

## IUBS and inter Unions/ Organizations projects:



### ➤ Climate Education :

- The project "TROP-ICSU: Trans-disciplinary Research Oriented Pedagogy for Improving Climate Studies and Understanding" is presently run and supported by IUBS.
- The project has collected, collated and developed over 280 Teaching Resources, which soon across 10 disciplines.
- In partnership with Climate Change Education Futures in India, in association with Oxford University, TROP ICSU conducted a survey of approximately 500 educators in India and in-depth audio interviews with 50 educators.
- Monash Climate Change Communication Research Hub joined hands with TROP ICSU as a partner, in February 2021. MCCRH is an Australian research entity, bringing the research resources of a university to climate communication.
- The project team mentored 6 students as project interns in 2021.
- The following events have been:
  - Online Session at "International Conference for Nature and Natural Resources Conservation- Towards 2030 and beyond", August 2021 at Sharm-El-Sheikh, Egypt, organized by Ministry of Higher Education and Scientific Research, Egypt and Academy of Scientific Research and Technology, Egypt.
  - Online workshop on "Effective Education for Long-term Sustainable Solutions to the Problems of Air Pollution", in August 2021
  - Mentoring Session for the teachers from Sri Venkateswara College, Delhi University, India:
  - online workshop cum Faculty Development Program for the teachers of Delhi University, India on 26th August 2021
  - Online TROP ICSU Workshop oriented towards "Digital Pedagogy & Climate Change Education across Disciplines" for teachers of Delhi University, India, on 28th August 2021
  - '[tickLinks](#)' by Open Links Foundation, in partnership with TROP ICSU conducted an online contest 'SHARE YOUR BEST', for the teachers teaching Science, Maths and English for Std 4-6 and Std 7-9, on Earth Day, 22 April 2021.



### ➤ 5<sup>th</sup> Science for Biodiversity Forum :

- Since 1998, IUBS has been actively partnering with the Secretariat of the Convention on Biological Diversity to organize with other organizations the Science Policy for Biodiversity Forum in junction with the COP on Biodiversity.
  - The COP of 2020 in Kunming China was initially postponed to October 2021 as well as the joint event gathering the [5<sup>th</sup> Science for Biodiversity Forum and the 8<sup>th</sup> International Conference on Sustainability Science](#). To keep the momentum, IUBS and Tokyo University have sponsored a virtual event from 13 to 23 April 2021. - A document summarizing the outcome of the online event was prepared.
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  - It is planned to organize another online/ in presence session in 2022.
  - the 5<sup>th</sup> Science for biodiversity and 8<sup>th</sup> ICSS involved the CBD and many partners with 8 online sessions still available [online](#).
- 2 sessions were proposed by IUBS:
- "Enabling conditions for transitioning to zero net habitat loss (zero net deforestation, land degradation and land use change)" and
  - "Links between loss of biodiversity, climate change and zoonotic diseases"

## IUBS and inter Unions/ Organizations projects:



### ➤ Standing Committee on Gender Equality in Science :

- Guy Smagghe, the IUBS representative is the vice-chair of SCGES.
- The Standing Committee on Gender Equality in Science expanded its membership to additional Unions.
- A PAC Special Topics Issue on "The Gender Gap in Science" was published in 2021: <https://doi.org/10.1515/pac-2021-1009>

The following events have been organized:

- online meetings: 25 February 2021, 25 September 2021.
- IUBS with other Union members of SCGES and ISC have submitted a session entitled "Gender Equality in Science: from a project to a permanent network of scientific unions" at the ISC General Assembly in October 2021.

### ➤ International Year of Basic Science for Sustainable Development:

- Lily Rodriguez from IUBS is the vice-chair of the Executive Committee.
- Several online meetings with the different partners have been organized in 2021: 8 March 2021, 9 August 2021 and 8 December 2021.
- As a founding Union, IUBS signed in 2021 a MoU for its participation in the International Year of Basic Sciences for Sustainable Development.
- IUBS has also worked on a document to present the importance of basic sciences in Covid times.

### ➤ The International Alliance against Health Risks in Wildlife Trade

- The goals of this International Alliance established in 2021 are to promote and facilitate international dialogue and cooperation of experts from governments, intergovernmental organizations and civil society on human health risks due to handling of wildlife
- IUBS participated in the discussions related to the [International Alliance against Health Risks in Wildlife Trade](#): an inception workshop was organized on 22-23 June to work with different partners on the possible roles, missions and goals of the Alliance.
- IUBS, as a member, was represented by Lily Rodriguez at the official launch of the Alliance against Health Risks in Wildlife Trade during the IUCN meeting in Marseille on 6 September 2021.

### ➤ International Congress of Zoology

- IUBS organized one session at ICZ and different representative of IUBS projects participated in other sessions of ICZ
- On 23 November, S. Merino from the Working Group on Zoonotic Diseases co-chaired the session "Biodiversity and Conservation: evolution"
  - On 23 November, R. Chopra from the TROP ICSU project participated in the session "climate change: responses"
  - On 24 November 2021, IUBS organized a session on "How NGO's collaborations can tackle the global issues?" with the participation of J. Buckeridge, L. Rodriguez, I. Gledhill, E. Warrant, LS Shashidhara and N. Fomproix.



## IUBS scientific programmes



The programmes have been reviewed and approved at the General Assembly in 2019.

Due to the pandemic and the lockdowns all around the world, several activities related to IUBS scientific programmes have been slowed down or postponed.

### ➤ **BHBD, open Biodiversity and Health Big Data:**

- The BHBD programme has been continuously building the open data system through big data archive, curation, integration and analysis. The total omics data archived has exceeded 11 PB.
- The Genome Sequence Archive has been designated as supported data repository by Springer Nature and Elsevier, and also recognized by Wiley and Taylor & Francis.
- The Resource for Coronavirus 2019 (RCoV19, formerly known as 2019nCoV) has been updated daily since its first release in January 2020, keeping as the most comprehensive database of SARS-CoV-2 sequences all over the world.
- Up to date, 28 institutions from 12 countries have joined the BHBD Alliance.
- The programme has successfully obtained a BRICS grant for SARS-CoV-2 research with partners from Brazil, Russia, India and South Africa

The following events have been organized:

- The 6th Big Data Forum for Life and Health Sciences, October 15, 2021, online, 800 participants. Countries involved: China, USA.
- Symposium on Biodiversity and Health Big Data. December 7-8, 2021, online, 70 participants. Countries involved: China, France, Japan, Korea, Malaysia, Morocco, Pakistan, Russia, Saudi Arabia, Thailand.

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### ➤ **GIIP, Global Integrative Pastoralism Program**

- The program continued developing the networking task with global pastoralist partners, networks and association, gathering data to populate the global pastoralist database and ultimately mapping pastoralist societies. Visualizations of these efforts can be seen in Pastoralists - uMap
- Production of a 10 min video soon available in different languages revising the misconceptions against pastoralism and explaining how pastoralism can palliate environmental problems related to water, fires, emissions, or biodiversity loss – and the pollinator crisis, requiring careful reconsiderations for land-use policies

- The following events have been organized:

- 20<sup>th</sup> March – 20<sup>th</sup> April, Marsabit and Laikipia counties (Kenya) – participatory workshops and interviews with pastoralists to appraise potential indicators of sustainability. Over 100 participants, 10 communities, 5 ethnic groups
- 25<sup>th</sup> May, “*Mapping for pastoralists*” virtual event – presentation of the [global map of pastoralists](#). Recording [available here](#). International audience from multiple continents, more than 100 attendees
- 27<sup>th</sup> May, “*The role animals play in food production and consumption*” workshop, University of Helsinki Viikki Campus. Participation of 15 Finland-based scholars with varied & multidisciplinary academic backgrounds. Co-Funded by HELSUS.
- 1-3 December, Buenos Aires, Argentina – Latin America pastoralist network Prompt Workshop. Coordinated by Pablo Frere and with 10 attendees from Argentina, Paraguay, Bolivia, Chile, Perú and Brazil

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## IUBS scientific programmes



### ➤ Working Group on the Governance of Taxonomic Lists

- The principal activity of the group was to prepare six commentaries on different aspects of the governance of global taxonomic lists, building on ideas generated the year before.
- On the basis of these papers, a questionnaire has been developed that will be used to canvas the opinions of taxonomists around the world on the governance regime that they feel best reflects their views.
- Six commentaries, were completed and published as a set in the Springer journal *Organisms, Diversity and Evolution*.
- In 2021 the group met remotely on three occasions to discuss how to take forward the ideas from the original workshop and the subsequent publication, in *PLoS Biology*, of the 10 Principles of Global Taxonomic Lists.

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### ➤ Conservation PaleoBiology in Africa (CPiA)

- In 2021, the core group of Conservation Paleobiology in Africa program collaborated remotely, given the pandemic restricted all other activities.
- The programme was presented at various meetings: German National Committee (DNK) of IUBS in June 2021, National Academy of Sciences in the United States in November 2021.
- The programme also got the approval for a proposal to organize a Special Feature for PNAS on “*The past as a lens for conserving biodiversity on a dynamically changing planet*”.

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## IUBS new initiatives

### ➤ IUBS Working Group on Zoonotic Diseases:

- In 2020 IUBS established a Working Group on Zoonotic Diseases in order to adopt an integrative, multi-disciplinary approach to understand the factors affecting the prevalence of zoonotic diseases.
- *Integrative Zoology*, the official journal of ISZS published two Special Subsections in November 2021. One is “*Infectious Diseases in Wildlife*” and another is “*Plague*”.

The following events have been organized:

- The first mini-symposium involving scientists from different disciplines and countries was organized on 26 April 2021, jointly the International Society of Zoology (ISZS). The purpose of this conference was to promote comprehensive research on zoonotic diseases by scientists from different disciplines, and to reveal the laws and dynamics of the spread of major zoonotic diseases that pose a high threat to humans.
- The 2nd Virtual Mini-symposium on Zoonotic Disease was hold as satellite session of the 23rd International Congress of Zoology, 23 November 2021.
- Members of the Working also participated in the session “*Links between loss of biodiversity, climate change and zoonotic diseases*” co-organized by IUBS during the 5<sup>th</sup> Science Forum.

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## IUBS new initiatives



### ➤ IUBS Working Group on Gender Equality:

- The group organized several online meetings in 2021
- An article was published in PAC: "Women must be equal partners in science: gender-balance lessons from Biology"
- The Working Group also participates in the SCGES activities.
- The Working Group organized a webinar
  - in junction with the International Congress of Zoology on 25 November 2021 on "*The gender gaps and the Biological Sciences*".

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### ➤ Environmental Education and Climate Resilient Plants

- With the active participation of the project collaborators, ISEB/CSIR-NBRI scientists and experts, prepared the draft training manual. The manual is being circulated to the experts for comments.

- The following events have been organized:

- ISEB in collaboration with National Institute of Disaster Management (Ministry of Home Affairs, Govt. Of India), New Delhi, India organised one Webinar for teachers, graduate students and researchers entitled "*Air Pollution and Climate Change*" on 21 October 2021.
- A public lecture by IUBS Project National (India) partner Prof. A.S. Raghvendra, was organised by ISEB in collaboration with CSIR-NBRI for students, research scholars and scientists on "*World Environment Day*" on 5 June 2021

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## IUBS Webinars series

- To commemorate completion of 100 years of promoting excellence in biological sciences, IUBS has launched a webinar series bringing the best of all disciplines to discuss evolution, taxonomy, ecology, biodiversity and other topics that represent unified biology and the topics of prime importance to address contemporary problems such as climate change, endangered species, health...

- [Two webinars](#) have been organized in 2021

- [Sean B. Carroll](#) on "*The Serengeti Rules: The Regulation and Restoration of Biodiversity*", on 10 March 2021
- [Dr. Jane Goodall](#), DBE on "*Gombe and Beyond*", on 27 April 2021

## Conferences sponsored by IUBS

- 26<sup>th</sup> International Diatom Symposium, 23-28 August 2021 Japan (online)
- Sixth International Symposium "Alien Species in the Holarctic: Borok VI", 11-15 October 2021, Russia (in presence)
- ICZ, International Congress of Zoology, 22-24 November 2021 South Africa (online)
- European Meeting for PhD Students in Evolutionary Biology (EMPSEB), 22-27 May 2022, Finland

## Young scientists sponsored by IUBS

- 26<sup>th</sup> International Diatom Symposium, 23-28 August 2021 Japan (online)
- International Conference of Nature and Natural Resources Conservation, 28-31 August, Egypt (in presence)
- Sixth International Symposium "Alien Species in the Holarctic: Borok VI", 11-15 October 2021, Russia (in presence)



## IUBS representatives participated in:



- ISC eGeneral Assembly, 1, 2 & 4 February 2021
- SCGES meetings: 25 February 2021, 25 September 2021
- Meetings for Gender Gap Coordination: 3<sup>rd</sup> March 2021, 6 October 2021
- International year, steering committee meetings: 8 March 2021, 9 August 2021, 8 December 2021
- SCAR Delegates meeting, 22-25 March 2021
- WGZD, 26 April 2021
- SBSTTA: 3 May to 9 June 2021
- ISC dues system: 22 June 2021
- Alliance against Health Risks in Wildlife Trade, introduction meeting, 27 June 2021, inception workshop, 22-23 June 2021
- ISC action plan: 28 July 2021
- Alliance against Health Risks in Wildlife Trade launch, 6<sup>th</sup> September 2021, Marseille, France
- ISC General Assembly: 11 to 15 October 2021
- NET POWER Network for Promotion of Women Empowerment Recognition, 2<sup>nd</sup> December 2021, Paris France.

## Meetings for IUBS governance :

Officers meeting, 3 March 2021 (online)

Executive Committee meeting, 12 April 2021, (online)

## Publications

### BHBD:

1. Database resources of the National Genomics Data Center, China National Center for Bioinformation in 2022. CNCB-NGDC Members and Partners. *Nucleic Acids Res.* DOI: 10.1093/nar/gkab951.
2. Gene Expression Nebulas (GEN): a comprehensive data portal integrating transcriptomic profiles across multiple species at both bulk and single-cell levels. Zhang, Y. et al. *Nucleic Acids Res.* DOI: 10.1093/nar/gkab878.
3. EWAS Open Platform: integrated data, knowledge and toolkit for epigenome-wide association study. Xiong, Z. et al. *Nucleic Acids Res.* DOI: 10.1093/nar/gkab972.
4. Regeneration Roadmap: database resources for regenerative biology. Kang, W. et al. *Nucleic Acids Res.* DOI: 10.1093/nar/gkab870.
5. scMethBank: a database for single-cell whole genome DNA methylation maps. Zong, W. et al. *Nucleic Acids Res.* DOI: 10.1093/nar/gkab833.
6. Genome Warehouse: a public repository housing genome-scale data. Chen, M. et al. *Genomics Proteomics Bioinformatics.* DOI: 10.1016/j.gpb.2021.04.001.
7. Genomic epidemiology of SARS-CoV-2 in Pakistan. Song, S. et al. *Genomics Proteomics Bioinformatics.* DOI: 10.1016/j.gpb.2021.08.007.
8. The Genome Sequence Archive Family: toward explosive data growth and diverse data types. Chen, T. et al. *Genomics Proteomics Bioinformatics.* DOI: 10.1016/j.gpb.2021.08.001.
9. Molecular evolutionary analysis of human primary microcephaly genes. Pervaiz, N. et al. *BMC Ecol Evol.* DOI: 10.1186/s12862-021-01801-0.
10. Selection trends on nasal-associated SNP variants across human populations. Raza, Z.R. et al. *Meta Gene.* DOI: 10.1016/j.ege.2021.100872.

### GIIP

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2. Bencherif, S.; Dahmani, M. B.; Burgas, D.; Manzano, P. (2021). Current social and rangeland access trends among pastoralists in the Western Algerian Steppe. *Land* 10 (7), 674. doi: 10.3390/land10070674
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6. Manzano, P. (2021). Challenges of pastoralism and rangelands in Europe. In: Proceedings of the Joint XXIV IGC and XI IRC Congress, Nairobi, Kenya, 23rd–29th October 2021, p: 6/18.
7. Cevallos, M.R.; Manzano, P. (2021). Women's empowerment for demographic issues and conflicts in African pastoralist societies. In: Proceedings of the Joint XXIV IGC and XI IRC Congress, Nairobi, Kenya, 23rd–29th October 2021, p: 6/3.
8. Manzano, P.; White, S.R. (2021). Considering natural baselines when calculating livestock impacts point to a negligible role of grass-fed livestock systems in climate change. In: Proceedings of the Joint XXIV IGC and XI IRC Congress, Nairobi, Kenya, 23rd–29th October 2021, p: 5-2/3.
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## Taxonomy

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2. Thomson, S. A., Thiele, K., Conix, S., Christidis, L., Costello, M. J., Hobern, D., ... & Garnett, S. T. (2021). Towards a global list of accepted species II. Consequences of inadequate taxonomic list governance. *Organisms Diversity & Evolution*, 21(4), 623-630. <https://doi.org/10.1007/s13127-021-00518-8>
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## CPiA

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4. Blanco F, Calatayud J, Martín-Perea DM, Domingo MS, Menéndez I, Müller J, Fernández MH, Cantalapiedra JL 2021. Punctuated ecological equilibrium in mammal communities over evolutionary time scales. *Science* 372(6539): 300-303.
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## WGZD

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## WGGE

"Women must be equal partners in science: gender-balance lessons from Biology", *Pue Appl. Chem.* 2021, <https://doi.org/10.1515/pac-2020-1210>