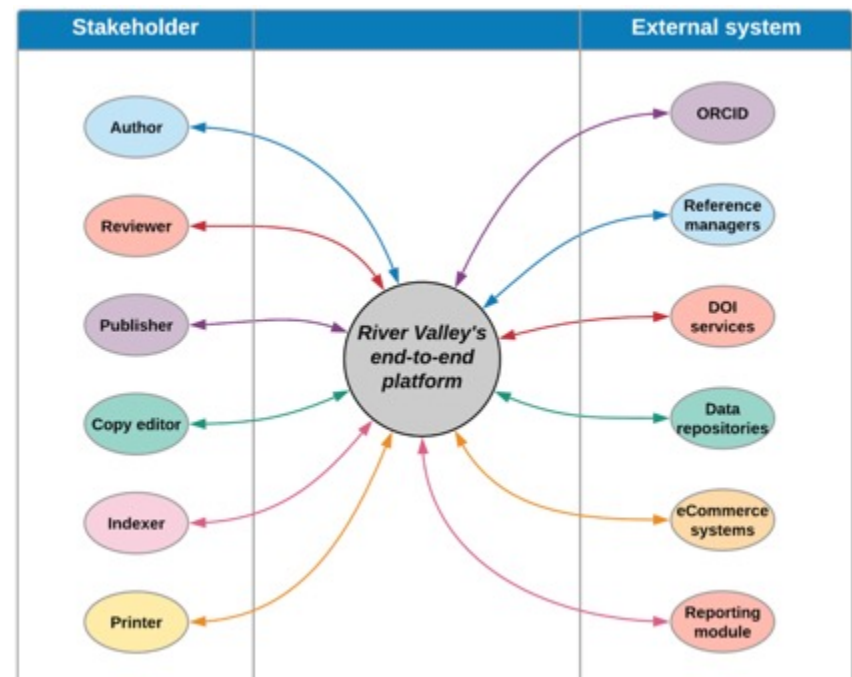
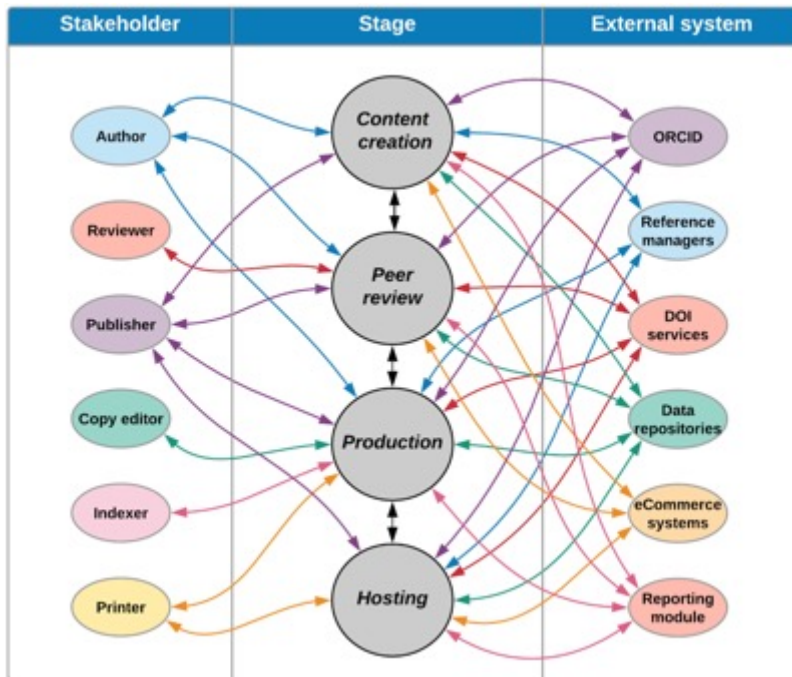
Recommends that Member States apply the provisions of this by taking whatever legislative or other measures may be required to give effect within their jurisdictions to the principles of this Recommendation.

Addressing this with a new journal: (GIGA)byte

Main advantage of workflow is XML from start to end

Traditional workflow: API spaghetti

New: straightforward, single platform



<https://gigabytejournal.com/>



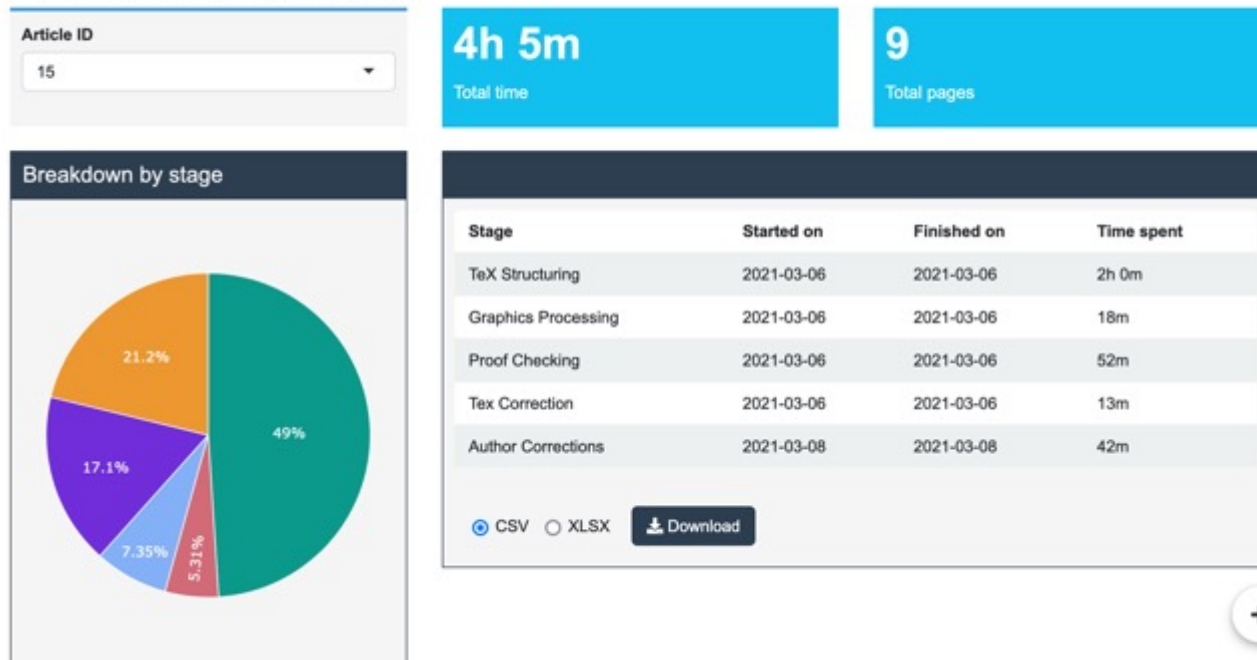
RIVER VALLEY
TECHNOLOGIES

Inclusive features: the cost barrier

Huge time + cost savings from XML-first workflow

DOCX/.latex to XML to paper. Automated production (only needing humans for pagination)

Production time breakdown



End-to-end analytics

Production times in hours not days

Current APC = \$400 USD covers these publication costs (with 10% markup)

Thinking about users: authors, reviewers, readers

What does a GigaByte data paper look like?

Data Release: a short, updatable, description of a research dataset



Discoverability & credit: Highlights and help to contextualize openly available datasets to encourage reuse.

Sharing: All data can be linked to the Data Release via GBIF, GigaDB or other data DOIs or accessions.

Data, not analysis: Incentivizes and allows more rapid releases of data before subsequent detailed analysis has been carried out. Or in coordination with publication of an analysis paper.

Simple: Structure = *Context, Methods, Data Validation and QC, Reuse Potential, Data Availability*

Submit via:



Integrates with preprints:



<https://gigabytejournal.com/data-release-description>

Bringing this together: Open Science for Public Health



Access to data on vectors and vector-borne diseases is improved through the release of a special issue publication of a series of data papers

26 June 2022 | News release | Reading time: 2 min (552 words)

Publication of a series of 11 papers with data on vectors that transmit vector-borne diseases is a significant advance in the availability of such data in an easy and open access format. Published by the journal *GigaByte* by GigaScience Press, in partnership with the Global Biodiversity Information Facility and supported by TDR, the papers improve knowledge on vectors and pave the way forward in data sharing.



Aedes aegypti, vector of arboviral diseases caused by viruses such as Dengue, Chikungunya and Zika.
Picture from Pascal Gaborit, Pasteur Institute of French Guiana, in the Institut Pasteur photothèque

Currently affecting about half of the world's population, vector-borne diseases are transmitted by arthropod (insect and tick) vectors such as mosquitoes and flies; they include diseases such as malaria, dengue and leishmaniasis. While some diseases such as malaria show a decline in numbers of fatalities, others, such as those caused by arboviruses like dengue, chikungunya and Zika viruses, show a worrying increase in number of cases (although improved case management has led to a decrease in fatalities). Factors such as climate change and urbanization have the potential to further affect the impact of these diseases, so it is vital that research is ongoing to understand more about the vectors and to ensure that data are shared widely with researchers and policy-makers in an open access, freely available and discoverable format.



Rewarding open data: TDR/GBIF

Get data How-to Tools Community About

NEWS | 25 JANUARY 2022

First thematic help desk to support mobilization of biodiversity data related to disease vectors

Efforts to boost mobilization of data on wild host, vector and reservoir species connected to human health



Eastern saltmarsh mosquito (*Aedes sollicitans*), observed in Canada. Photo 2021 David McCorquodale via iNaturalist Research-grade Observations, licensed under CC BY 4.0.

Two node managers from the GBIF network will assist a pilot effort targeting mobilization of species occurrence data for wild species relevant to research on human disease. [Carole Sinou](#) of Canadensys and [Dmitri Brosens](#) of the Belgian Biodiversity Platform will provide help desk services to support a joint call for data papers describing datasets on vectors of human disease issued by TDR, the Special Programme for Research and Training in Tropical Diseases, GigaScience Press and GBIF.

<https://www.gbif.org/news/4wonJVXgFzTqj4HZbbPbv/first-thematic-help-desk-to-support-mobilization-of-biodiversity-data-related-to-disease-vectors>

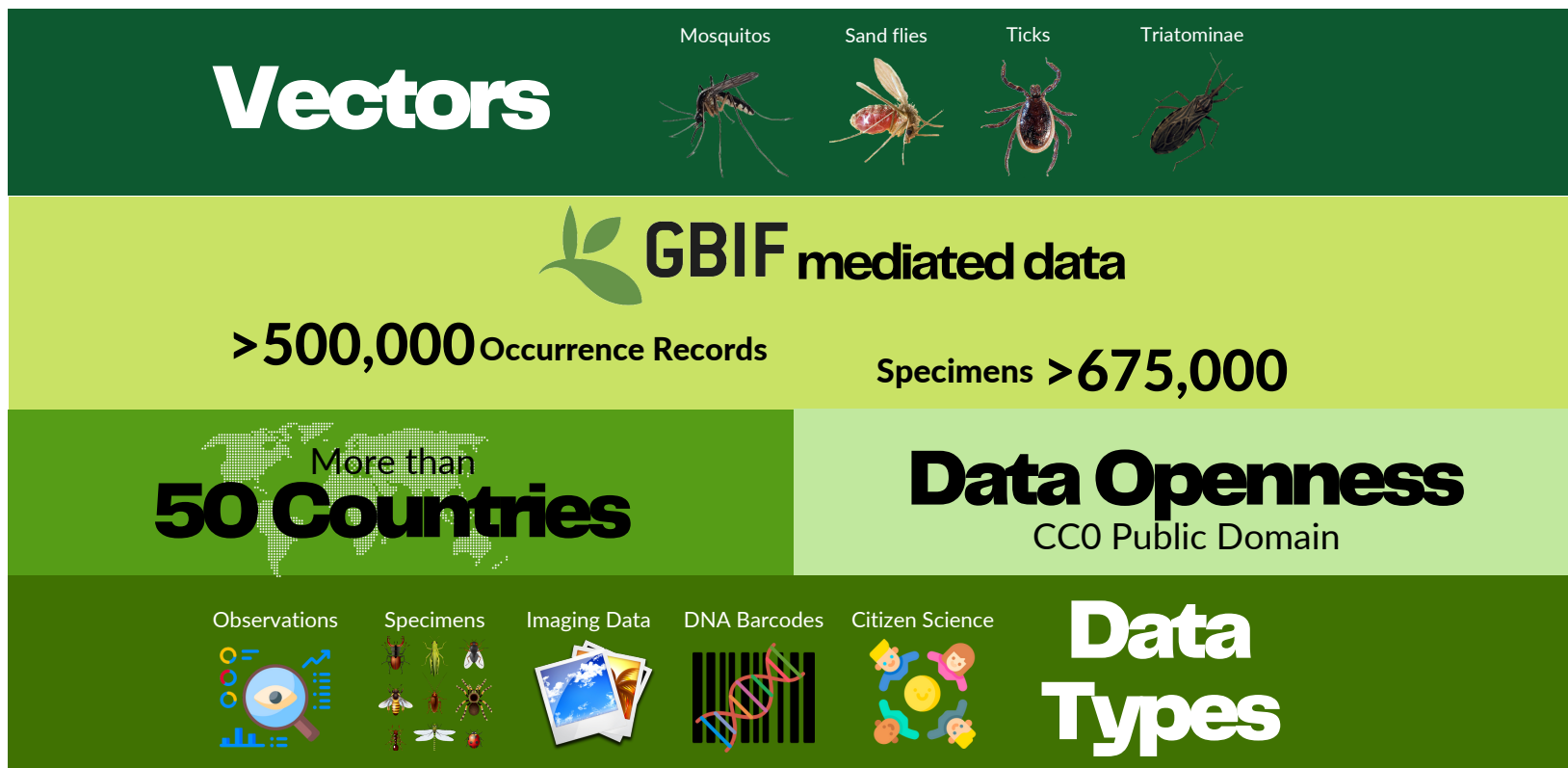
Additional content of submissions

Papers presenting sampling methods and protocols, diverse data types, examples working with citizen scientists and indigenous communities in the Amazon, and papers showcasing many novel technical features...



End product: Open Science for Public Health

Data published from the *GigaByte Vectors* of human disease series includes:



The infographic is a vertical stack of green and light green sections. At the top, the word "Vectors" is written in large white font. Below it, four insects are shown with labels: Mosquitos, Sand flies, Ticks, and Triatominae. The next section features the GBIF logo and the text "GBIF mediated data". Below this, two statistics are presented: ">500,000 Occurrence Records" and "Specimens >675,000". The middle section is split into two: the left side shows a world map with the text "More than 50 Countries", and the right side says "Data Openness CC0 Public Domain". The bottom section is titled "Data Types" and includes icons for Observations (eye and bar chart), Specimens (various insects), Imaging Data (photos), DNA Barcodes (DNA helix and barcode), and Citizen Science (group of people).

Vectors

Mosquitos Sand flies Ticks Triatominae

GBIF mediated data

>500,000 Occurrence Records Specimens >675,000

More than **50 Countries**

Data Openness
CC0 Public Domain

Data Types

Observations Specimens Imaging Data DNA Barcodes Citizen Science

PHASE II IS OPEN FOR SUBMISSIONS...submit by 30 April 2023.

https://doi.org/10.46471/GIGABYTE_SERIES_002

End product: Open Science for Public Health

Multilingualism for better accessibility, understandability and trust




The screenshot displays the GIGA)byte website interface. At the top, the logo "GIGA)byte" is accompanied by the tagline "Publishing at the Speed of Research". Navigation links for Home, About, Articles, Editorial Board, and Series are visible. The article title is "Registros de ocorrência e metadados de flebotomíneos (Diptera, Psychodidae, Phlebotominae) coletados em terras indígenas na Amazônia brasileira". The authors listed are Paloma Helena Fernandes Shimabukuro, Daniel Rocha Cangussu Alves, Jéssica Adalia Costa Barros, Luiz Otavio Cordeiro Nascimento, Luke Anthony Baton, Maira Posteraro Freire, Manoel Edson Medeiros da Silva, Mauro Diego Gobira Guimarães de Assis, Sofia Ferreira Moraes, Tiago Silva da Costa, Veracida Ribeiro Alves, and Eduardo Stramandinoli Moreno. The article has a DOI of 10.46471/gigabyte.61, 215 views, and 40 downloads. A sidebar on the left shows an "Article Outline" with sections for "resumo", "Descrição dos Dados", "Métodos", "Validação de dados e controle de qualidade", "Potencial de re-uso dos dados", "Agradecimentos", and "Referências". The main content area shows the abstract in Portuguese, starting with "Para contribuir com o conhecimento da epidemiologia da leishmaniose tegumentar americana (LTA) entre indígenas que vivem em regiões silvestres, estudamos a fauna de flebotomíneos coletada em áreas de transmissão da doença na Amazônia brasileira. Aqui relatamos dois conjuntos de dados que incluem dados de ocorrência de flebotomíneos da Terra Indígena Suruwaha no estado do Amazonas coletados em 2012–2013 e da Terra Indígena Wajãpi no estado do Amapá coletados em 2013–2014. Os flebotomíneos foram coletados usando armadilhas de luz tipo CDC sem isca em vários locais dentro de cada área de estudo e foram identificados em nível de gênero ou espécie por taxonomistas com experiência em fauna amazônica. São registrados 4.646 registros: 1.428 dos Suruwaha e 3.218 dos Wajãpi. Esses registros contribuirão para um melhor entendimento da dinâmica de transmissão do LTA, bem como da distribuição de insetos vetores, nessas áreas."

<https://doi.org/10.46471/gigabyte.61>

End product: Open Science for Public Health

Multilingualism for better accessibility, understandability and trust

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 Publishing at the Speed of Research

 Published by GIGAByte

GigaByte, 2022; 2022: gigabyte61. PMID: PMC9876538
Published online 2022 May 31. doi: [10.46471/gigabyte.61](https://doi.org/10.46471/gigabyte.61) PMID: [36824525](https://pubmed.ncbi.nlm.nih.gov/36824525/)

[Full-text translation available in Portuguese.](#)

Occurrence records and metadata for sand flies (Diptera, Psychodidae, Phlebotominae) collected in the lands of indigenous people in the Brazilian Amazon

[Paloma Helena Fernandes Shimabukuro](#), Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing - original draft, Writing - review editing,^{1, 2} [Daniel Rocha Cangussu Alves](#), Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Resources,³ [Jéssica Adalia Costa Barros](#), Investigation, Methodology,² [Luz Otavio Cordeiro Nascimento](#), Data curation, Investigation, Methodology,⁴ [Luke Anthony Baton](#), Conceptualization, Data curation, Formal analysis, Methodology, Writing - original draft, Writing - review editing,⁵ [Maíra Posteraro Freire](#), Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing - original draft,^{4, 6} [Manoel Edison Medeiros da Silva](#), Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Resources,³ [Mauro Diego Gobira Guimarães de Assis](#), Data curation, Formal analysis, Methodology,² [Sofia Ferreira Morais](#), Data curation, Formal analysis, Methodology,² [Tiago Silva da Costa](#), Data curation, Formal analysis, Investigation, Methodology,⁷ [Veracilda Ribeiro Alves](#), Data curation, Formal analysis, Investigation, Methodology,⁸ and [Eduardo Stramandinoli Moreno](#), Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Visualization, Writing - original draft^{4, 9}

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GigaByte, 2022; 2022: gigabyte61. = Registros de ocorrência e metadados de flebotomíneos (Diptera, Psychodidae, Phlebotominae) coletados em terras indígenas na Amazônia brasileira

GigaByte, 2022; 2022: gigabyte61.

Published online 2022 May 31. doi: [10.46471/gigabyte.61](https://doi.org/10.46471/gigabyte.61)

Registros de ocorrência e metadados de flebotomíneos (Diptera, Psychodidae, Phlebotominae) coletados em terras indígenas na Amazônia brasileira

[Paloma Helena Fernandes Shimabukuro](#), Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing - original draft, Writing - review editing,^{1, 2} [Daniel Rocha Cangussu Alves](#), Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Resources,³ [Jéssica Adalia Costa Barros](#), Investigation, Methodology,² [Luz Otavio Cordeiro Nascimento](#), Data curation, Investigation, Methodology,⁴ [Luke Anthony Baton](#), Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing - original draft,^{4, 6} [Manoel Edison Medeiros da Silva](#), Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Resources,³ [Mauro Diego Gobira Guimarães de Assis](#), Data curation, Formal analysis, Methodology,² [Sofia Ferreira Morais](#), Data curation, Formal analysis, Methodology,² [Tiago Silva da Costa](#), Data curation, Formal analysis, Investigation, Methodology,⁷ [Veracilda Ribeiro Alves](#), Data curation, Formal analysis, Investigation, Methodology,⁸ and [Eduardo Stramandinoli Moreno](#), Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Visualization, Writing - original draft^{4, 9}

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Abstract

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Para contribuir com o conhecimento da epidemiologia da leishmaniose tegumentar americana (LTA) entre indígenas que vivem em regiões silvestres, estudamos a fauna de flebotomíneos coletada em áreas de transmissão da doença na Amazônia brasileira. Aqui relatamos dois conjuntos de dados que incluem dados de ocorrência de flebotomíneos da Terra Indígena Suruwahá no estado do Amazonas coletados em 2012–2013 e da Terra Indígena Wajãpi no estado do Amapá coletados em 2013–2014. Os flebotomíneos foram coletados usando armadilhas de luz tipo CDC sem isca em vários locais dentro de cada área de estudo e foram identificados em nível de gênero ou espécie por taxonomistas com experiência em fauna amazônica. São registrados 4.646 registros: 1.428 dos Suruwahá e 3.218 dos Wajãpi. Esses registros contribuirão para um melhor entendimento da dinâmica de transmissão do LTA, bem como da distribuição de insetos vetores, nessas áreas.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9876538/>

Notes on the vectors series

The data papers submitted should describe datasets with the following criteria:

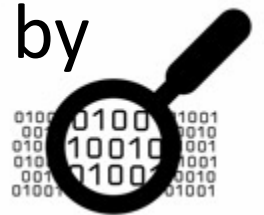
- Data has clear relevance for research on vectors of human vector-borne diseases
- Dataset contains more than 5,000 records that are new to GBIF.org in 2022/23 with high-quality data and metadata
- Data is dedicated to the public domain under an open CC0 designation
- Deadline for submission is 30 April 2023



Notes on the vectors series

Data deposition is key, and supported by GBIF helpdesk and GigaDB curators

- Authors should start by preparing the dataset and publishing it through GBIF.org before writing
- Support from health@gbif.org for questions on publishing data through GBIF, data standards, etc.
- GigaDB team (database@gigasciencejournal.com) on hand to help with additional supporting data
- GigaDB curators will also help review process by providing a data audit for each submission



For more see series overview/umbrella commentary in *GigaScience*



GigaScience, 2022, 0, 1-0
DOI: 10.1093/gigascience/giac114
Commentary

Publishing data to support the fight against human vector-borne diseases

Scott C Edmunds^{1,2}, Florence Fouque³, Kyle A Copas⁴, Tim Hirsch⁵, Dmitry Schigel⁶, Paloma Helena Fernandes Shimabukuro^{4,5}, José Diêrmando Andrade-filho^{4,5}, Catalina Marceló⁴, Carlos Andrés Morales⁷, Maria Camilla Lesmes^{4,8}, Patricia Fuya⁹, Sergio Méndez⁹, Horacio Cadena⁹, Álvaro Avila-Díaz⁹, Erika Santamaría¹⁰, Žilko Južnič-Zonta¹¹, Roger Eritja¹², John R.B. Palmer¹², Frederic Bartumeus^{10,11,13}, Maurício dos Santos-Conceição¹⁴, Samira Chahad-Ehlers¹⁵, Cássio Lázaro Silva-Inácio¹⁶, Ana Leuch Lozovei¹⁴, Andrey José de Andrade¹⁷, Sara Paull¹⁸, Miguel Ángel Miranda¹⁹, Carlos Barceló¹⁹, Francis Schaffner²⁰, Alessandra Della-Torre²⁰, Dimitri Erensens²¹, Wouter Dekoninck²², Guy Hendrickx²⁴, Wim Van Bortel²⁵, Isza Deblauwe²⁵, Nathalie Smitz²⁶, Veezie Versteirt²⁷, Rodrigo Espindola Godoy²⁸, Andreia Fernandes Brilhante²⁹, Soledad Ceccarelli^{30,31}, Agustín Balsalobre^{30,31}, María Eugenia Vicente³⁰, Rachel Curtis-Robles³², Sarah A. Hamer³², José Manuel Ayala Landa³³, Jorge E. Rabinovich^{30,31} and Gerardo A. Marti^{30,31}

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Abstract

Vector-borne diseases are responsible for more than 17% of human cases of infectious diseases. In most situations, effective control of debilitating and deadly vector-borne diseases (VBDs), such as malaria, dengue, chikungunya, yellow fever, Zika and Chagas requires up-to-date, robust and comprehensive information on the presence, diversity, ecology, bionomics and geographic spread of the organisms

Received: October 21, 2022. Accepted: October 24, 2022

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<http://dx.doi.org/10.1093/gigascience/giac114>

Thanks to TDR/WHO for support of this datasets on vectors of human diseases series

Due to this very generous sponsorship the article processing fee (normally \$400 USD) will be waived for the first 15 papers that are accepted and meet the series criteria.



Many thanks to our partners



(GIGA)byte

For further questions contact: editorial@gigabytejournal.com



Submit by 30th April 2023:

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