



GLOBAL BIODIVERSITY

INFORMATION FACILITY

Annual Report
2004

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Global Biodiversity Information Facility

Third Annual Report

It is with pleasure that I present to you the Annual Report on GBIF activities during 2004. This is the first annual report in which we are able to present technically substantive results. In GBIF's first two years, many plans and designs were thought through and laid down, but it is in 2004 that these have been implemented.

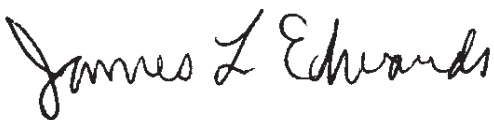
Much of our first year here at the Secretariat was spent building the team - interviewing, hiring and bringing on board the staff needed to carry out the tasks that GBIF had set for itself. During the second year we traveled a great deal, presenting GBIF ideas and seeking advice, and figuring out how best to work together.

During this third year we really began to hit our stride, and put our ideas into practice. The Prototype Data Portal was launched, and has stood up to the test of international access. Although we are aware that the user interface and some of the functionalities need significant improvement, the concept has been proved viable. There has been growth in both the number of data providers and the amount of data available through the Portal, and we are confident that these will continue to increase.

In 2004, a good deal of time and attention has been devoted to the Third Year Review of GBIF. Though the results will not be available until early 2005, the review process itself has been instructive and useful.

Looking forward, we anticipate responding to the recommendations in the Review Report. However, it is also good to look back and see what we have accomplished. I trust that this Annual Report will convince you that in 2004, GBIF made substantial progress toward its goals of making the world's biodiversity data freely and openly available via the Internet.

Sincerely,



Global Biodiversity Information Facility Secretariat
Copenhagen, October 2005



*James L. Edwards,
GBIF Executive Secretary and
Director of the Secretariat*

2004 Work Programme Theme 1: Network Implementation

Building the GBIF Data Portal, hub of the Network

In February 2004, GBIF attained a significant milestone by opening its Prototype Data Portal to the general public. As a result, GBIF now is beginning to provide to the world the biodiversity data that is of such importance.

The launch of the Prototype Data Portal

The prototype portal was launched to demonstrate the integration of data within the GBIF network on 9 February. Developments undertaken that were related to the Data Portal included:

- Establishing contracts with programmers to enhance and extend portal functionality.
- Documenting a strategy for continuing development of the Data Portal.
- Letting a contract in support of the design of a TDWG protocol that merges the function of the existing DiGIR and BioCASE protocols.
- Tendering a contract (jointly with SEEK) to support development of a TDWG standard for the exchange of taxonomic names and concepts (Taxon Concept Schema - TCS).
- Updating and making available user interface packages:
 - In the PHP provider package, institutions and Nodes that serve data from multiple collections now can recognise the individual collections visibly (developed by CRIA and the UK Node, and adopted by GBIF); there is also an easy installation package for Windows.
 - In the Python provider, version 2 of the GBIF Data Repository Tool is now available. This includes powerful metadata with Dublin Core, means of validation of data sets, easy publishing of data from spreadsheets to the Web, image-handling capabilities, and an easy installation package for Windows.
 - Work on translations of the portal into Danish, Spanish, Dutch, Polish, Japanese (by Nodes and other friends in the appropriate countries) is ongoing.



Box 1

Before the prototype data portal was launched, an **independent, technical review** of the GBIF network architecture and technical documentation was conducted. Dr. John McCarthy of the Lawrence Berkeley Laboratory concluded:

“Based on detailed review of GBIF’s excellent technical documentation and first-hand use of their current on-line facilities, it appears that GBIF is well on its way toward becoming one of the premier examples of a successful federated database network. Moreover, they have done so ... by using widely used modern software, protocols and standards. Continued success may depend on whether GBIF resources can grow to cope with demands for expanded services and membership that their initial work is likely to stimulate. In the future, GBIF can provide a model for other federated database projects, which can in turn contribute new ideas to GBIF and possibly even share development costs for some kinds of basic federated database infrastructure.”



Box 2 Software, standards and protocols developers of 2004.

The Prototype Data Portal design relies heavily on the contributions of many different individuals and projects to the development both of relevant data standards and also of key software components. Thanks are in particular due to:

- The *Taxonomic Databases Working Group (TDWG)* for its efforts over a number of years in developing key biodiversity data standards such as the Darwin Core; the Access to Biodiversity Collections Data (*ABCD*) schema; and the *DiGIR* and *BioCASE* protocols.
- The GBIF *Subcommittee for Data Access and Database Interoperability* (and other GBIF subcommittees) for their participation in the development of the GBIF data architecture.
- The *Species Analyst* project based at the *University of Kansas*, particularly for implementation of the *DiGIR* protocol.
- The *BioCASE* project and developers at the *Botanic Garden and Botanical Museum, Berlin*, for implementation of the *BioCASE* protocol.
- The *Centro de Referência em Informação Ambiental (CRIA)*, Campinas, Brazil and the *Centre for Biological Information Technology (CBIT)*, University of Queensland for Java development work within the GBIF Prototype Data Portal.
- The Catalogue of Life partnership (*Species 2000* and the *Integrated Taxonomic Information System*) for its long-term work in developing the taxonomic checklists that have provided the backbone for organising the data.
- The *Belgian Biodiversity Information Facility (BeBIF)* and the *Canadian Biodiversity Information Facility (CBIF)* for development of GIS mapping services integrated into the GBIF Prototype Data Portal.

Development Workshops sponsored by GBIF and some of its partners

These, in 2004 included

- Structured Descriptive Data, 17-18 May (in cooperation with the German National Biological Institute, Berlin)
- Making Species Databases Interoperable, 13 - 16 July (in cooperation with ENBI), Prague, Czech Republic
- TAPIR development meeting: DiGIR - BioCASE integration, 26-27 July (in cooperation with Botanical Garden and Botanical Museum, part of GBIF.de, in Berlin)

Experts group instituted for GBIF ICT

The ICT EG is an advisory group for the Secretariat comprising a small group of people that considers the strategy, planning, implementation and operational issues related to GBIF ICT products and services. In 2004 the group met 4 times virtually in a CIRCA chat room and discussed mainly how best to take into account user needs when designing GBIF services. The group was instrumental in initiating the data portal strategy process.

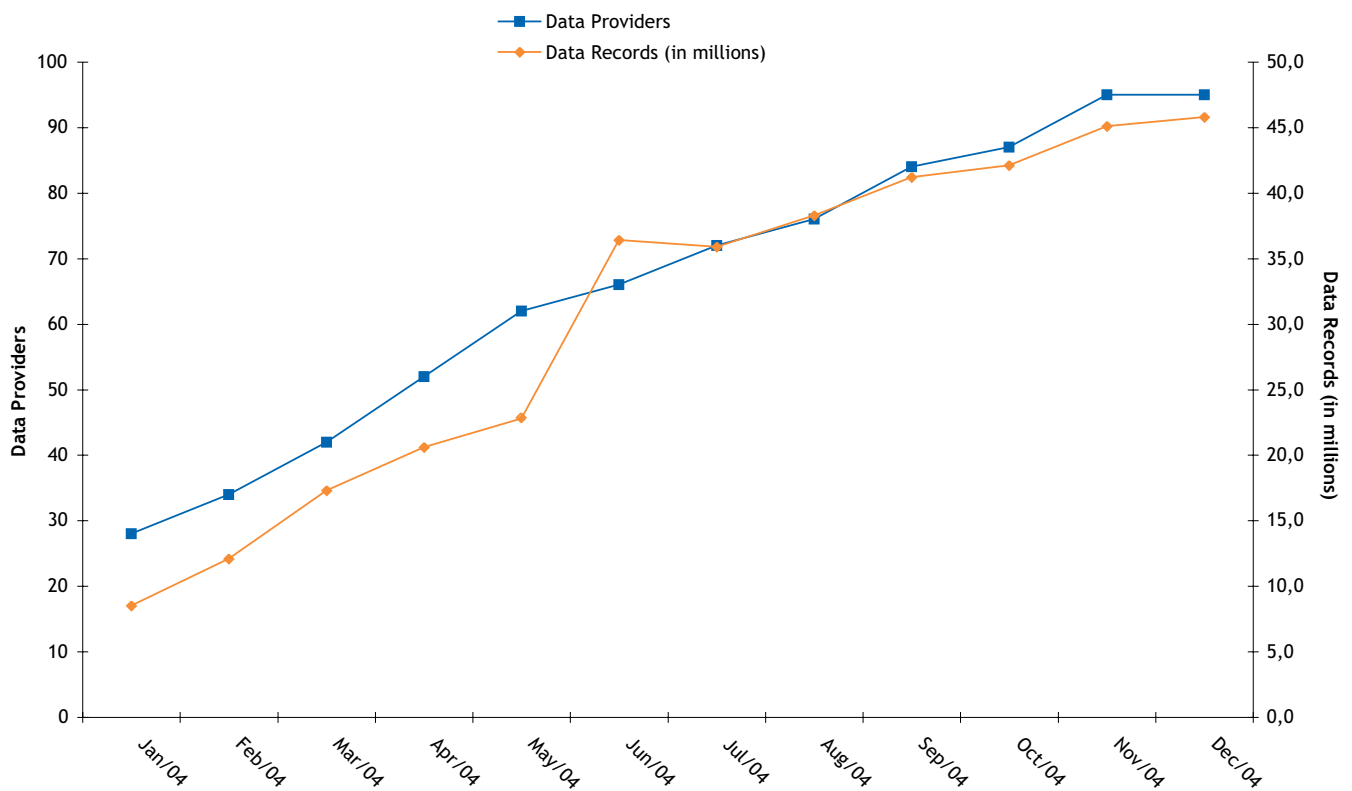


2004 Work Programme Theme 2: Digital Biodiversity Science

Developing Data Portal Content

The portal opened with 8 million specimen records served by 29 providers located in 14 Participant countries and organisations, and 486,484 scientific names data records provided by 20 members of the Catalogue of Life partnership. By 31 December 2004, there were approximately 46 million specimen and observational records served by 95 providers in 30 Participant countries and organisations, with the verified number of names records remaining the same. See Boxes 3 and 4 for listings of data providers who began to share data via the GBIF network during 2004.

Growth in Data Sharing 2004



Box 3

As of December, 2004, 18 Data Providers of the Catalogue of Life partnership (CoLP) were sharing names data via the GBIF Network according to a Memorandum of Cooperation between CoLP and GBIF signed in December 2003.

AlgaeBase	International Organization for Plant Information
Bacteriology Insight Orienting System	Phyllachorales: Species Fungorum
CephBase	Rhytismatales: Species Fungorum
FishBase	Scarabaeidae
Hexacorallians of the World	Species Fungorum
Home of the Xylariaceae	Trichomycetes - Fungi Associated with Arthropods
ICTVdB - The Universal Virus Database	UNESCO - IOC Register of Marine Organisms
ILDIS World Database of Legumes	World Biodiversity Database
Integrated Taxonomic Information System	Zygomycetes: Species Fungorum

Seed money awards

In 2004, the DIGIT programme received and peer-reviewed 74 pre-proposals and 24 full proposals that resulted from the first review. The top 16 projects, listed in Box 5, were provided with seed funding. These DIGIT seed money awards will leverage approximately \$2.9 million USD in digitisation activities. By the end of 2005, the funded projects should

- Bring more than 2.6 million new specimen and observational records from 25 countries into the GBIF network; and
- Make more than 50,000 type specimen records, including images, accessible via GBIF.

The ECAT seed money programme has awarded a total of \$501,610 USD to 15 taxonomic projects. Using this funding, 8 Global Species Databases, 5 geographic checklists, and 2 nomenclators will be completed. The taxonomic distribution of the awards is 15 Animalia, 11 Plantae, and 1 Protista; the project investigators and their collaborators are located in 26 different countries. The projects are listed in Box 6.



Box 4

As of December, 2004, 95 DiGIR or BioCASE providers representing 29 GBIF Participants were serving specimen or observation data via the GBIF network. It should be noted that many of these providers were handling multiple data sets, often from several institutions.

Argentina	Centro de Ecología Aplicada Centro Nacional Patagónico - CONICET	Germany	Botanic Garden and Botanical Museum Berlin-Dahlem Botanische Staatssammlung München Fachbereich Wald und Forstwirtschaft Herbarium Hamburgense SysTax Zoologisches Forschungsinstitut und Museum Alexander Koenig
Australia	Australian Antarctic Data Centre Australian National Herbarium (CANB) Australian National Insect Collection, CSIRO Entomology National Herbarium of New South Wales	Iceland	Bundesamt für Naturschutz / Zentralstelle für Phytodiversität Deutschland Icelandic Institute of Natural History, Akureyri Division
Austria	Biologiezentrum der Oberösterreichischen Landesmuseen University of Vienna, Institute for Botany	Japan	GTI Japan
Belgium	BeBIF Provider Marine Biology Section Ugent	Korea, Republic of	CCBB (Center for Computational Biology and Bioinformatics), KISTI KBIF Biodiversity Data Repository
CABI Bioscience	CABI Bioscience UK Centre	Mexico	CNMA Mamíferos Museo de Zoología de la Facultad de Ciencias, UNAM
Canada	Bird Studies Canada Canadian Biodiversity Information Facility Canadian Museum of Nature EMAN Provider Royal Ontario Museum University of Alberta Museums	Netherlands	NLBIF
Colombia	Herbario Nacional Colombiano	New Zealand	GBIF New Zealand
Costa Rica	Instituto Nacional de Biodiversidad (Costa Rica)	Peru	Siamazonia Provider
Denmark	The Danish Biodiversity Information Facility	Poland	Instytut Hodowli i Aklimatyzacji Rozlin Institute of Environmental Sciences UJ Institute of Nature Conservation PAS Institute of Zoology, Jagiellonian University Mammal Research Institute PAS, Białowieża Museum and Institute of Zoology, Polish Academy of Science Warsaw University, Faculty of Biology
Estonia	Institute of Zoology and Botany of EAU	Slovakia	Institute of Botany, Bratislava
EU - BioCASE	Israel Nature and Parks Authority	Slovenia	Prirodoslovni muzej Slovenije
		Spain	GBIF-Spain Herbario de la Universidad de Granada Herbario SANT, Universidade de Santiago de Compostela Universidad Politécnica de Madrid



Sweden The Swedish Museum of Natural History (NRM)

Switzerland Herbaria of the University and ETH Zürich (Z+ZT)

Taiwan Taiwan Biodiversity Information Facility

United Kingdom UK National Biodiversity Network

United States Academy of Natural Sciences
 Arkansas University
 Bernice Pauahi Bishop Museum
 Burke Museum, University of Washington
 California Academy of Sciences
 Cornell Laboratory of Ornithology
 Fairchild Tropical Botanic Garden
 Field Museum
 Illinois Natural History Survey
 Institute of Natural Resource Analysis and Management
 International Institute for Sustainability, Arizona State University
 James R. Slater Museum of Natural History
 Los Angeles County Museum of Natural History
 Louisiana State University Museum of Natural Science
 Michigan State University Museum
 Missouri Botanical Garden
 Museum of Comparative Zoology, Harvard University
 Museum of Natural Science
 Museum of Texas Tech University (TTU)
 Museum of Vertebrate Zoology
 Ohio State University Insect Collection
 The New York Botanical Garden
 University of California, Berkeley,

WFCC

Natural History Museums
 University of California, Davis
 University of California, Santa Barbara, Marine Science Institute
 University of Alabama Biodiversity and Systematics
 University of Alaska Museum of the North
 University of Colorado Museum
 University of Kansas Biodiversity Research Center
 University of Michigan Museum of Zoology (UMMZ)
 University of Minnesota Bell Museum of Natural History
 University of New Mexico Museum of Southwestern Biology (MSB)
 University of Tennessee - Chattanooga (UTC)
 University of Tennessee - Knoxville (UTK)
 University of Texas at El Paso
 Utah Museum of Natural History
 Utah State University
 World Data Centre for Microorganisms (WDCM)



Box 5 Projects funded by the DIGIT programme in 2004.

Digitisation of Collections at the National Colombia Herbarium

Setting up Danish herbaria as data providers to GBIF

Geo-referencing and Imaging Mesoamerican Vascular Plant Specimens

Digital Image Database of the Insects of Papua New Guinea

Name Service under English Translation for natural history specimens digitized in Japanese

Digitization of Cuban Pteridophytes collections

Digitization of fungal specimens at CMU, HUE, HKU(M), MIB, MRC, SWFC and YU, including comprehensive visualization of type specimens

Digitization of Specimen Data of the Herbarium of Sun Yat-sen University, China

Digitizing the CABI Bioscience Fungal Reference Collection (IMI), a global resource

Digitization of botanical collections in Austria (DIGIBOTA)

Invasion Biology of Insects—collections and data

Digital Database of the Insects of Mongolia (DIDIM)

Linking local databases for collections of plasmodial slime molds (Myxomycetes) to create a global web-based herbarium

Capture of Australian Land Mollusca label and observational data from Australian collections

Southern African historic bird database (SABASE): A tool for research and conservation

Digitisation of Australian type collections held at Kew with repatriation of data to Australia

Rodrigo Bernal, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia, with a partner in Germany

Finn Borchsenius, Department of Systematic Botany, University of Aarhus, Denmark

Gerrit Davidse, Missouri Botanical Garden, St. Louis, MO, USA, with a partner in Honduras

Mark Ero, National Agricultural Insect Collection (NAIC), Papua New Guinea, with partners in Australia and USA

Yasuo Ezaki, Museum of Nature and Human Activities and University of Hyogo, Sanda, Hyogo Prefecture, Japan

Ledis Regalado Gabancho, Ciudad de La Habana, Cuba

K.D. Hyde, Department of Ecology & Biodiversity, The University of Hong Kong, with partners in China, Mongolia, Netherlands, New Zealand, Thailand, USA, Vietnam

Ming-guang Li, The Museum of Biology, Sun Yat-sen University, Guangzhou, China

David W. Minter, CABI Bioscience, Egham, Surrey, UK, with partners in India and Malaysia

Heimo Rainer, Herbarium WU, University of Vienna, Austria, with partners in Austria

George Roderick, Insect Biology, University of California, Berkeley, CA, USA, with partners in Australia and USA

L. Ronkay, Hungarian Natural History Museum, Budapest, Hungary

Martin Schnittler, Botanical Institute and Botanical Garden, Ernst-Moritz-Arndt University Greifswald, Germany, with partners in Belgium, Russia, Spain, USA

Cameron Slatyer, Department of the Environment and Heritage, Natural Heritage Assessment Section, Canberra, Australia, with partners in Australia and USA

Leslie Gordon Underhill, Avian Demography Unit, University of Cape Town, South Africa, with partners in South Africa and Germany

Judy West, Australian National Herbarium, CSIRO, Canberra, Australia, with partners in Australia and UK



Box 6 Projects funded by the ECAT programme in 2004.

A World Catalogue of Centipedes (Chilopoda) for the Web

Digitizing and Parsing Nomenclator Zoologicus

Implementation of an extensible register of the European and Mediterranean Compositae

Electronic Catalogue of the bees (Apoidea) of sub-Saharan Africa and the East Indian Ocean Islands.

Catalogue of the Crane flies of the World (Insecta, Diptera, Tipuloidea) (CCW)

Namibian Biodiversity Database—biosystematics component

Completion and dissemination of a World Rubiaceae Checklist

Completing the World Legume checklist: Adding the last 24% of species to the World Database of Legumes

ECatSym: Electronic World Catalog of Symphyta (Insecta, Hymenoptera)

Sharing biodiversity information through web-based checklist of African insects

Global Butterfly Names

Electronic Catalogue of Known Indian Fauna

Cataloguing Mammalian Taxonomy: Creating an up-to-date, interoperable and dynamic database for the 21st century.

A global species database for Phylum Bryozoa

Creating global access to the Index Nominum Algarum, a nomenclator targeting all algal names

Alessandro Minelli, Department of Biology, University of Padova, Italy, with partners in Argentina, Australia, Bulgaria, UK, USA, Brasil

David Remsen, MBLWHOI Library of The Marine Biological Laboratory in Woods Hole, Massachusetts, USA, with partner in U.K.

Werner Greuter, Freie Universitaet Berlin, ZE Botanischer Garten und Botanisches Museum Berlin-Dahlem, Germany

Connal Eardley, Agricultural Research Council, Plant Protection Research Institute, South Africa, with partners in Italy, Ghana, Kenya, South Africa, USA, Germany

P. Oosterbroek, ETI Bio-Informatics Center, University of Amsterdam, The Netherlands, with partner in Czech Republic

John Irish, Ministry of Environment and Tourism, Namibia, with partners in Cameroon, Madagascar, Belgium, Portugal, USA, Sweden

Aaron P. Davis, Royal Botanic Gardens, Kew, UK, with partner in Papua New Guinea

Yuri Roskov, International Legume Database & Information Service, The University of Reading, UK, with partners in India, China, USA

Stephan M. Blank, Leibnitz-Zentrum für Agrarlandschafts- und Landnut-zungsforschung e.V. (ZALF), Germany, with partners in USA, Japan, China

Ian Gordon (Kenya) and **Scott E. Miller**, Smithsonian Institution, Washington DC, USA

James Mallet, University College London, U.K., with partners in Peru, USA

Vishwas Chavan and **S. Krishnan**, National Chemical Laboratory, India

Don E. Wilson, Smithsonian Institution, Washington, DC, USA, with partners in UK, Germany, South Africa, Italy

Scott Lidgard, The Field Museum, Chicago, IL, USA, with partners in Australia, New Zealand

Paul C. Silva, University of California, Berkeley, CA, USA



Partnerships in Developing Names Data

The Catalogue of Life partnership data still form the backbone of the Electronic Catalogue of Names of Known Organisms that GBIF is striving to complete, but other organisations also have importance in building the ECAT. A Memorandum of Cooperation with Index Fungorum Partnership (IFP) was signed during 2004. The purpose of this Memorandum of Cooperation is to establish a framework through which fungal names data compiled and maintained by the IFP can be used in building up the GBIF biodiversity network.

The Secretariat is also working with other nomenclators, either to develop Memoranda of Cooperation or to formalise the partnerships in other ways, with the goal of building names data content for the GBIF network. These organisations include, e.g., Bergey's Manual, the International Committee on Taxonomy of Viruses, International Committee on Systematics of Prokaryotes, International Nanoplankton Association, the International Plant Names Index, the Universal Biological Indexer and Organizer (uBio) and the Zoological Record.

Data Sharing with Countries of Origin

GBIF commissioned a study on this topic, which was carried out by the Reference Centre on Environmental Information (CRISA). The full white paper that resulted can be found at <http://www.gbif.org/prog/ocb/sdco>. In general terms, however, for the group of institutions that answered the questionnaire involved in the study it was found that:

- most projects, regardless of whether the main purpose is to share data with the country of origin or not, are making information freely available on the Internet;
- data-sharing is carried out as a collaborative effort through informal agreements;
- as to IPR, important issues are proper attribution or credit to all partners involved, custodianship and ownership (i.e. each contributing museum retains ownership of its records) and acknowledgement;
- digitising and data basing collections are fundamental for the day-to-day operation of a collection. Regardless whether linked to a data-sharing program or not collections must database their collections and document their activities.
- international collaboration, which has always existed in taxonomy, is largely enhanced by on-line dissemination of data and information;
- with the evolution of information and communication technology it is becoming possible to develop inter-disciplinary applications, disseminate information to a wider public and promote the use of scientific data for other purposes;
- financial constraints, followed closely by technological problems and human resources constraints, were the three problems and hurdles most mentioned;
- digitisation is a trend and will continue to happen. It depends on proper policies and technologies to accelerate the process, and to ensure the accuracy and quality of the resultant product.
- international collaboration is largely enhanced by on-line dissemination of data and information.



Workshops

To contribute to increase in data availability and accessibility, workshops were sponsored by GBIF during 2004 including:

- Nomenclators workshop, 26 January (Copenhagen, Denmark)
- IPR workshop in cooperation with GBIF-España, 1-2 March (Madrid, Spain)
- Techniques and challenges for digital imaging of biological type specimens, in cooperation with ENBI, 17-19 March (Berlin, Germany)
- Towards a working list of known plant species: Coverage, gaps and metadata, 28-30 June (organised with Species 2000 and Royal Botanic Gardens, Kew; funded by BBSRC of the U.K., Kew and GBIF), in support of the GSPC (Royal Botanic Gardens, Kew, U.K.)

Data provider training sponsored by GBIF

Three such capacity-building opportunities were offered in 2004:

- Africa (Anglophone): Capetown, South Africa 24-26 March, attended by 20 persons representing 15 countries and 5 organizations
- Africa (Francophone): Paris, France 21-25 June, attended by 15 persons representing 9 countries
- Global/International: Copenhagen, 27-29 September, attended by 7 persons representing 3 countries and 2 organizations



Box 7

The following countries and organisations were represented in the workshops designed to train people from data sharing institutions to use the DiGIR protocol for providing data to the GBIF network.

Belgium	Benin
Cameroon	Central African Republic
Denmark	Ethiopia
France	Guinea
India	Kenya
Madagascar	Mali
Senegal	South Africa
Swaziland	Tanzania
Togo	Zambia

BioNET-INTERNATIONAL • Finding Species • Global Invasive Species Program (GISP) • International Centre for Insect Physiology and Ecology (ICIPE) • Nordic Gene Bank • SAFRINET • WAFRINET

2004 Work Programme Theme 3: Participation, Impact and Benefits of GBIF

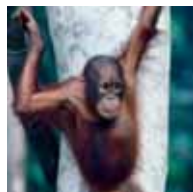
Importance of Participant Nodes

The Work Programme emphasises the importance of the Participant Nodes to the success of the GBIF idea. Not all GBIF Participants have established their Nodes, which is obligatory under the MOU. In order to gain and update an understanding of the challenges of establishing and running the Nodes, the Secretariat developed an online reporting system for them, which keeps information always up to date and summarises current and potential status and plans for the next year of the GBIF network. An updated summary of the status of the Nodes can be accessed at any time at <http://www.gbif.org/NodesReports/partSums>. The Nodes Committee emphasised that there are several issues and challenges faced by Node managers in setting up and operating their nodes. Key messages from the Nodes to GBIF as a whole in 2004 were:

- One of the major difficulties is motivating and coordinating potential data providers.
- Nodes have quantified the potential data content scale of GBIF, and therefore provide a means for Governing Board and Participants to gauge progress in increasing content.
- Large resources of already digital data within some country Participants mean the numbers of records served through the Prototype Data Portal could easily increase significantly.

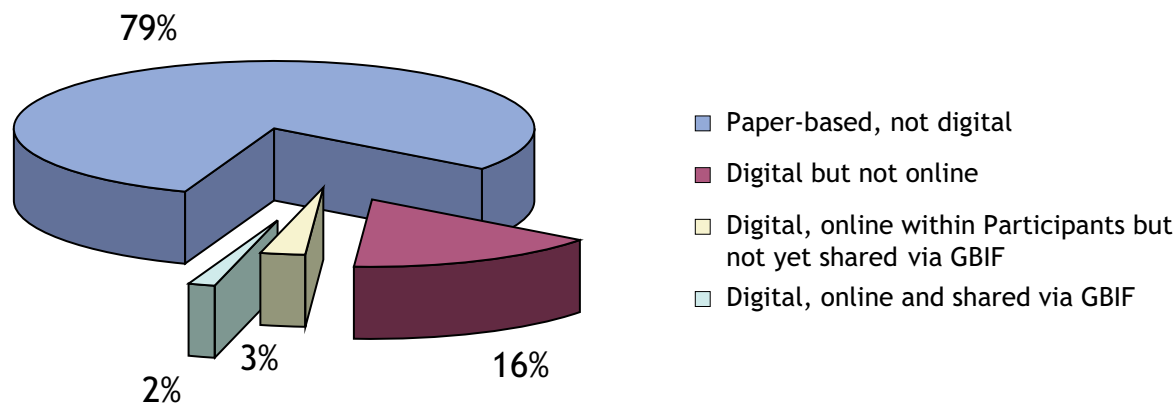
Table 1 Status of collections-based data reported by the Nodes.

Type	Number of items	%
Paper	639,954,000	79.65
Digital but not on line	126,683,095	15.77
Digital on line within participants but not connected to GBIF.NET	24,218,770	3.01
Digital on line and connected to GBIF.NET	12,575,686	1.57
Total	803,431,551	100.00



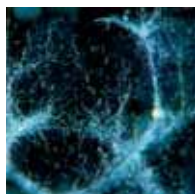
- Technical barriers are not at present what is preventing access to these data: Assistance and resources are needed to help nodes engage with potential data providers, and solve the people, policy and priority barriers. The GBIF work programme and participants both have roles in making this happen.
- Other barriers to progress discussed by Nodes include resources, network expansion and capacity building, IPRs, support for digitisation, and issues surrounding data schemas, name services and training.
- Nodes can use the GBIF technologies to provide data to the Prototype Data Portal, but would like aspects of the technologies improved.
- As the GBIF network grows, more expertise at the Participant level will be needed, because the Secretariat staff is too small to handle all the requests for assistance and training.

Status of Data Records Among Participants Reporting as of April 2004



Box 8 Significant events or developments in the lives of some of the Nodes during 2004.

Australia	Secured the funding and put the staff in place to bring ABIF online.
BIOSIS	Began the extraction of names from the archival printed copies of Zoological Record, which will ultimately result in a contribution of 1.5 million animal names to ECAT.
Colombia	First data provider (Herbario Nacional Colombiano) online
Denmark	DanBIF held an international conference on molecular biodiversity that was attended by 115 researchers from 11 countries.
France	The Foreign Affairs Ministry launched a €4 million, 4 year initiative to improve taxonomic capacities in Africa, the Indian Ocean and Southeast Asia.
Korea	Established KBIF and held workshops to inform about data sharing and recruit data providers.
Netherlands	Mounted a web site showing 3D images of the type specimens of the bird collection of the Zoological Museum of the University of Amsterdam that was featured in Science magazine's Netwatch.
Norway	Signed the GBIF MOU in March.
OBIS	Regional OBIS Nodes were established in Canada and Europe, which were instrumental in increasing the data available via the OBIS Portal (and thus to GBIF) to 38 data sources, 4 million records by the end of the year.
SAFRINET	Established close links with SABIF.
Slovakia	Type specimen database on line; digitisation of herbaria in progress.
Spain	Customized data portal providing access to data from 27 collections and projects in Spain.
Sweden	Served 2.4 million records through the GBIF data portal.
United Kingdom	The National Biodiversity Network Gateway (which serves as the UK's GBIF Node) was launched.

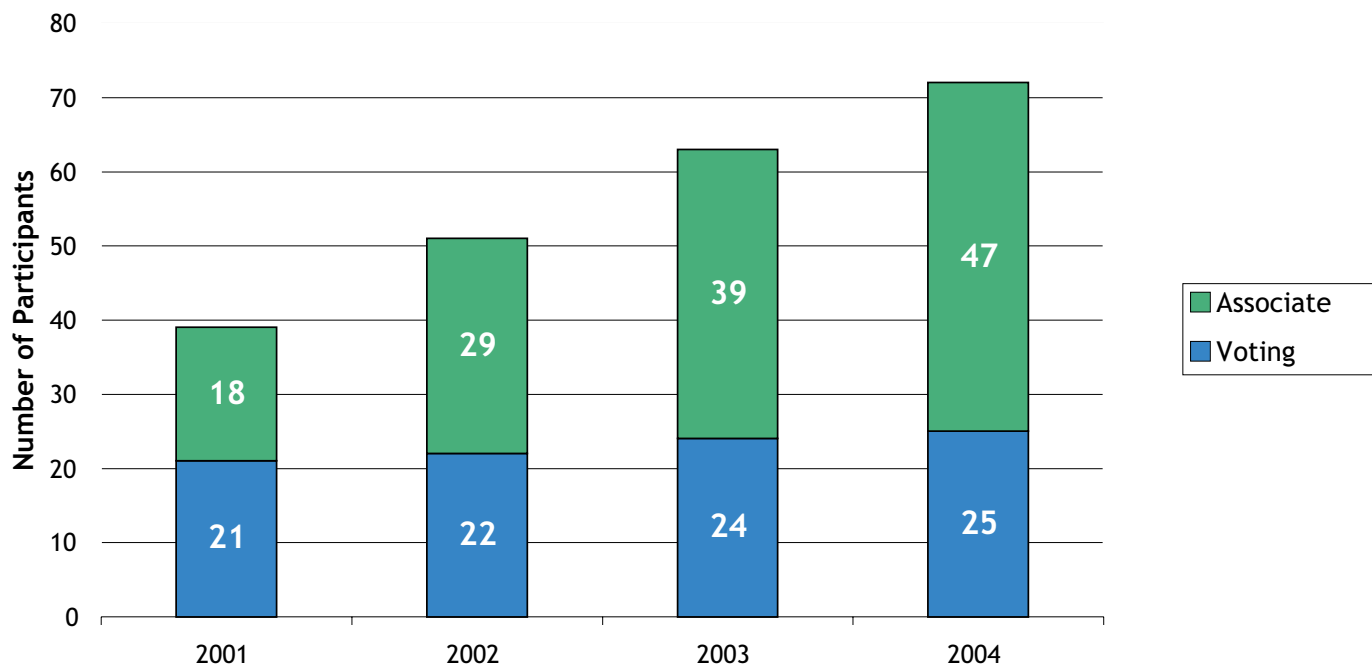


*Francisco Pando
Nodes Liaison Officer*

To help address the Nodes' needs the Governing Board (GB9) approved a position of **Nodes Liaison Officer** to be established in the GBIF Secretariat early in 2005. In addition, the Secretariat, led by the Nodes Liaison Officer, will coordinate a Node-to-Node Mentoring Programme that was launched in October 2004.



Growth of GBIF Participation (as of 31 Dec 2004)

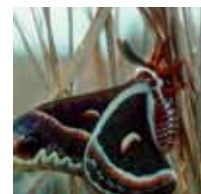


During 2004, GBIF added one new Voting Participant (Norway), three country-level Associate Participants (Indonesia, Papua New Guinea, Benin) and five organisations (Botanic Gardens Conservation International, International Centre for Insect Physiology and Ecology, Natural Science Collections Alliance, Nordic Gene Bank and the Pacific Biodiversity Information Forum).

Box 9 Participant activities of special note in 2004

Denmark's Foreign Ministry provided DKK 500,000 to the GBIF Supplemental Fund to increase participation of developing countries in GBIF events.

The Netherlands is fulfilling Paragraph 3.3d of the GBIF MoU by making "...other investments in biodiversity information infrastructure in support of GBIF". A grant of €2.35 million to a consortium of natural history collections will enable digitisation of 1.5 million records.



Box 10

GBIF held an IPR Experts Meeting in Madrid in March 2004, hosted by GBIF-Spain. These are the main findings and recommendations of that meeting. The full report of the meeting is available at <http://www.gbif.org/prog/ocb/iprmtg>

Findings

- GBIF (MoU Paragraph 8) respects IPRs through
 - recognizing the right to equal access,
 - facilitating access to data put in public domain,
 - respecting conditions set by data providers, and
 - acknowledging the sources of data.
- Legal protection for databases is through traditional copyright law, following the originality criterion (that is, the database must be an intellectual effort beyond the mere accumulation of data).
- European Directive 96/9
 - protects original databases, and
 - offers a sui generis right to protect non-original databases that required an investment in their making. As such,
 - Extraction and re-utilisation of their content may be restricted, but
 - Fair use exceptions do apply: teaching, private purposes, and research.

Recommendations

- Provide data providers with a model data sharing agreement
- Distribute a 1 pager on what is meant by IPR within the GBIF context
- Document best IPR practices and disseminate them widely
- Consider possibly offering training related to IPR
- Create a small pro bono group of legal experts on IPR matters related to GBIF work, who would
 - Ensure the legal robustness of the IPR framework now established
 - Identify cases or situations in which IPRs may be impacting GBIF activities
 - Prepare a legal paper that identifies the main legal and practical issues and challenges related to IPRs and biodiversity data, and
 - Provide a clear and transparent legal IPR framework for GBIF



Intellectual Property Rights

A study was commissioned to assess the bearing of general IPR considerations on GBIF biodiversity data, as a starting point for the Experts Meeting on this topic held in Madrid in March (see Box 10). The resulting white paper is available on the GBIF Communications Portal at <http://www.gbif.org/prog/ocb/iprmtg>.

The paper identifies and analyses some of the key elements of GBIF's situation within the evolving IPR universe, and identifies the tensions between the needs of science for the free flow of data and information and the IPR considerations of private interests with regard to this same data and information.

Ultimately, for science to continue building and progressing, the flow of data and information must not be restricted or conditioned. Furthermore, conservation of biodiversity must also be linked to sound policy making, which in turn, requires solid scientific foundations to which information and data networks significantly contribute.

GBIF will facilitate access to and use of biodiversity data and information with due recognition of ownership (if applicable to specific cases) and will seek to ensure that (as far as practically possible) data users respect these rights and utilise data and information accordingly.

Data Sharing and Data Use Agreements

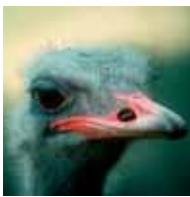
To provide the overall framework for considering data ownership concerns and interests, data use and data sharing agreements were developed by the Secretariat based on the IPR white paper and on the outcome of the Madrid workshop on IPR issues. Following approval at GB9, these agreements are now in use on the Prototype Data Portal. Full text of both agreements is included in Annex 4.

Demonstration projects

The 2004 proposals for GBIF Demonstration Projects were so good that two were chosen, rather than one. One of the 2004 GBIF Demo Projects will be carried out by a team that includes the Australian Department of the Environment and Heritage, in collaboration with the Queensland Museum, CSIRO Division of Entomology, Reference Centre for Environmental Information (CRISA) - Brazil, and CONABIO - Mexico. The project will develop an internet-based tool for biogeographic analysis of GBIF data, which will analyse and display species richness, endemism and taxonomic distinctiveness, drawing directly on GBIF specimen locality data.

The other project, a collaboration among CONABIO and the Universidad Nacional Autonoma de Mexico, and the University of Kansas, is entitled "Species Population Loss Meter Project". This Project will demonstrate the feasibility of actually estimating the rate of disappearance of species' populations by estimating distribution areas of species associated with primary vegetation on the basis of primary biodiversity data as obtained from GBIF, measuring the rates of loss of primary vegetation using satellite remote sensing, and overlapping the two kinds of maps.

Work has already begun on both projects, and completion is expected by May 2005. More information on these projects is available at <http://www.gbif.org/DemoProject>. In the meantime, explore the possibilities for use of GBIF data revealed in the 2003 Demonstration Project by following the link <http://gbifdemo.utu.fi/>.



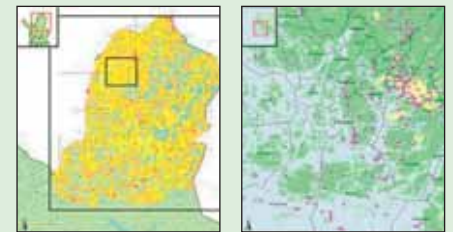
Box 11

The 2003 GBIF Demonstration Project illustrates the many uses for GBIF-mediated data (see <http://gbifdemo.utu.fi/>).

UTU-BIOTA Demo Project (Finland and Peru), begun in 2003 and completed in 2004:

This demo presents examples of the benefits of sharing and combining biodiversity information for different end users. Four (4) tours are available:

- Neotropical Species Distributions: Explore the reliability and consistency of data on species distributions.
- Access to multi-authored tree inventory plot data from the Western Amazon region.
- Is it possible to learn about large data sets through simple visualization? The tour examines one square km grid-based inventory data of vascular plant species in the sub-arctic Finnish Lapland.
- Distribution maps of collected insect specimens can be utilised in planning along with other regional information. Archipelago Sea in the SW Finland is used as an example.



Partnerships

GBIF, as it has always done, continues its work in partnership with many relevant organisations. For instance, the names data served through GBIF largely come from the Catalogue of Life partnership (CoLp). These data continue to form the backbone of ECAT. Because of the importance of this relationship, GBIF and the CoLp signed a Memorandum of Cooperation in December of 2003. The contract that accompanied the Memorandum of Cooperation has enabled the CoLp to speed up their production rate. During 2004, the names data for 486,000 species (plus synonyms), with a projection for 2005 of well over half a million, and over 700,000 for 2006.

GBIF also works to catalyse certain activities, again in partnership. In 2004:

- GBIF worked actively with TDWG and other GBIF participants to further the development of biodiversity data standards and implementation of corresponding tools:
 - GBIF and SEEK together provided funds in partnership to support the development of the TDWG Taxon Concept Schema for exchange of taxonomic and nomenclatural data;
 - GBIF provided funds for the development of a unification of the TDWG DiGIR and BioCASE search protocols, proposed at the TDWG 2004 meeting under the name TAPIR;
 - GBIF provided funds for a working session of the TDWG Structured Descriptive Data subgroup;
 - GBIF Secretariat staff had significant involvement in working sessions at the TDWG 2004 meeting.
- GBIF Secretariat staff were involved in meetings discussing the development of standards and tools for biological images, observational data, species banks (with ENBI) and microbial data (with WFCC and Belgian SPO).
- GBIF worked within the Consortium for the Barcode of Life Database Working Group to
 - ensure that barcode data recorded in GenBank would be interoperable with voucher specimen data in GBIF, and to
 - develop ways to apply GUIDs to the data objects.
- Secretariat staff held special meetings with the leadership of ALTERnet, the European Bioinformatics Institute, the European Molecular Biology Organization, Symbiosys (Alterra), GenBank, and the Encyclopedia of Life consortium in order to lay the groundwork for future collaborations (e.g. linkages with molecular and ecological levels of data).
- The well-established partnership between GBIF and the CBD, especially regarding the Global Taxonomy Initiative, the Global Strategy for Plant Conservation, the 2010 Initiative and the Clearing House Mechanism, was continued and strengthened.
- Initial contacts were made with the Secretariat of the Ramsar Convention.
- The call for proposals for the GBIF-UNESCO Chairs in Biodiversity Informatics made in 2003 elicited 13 proposals from all regions of the world. The purpose of this initiative was to stimulate research in biodiversity informatics and to train individuals from developing countries (and by doing so also addressing the digital divide). After careful evaluation of the submitted proposals, the GBIF-UNESCO selection panel chose 5 proposals: from Costa Rica, Indonesia and Tanzania in the developing world and



from Australia and the United States in the developed world. A period of exchanges to craft the proposals ensued until final approval in August.

- Importantly, Secretariat staff established connections within the private sector: Microsoft Research concerning software development, ESRI regarding GIS implementations, and IBM with regard to hardware.
- GBIF worked to enhance its partnerships and increase its visibility through representation by the Governing Board Chair and GBIF Secretariat staff on the boards, steering committees and advisory committees of a number of organisations:
 - ALTER-Net Advisory Committee
 - Consortium for the Barcode of Life (CBOL) Steering Committee
 - Conservation Commons Interim Steering Committee
 - Encyclopedia of Life Steering Committee
 - Global Invasive Species Information Network (GISIN) Interim Steering Committee
 - Global Taxonomic Initiative (GTI) Coordination Mechanism
 - Inter-American Biodiversity Information Network (IABIN) Council
 - International Conference on Biodiversity: Science and Governance Steering Committee
 - International Organization for the Systematic and Evolutionary Biology (IOSEB) Council
 - JRS Foundation Board
 - Natural Science Collections Alliance (NSCA) Board
 - Taxonomic Databases Working Group (TDWG) Executive Committee



Box 12 Symposium organised by GBIF for the General Assembly of the IUBS, Cairo, Egypt, 18 January 2004.

The Role of Biodiversity Informatics in Science and Society

- Introduction (James L. Edwards)
- What is Biodiversity Informatics? (Meredith Lane)
- Australian Botanical Informatics Serving Science and Society (Judy West)
- The National Biodiversity Inventory for Mexico (Jorge Soberón Mainero)
- Herpetological Informatics: Biodiversity Informatics Approaches to Taxon-Based Studies: The Amphibia as an Exemplar (David Wake)
- Expert Centre for Taxonomic Identification Biodiversity Informatics: Sharing Knowledge (Annalies Pierrot)
- The Ocean Biogeographic Information System: Mapping Marine Life over the Internet (Annalies Pierrot)



Box 13 Symposium organized by GBIF for the 22nd International Congress of Entomology, 20 August 2004.

The Emerging Global Biodiversity Information Infrastructure

- Building a Species Level Global Biodiversity Information Infrastructure (Larry Speers)
- Semantic Enrichment: Making Biodiversity Databases meaningful (Klaus Riede)
- Digitized insect specimen access: New digitization tools (Karl-Heinz Lampe)
- From species pages to taxon web sites: Using the Linnaean hierarchy to solve today's biodiversity informatics needs (F Christian Thompson)
- New directions in image management (Robert A Morris)
- The Biologia Centrali-Americana Centennial: A vision for digital access to taxonomic information (Chris Lyal and Anna Weitzman)
- The Australian Plant Pest Database: Its role in emergency management, market access and biodiversity studies (Ian Naumann)
- Defying the taxonomic impediment: The role of global taxonomic catalogs and the E-type Initiative (Pjotr Naskrecki)
- Taxonomic Databases, type specimens, and a global information system for butterflies: The GART/GloBIS project (Christoph Häuser)
- Applying biodiversity data: A continental system for heritage assessment based on richness and endemism (Dan Rosauer)



Science and policy meetings

During 2004, GBIF Secretariat staff attended the SBSTTA, the CBD Conference of Parties, and participated in the GTI side event at the latter, presenting posters about GBIF's contributions to the CBD and the GTI. In addition, the staff and the Governing Board Chair made presentations about GBIF at 45 other workshops, meetings and conferences. GBIF sponsored three symposia that presented GBIF science during 2004. The first was an invited symposium at the General Assembly of the International Union of Biological Sciences in Cairo, Egypt on January 18 (see Box 12). The PowerPoint presentations used can be accessed at http://www.gbif.org/GBIF_org/gbif_symposia.

The next was a symposium on the emerging global biodiversity information infrastructure that was organized for the 22nd International Congress of Entomology by GBIF Secretariat staff (see Box 13).

Also, the 2nd Annual GBIF Science Symposium was held in conjunction with GB8 in Oaxaca, Mexico (see Box 13), on 26 and 27 April. Again, was program and PowerPoint presentations can be accessed via http://www.gbif.org/GBIF_org/gbif_symposia. In conjunction with the symposium, the Ebbe Nielsen Prize was awarded for the third time (see Box 14.)

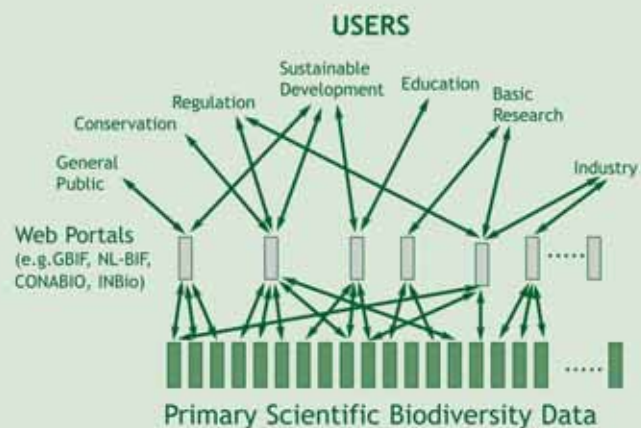


Box 14

GBIF Second Annual Science Symposium

Biodiversity Data Users Serving Science and Society

including the presentation of the 2004 Ebbe Nielsen Prize



Introduction (José Antonio de la Peña)

Part 1: Biodiversity Data in Discovery and Prediction

The Importance of Biodiversity Data to Scientific Discovery and Technological Applications (Lene Lange)

Using Biodiversity Data for Fine-scale Analysis of Risk of Disease Transmission (A. Townsend Peterson)

Part 2: Meeting Challenges in Presenting and Using Biodiversity Data

Presence-only Data in the Determination of Ecological Niches (Miguel Nakamura)

Information Building Blocks: A Biodiversity Informatics Approach to Empower Final Users (Erick Mata)

The Brazilian Biota / Fapesp Virtual Institute of Biodiversity (Vanderlei Canhos)

The Global Biodiversity Information Facility: History, Vision and Predictions (Thomas E. Lovejoy)

Part 3: Biodiversity Data in Natural Resource Policy and Management

Forests, Farms and Weeds: Applying Biodiversity Information to Natural Resources and Protected Area Management Issues in New South Wales, Australia (Frank Howarth)

Biodiversity Data and Public Policy in Mexico (Exequiel Ezcurra)



Box 15 The 2004 Ebbe Nielsen Prize

The 2004 Ebbe Nielsen Prize for innovative application of biodiversity informatics in biosystematics was awarded to Mr. Johan Nilsson of Sollentuna, Sweden, during the Second Annual GBIF Science Symposium in Oaxaca, Mexico.



Johan Nilsson

Mr. Nilsson, working for the Swedish Environmental Protection Agency, developed “Artportalen”, or Species Gateway, an Internet portal at <http://artportalen.se> that allows spontaneous reporting of sightings of birds, butterflies, moths, plants and fungi by anyone who wants to contribute biodiversity data. Modules for reporting amphibians, reptiles and mammals will be added.

The Ebbe Nielsen Prize, which is the only award in the world for work in biodiversity informatics, is given each year by the Governing Board of the Global Biodiversity Information Facility (GBIF). The Prize honors the memory of Ebbe Schmidt Nielsen, a Dane, who was an avid naturalist and renowned promoter of biodiversity informatics. He was a founding member of the GBIF Governing Board, on which he represented Australia.

Speaking of the award, Nilsson said, “To receive the 2004 Ebbe Nielsen Prize is a great honor for me. I’m very grateful to the GBIF Governing Board and the GBIF Science Committee for awarding me this prestigious Prize for work that I have enjoyed doing and that allows me to incorporate my computer analytical skills with my love of nature.”

The award was presented during the Science Symposium on Tuesday, 27 April 2004, by Drs. Christoph Häuser, Jim Edwards and Wouter Los (Chair of GBIF’s Governing Board, GBIF Executive Secretary, and the Chair of the GBIF Governing Board Science Committee, respectively).





Press Coverage

Within three weeks of the launch of the prototype Data Portal, it received a citation in *Science* magazine's Netwatch section (27 Feb 2004, vol. 303 p. 1267). The article cites GBIF's portal as the reply to an experts' dream of "a website that would unite all knowledge of the world's living things." Perhaps most importantly, the article pointed out that "GBIF, a consortium of more than 30 countries, hopes that more museums and other organizations will connect their databases."

In June, *American Scientist* chose the prototype Data Portal as its "Site of the Week" (see text of the article in Box 16).

Box 16 GBIF is *American Scientist* Site of the Week, June 29, 2004:

"GBIF is part of an international effort to liberate biodiversity data from natural history museums, libraries and databanks and distribute it freely throughout the world. In effect it's a large online database, with 66 data providers throughout the world and (at this writing) more than 35 million records, searchable by country, scientific name, common name in any language, English name and more.

"The interface is pleasingly intuitive, given the size and diversity of the database. Users can choose a preferred language (English, Danish or French), and the taxonomy can be browsed by country (Afghanistan to Zimbabwe), kingdom (Animalia to Virus) or data provider.

"The data themselves are already quite detailed, and accessible in a variety of formats, and GBIF plans to expand the species- and specimen-level data. On a wider scale, the project plans to provide an open-interface metadata registry, which will eventually permit a rich web of interlinked databases at the molecular, genetic, ecological and ecosystem levels—creating almost an online virtual ecosystem in itself."



Executive Secretary Edwards was invited to write a Viewpoint article for *BioScience*, which appeared as in June as "Research and Societal Benefits of the Global Biodiversity Information Facility" (*BioScience* Vol. 54 No. 6, pp. 485-486).

And then, in issue number 287 of the Disney cartoon "Jumbobog" published in Danish (Egmont Serieforlaget A/S, København), Donald Duck ("Anders And" in Danish) visited the "World Biological Information Facility" for which GBIF was clearly the model (see back cover).

Other press coverage in addition to the above included mention of GBIF in 3 articles in *Science* and 4 articles in *BioScience*, as well as 10 articles in newspapers (various countries) and links to GBIF on at least 8 websites.

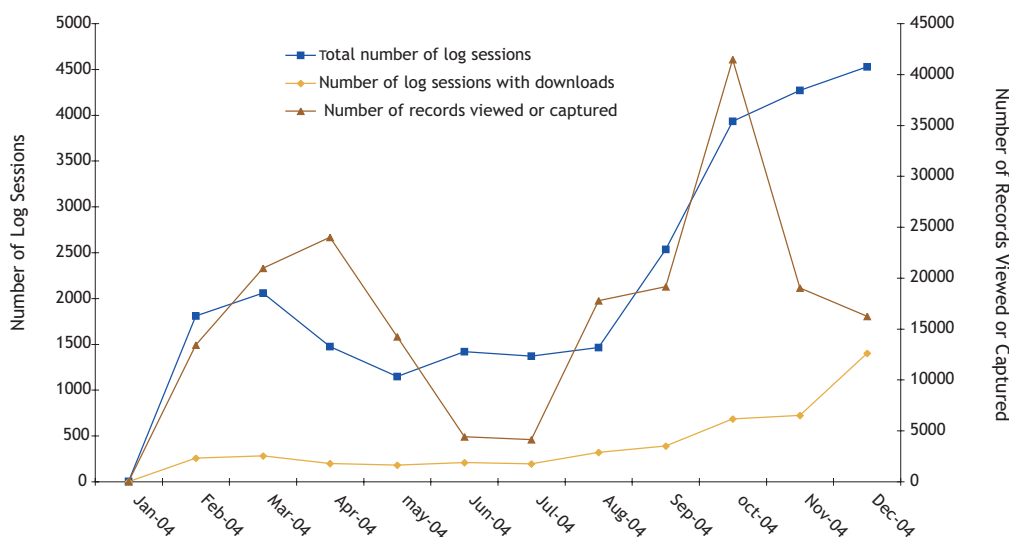
Finally, in 2004, the GBIF Secretariat began to issue the *GBIFNews*, an electronic newsletter to be published approximately quarterly. The first two issues were sent on 1 July and on 1 November.



The GBIF Portals

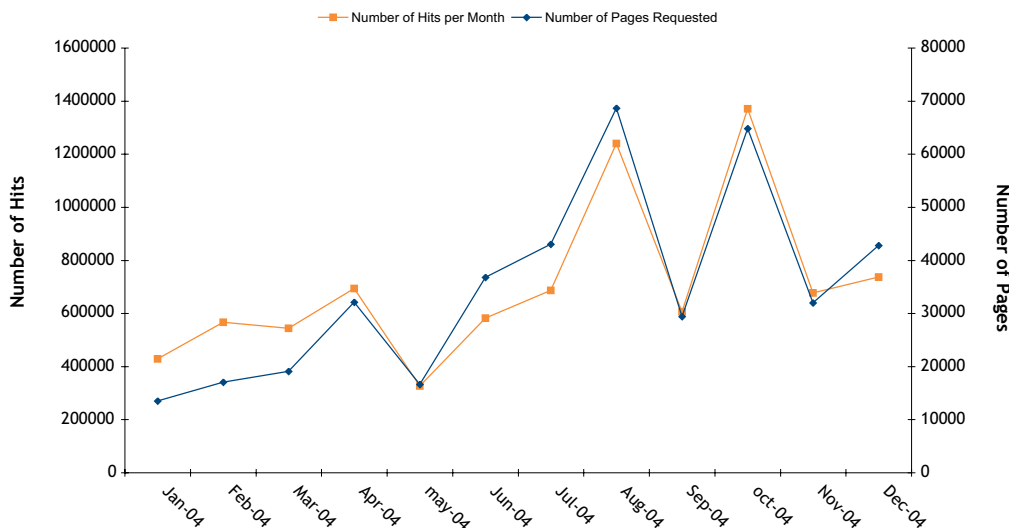
Following the launch of the prototype Data Portal in February, there was an initial burst of interest, which diminished somewhat through the early summer months. However, as the number of data providers increased and the amount of data available did likewise, usage also increased (see Figure). The number of “hits” (requests for pages) per month increased from 400,261 in July (when the Secretariat began to keep such statistics) to 1,048,357 in December, with a high in October of 1,411,802.

Data Portal Usage 2004



During 2004, the Communications Portal carried 36 Articles and 39 News items of interest to the GBIF community, in addition to making available all the GBIF documents, the many links to resources, help for users, etc. Statistics for the Communications Portal were kept for the entire year. The number of “hits” and page requests on a monthly basis is shown below. Though not yet dramatic, there is a general upward trend.

Internet Activity on the GBIF Communications Portal 2004



Governing Board Activities



GB8 was attended by 41 delegations representing 26 countries and economies (Argentina, Australia, Belgium, Canada, Colombia, Costa Rica, Denmark, Finland, France, Germany, Japan, Korea, Madagascar, Mexico, Netherlands, New Zealand, Norway, Peru, Poland, Slovenia, South Africa, Spain, Sweden, Taiwan, United Kingdom, United States), the European Commission, the Secretariat of the Convention on Biological Diversity (CBD), and 13 international organizations (BioNET-INTERNATIONAL, CABI Bioscience, EASIANET, ETI, Finding Species, IABIN, ICIPE, ITIS, NatureServe, OBIS, Species 2000, TDWG, UNEP-WCMC). Representatives from Brazil, Cameroon, El Salvador, Indonesia, Uruguay, Venezuela, and members of the Committee for the 3rd Year Review of GBIF took part as observers.



GB8 -

The 8th meeting of the GBIF Governing Board (GB8) took place on 26 April 2004 in Oaxaca, Mexico. This meeting focused on science issues pertinent to GBIF activities. Highlights included a presentation about the 2003 Demonstration Project (see Box 11). That evening, the Governing Board was treated to a “biodiversity meal” that included entirely local and sustainably produced foods and beverages. The CONABIO databases were used to provide the diners with information about species identity and locality data for the ingredients. Sponsors and hosts included Fomento Social Banamex, the Academia Mexicana de Ciencias, Dirección General de Vida Silvestre (Semarnat), Jardín Ethnobotánico de Oaxaca, and CONABIO.

The Third-Year Review process officially began at GB8, with the first meeting of the Review Committee (see Box 17).

Following the Governing Board meeting and the Science Symposium, the four Science Subcommittees and the NODES committee had a two-day planning session. Many good ideas were brought forward, and these were incorporated into the development of the Work Programme.



Box 17 The GBIF Third Year Review

“In the third year, an independent review of [GBIF’s] operations, financial mechanisms, legal basis, governance structure, and links to other organisations will be conducted to determine if any changes are needed. The lessons learned will be used to evaluate the effectiveness of the governance structure and to recommend any necessary changes.” (GBIF MoU, Paragraph 11.2)

As of 2004, GBIF is in its third financial year, and the independent review process called for by the MoU is underway. Overseen by a partnership between CODATA and the international advisory group KPMG, the Steering Committee for the review includes **Paul Uhlir** (representing CODATA), and two representatives from KPMG, **Kjeld Christiansen** and **Thomas Riisom**.

Six individuals who are highly respected and knowledgeable about the subject matter and intent of GBIF, but who are not presently involved in GBIF, were selected by the Steering Committee to serve as the Review Committee. These persons are:

- **Marvalee Wake** (University of California, Berkeley, USA), Chair
- **Motonori Hoshi** (Keio University, Japan),
- **Tim Littlejohn** (IBM Asia Pacific, Australia),
- **Ghillean Prance** (retired Director, Royal Botanical Garden, Kew, UK),
- **Jameson Seyani** (The Commonwealth Secretariat, Malawi), and
- **Peter Mann de Toledo** (Director, Museu Paraense Emilio Goeldi, Brasil).

The Report of the Review Team (Steering Committee + ad hoc Review Committee) will be based on fact-finding by the KPMG representatives, the results of online questionnaires, and interviews with GBIF delegates, subcommittee members, officials of Participant countries, the Secretariat staff, representatives of other international organisations, and potential end users of GBIF data. It is to be presented to the Governing Board at GB10, April 2005.

Content of the Review

The major focus of the review is to analyse GBIF’s effectiveness and to make recommendations regarding its future (e.g., should GBIF be continued beyond the initial five year period?). The three major questions to be considered by the Committee are:

1. Have the present organisational structure and funding been sufficient for GBIF to achieve its goals?
2. Has GBIF made sufficient and appropriate progress toward getting established as a megascience undertaking and thereby making scientific biodiversity data freely and openly available over the Internet?
3. Has GBIF achieved sufficient profile and uptake within its target audiences?

In pursuing answers to these questions, the Review Committee will examine the quality and effectiveness of the following areas: Work Programme, Governance Structure, Legal Basis, Operations of the Secretariat and the Governing Board, Nodes, Voting Participation by Intergovernmental, Non-governmental and Other Organisations, Links to International Conventions, Links to Other International Organisations, IPR, Financial Mechanisms and Additional Funding.



GB9 -

The GBIF delegates were welcomed to New Zealand in a traditional *powhiri* ceremony held in the *marae* at the Museum of New Zealand Te Papa Tongarewa, and again later by the Minister for Research, Science and Technology, Mr. Pete Hodgson. "Biodiversity is extremely important to New Zealanders, and New Zealand is proud to be one of the founding members of GBIF", said Mr. Hodgson.

At this meeting, the Secretariat introduced the Work Programme for 2005–2006. The two-year Work Programme is intended to allow GBIF to build on the Prototype Data Portal by improving its user interface and functionality, developing links to new kinds of data, establishing or improving standards and protocols, and increasing the data content accessible through the portal.

In addition, the Work Programme for 2005–2006 lays the groundwork for GBIF to move the prototype data portal to full operational status, to continue to expand the membership to include a wider range of organisations and countries and, most importantly, to provide logistical support to the Participant Nodes, which are the lifeblood of GBIF. Finally, the Work Programme continues to develop robust training and outreach activities.

The Governing Board

- approved the combined Work Programme for 2005–2006,
- extended the first GBIF MOU to 31st December 2006,
- approved the Data Use and Data Sharing agreements (see Annex 4), and
- elected Lawrence Way (U.K.) to be the NODES Chair, and Maria Mora (Costa Rica) and Elisabeth Watson (Sweden) as vice chairs.



Outgoing NODES Chair Guy Baillargeon (left) and newly elected Chair Lawrence Way (right).

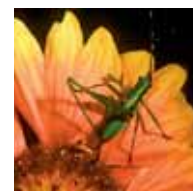


The GB9 meeting was attended by representatives of 39 of GBIF's participants (Voting: Australia, Belgium, Canada, Costa Rica, Denmark, Finland, France, Germany, Iceland, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Peru, South Africa, Spain, Sweden, United Kingdom, United States; Associate (countries/economies): Ghana, India, Papua New Guinea, Poland, Taiwan; Associate (organisations): ASEANET, BioNET-INTERNATIONAL, CABI Bioscience, EASIANET, European Commission, Expert Center for Taxonomic Information, Finding Species, Integrated Taxonomic Information System, Inter-American Biodiversity Information Network, Ocean Biogeographic Information System, Pacific Biodiversity Information Forum, Species 2000, Taxonomic Databases Working Group). In addition, the Convention on Biological Diversity was represented, and observers were present from China, Cook Islands, Global Invasive Species Programme, Indonesia, Myanmar, Palau, Philippines, Samoa, Thailand, Vanuatu, and members of the Third Year Review Team.

Financial summary

GBIF Financial Statement for 1st January - 31st December 2004

GBIF Core Funds	DKK	USD	Average exchange rate
Income	20,667,872	3,413,266	605.52
Expenditure			
Staff expenditure	-9,736,861	-1,626,161	
Running expenditure	-2,153,807	-361,531	
Secretarial facilities	-61,582	-10,482	
Work programme and Ebbe Nielsen Prize	-11,041,994	-1,882,659	
Expenses of the Governing Board	-984,407	-155,526	
Individual projects not completed 2003	-1,072,663	-181,464	
Third year review	-976,454	-159,255	
Total expenditure	-26,027,768	-4,377,078	594.64
Changes in foreign exchanges rates	-264,773	-3,409	
Exchange rate differences rising from converting Financial report from DKK to USD		91,203	
	-264,773	87,794	
Retained funds	-5,624,669	-867,018	
Assets			Year end exchange rate
Other receivables	692,478	126,651	
Cash at bank	10,994,335	2,010,816	
Total assets	11,686,813	2,137,467	546.76
Retained funds and liabilities			
Retained funds	4,526,914	827,953	
Value adjustments forward contracts	0	0	
Provisions (approved seed money)	4,082,386	746,650	
Liabilities other than provisions	3,077,513	562,864	
Total equity and liabilities	11,686,813	2,137,467	546.76
GBIF Supplementary Fund			
Balance at 1 January	902,106	151,421	595.76
Income	500,000	91,448	546.76
Interest income transferred to Supplementary Fund	116,257	20,929	555.48
Expenditure	-725,196	-121,138	598.65
Exchange rate differences	0	2,407	
	793,167	145,067	546.76



Annex 1: GBIF Participants



Voting Participants

Australia	Feb 2001
Belgium	Feb 2001
Canada	Mar 2001
Costa Rica	May 2001
Denmark	Jan 2001
Estonia	Sep 2003
Finland	Apr 2001
France	Mar 2001
Germany	Feb 2001
Iceland	Jun 2001
Japan	Feb 2001
Korea, Republic of	May 2001
Mexico	Mar 2001
Netherlands	Feb 2001
New Zealand	Feb 2001
Norway	Mar 2004
Nicaragua	Jun 2001
Peru	Sep 2002
Portugal	Jun 2001
Slovenia	Feb 2001
South Africa	May 2003
Spain	Feb 2001
Sweden	Feb 2001
United Kingdom	Aug 2001
United States of America	Jan 2001

Associate Participants: Countries/Economies

Argentina	Mar 2002
Austria	Sep 2001
Benin	Dec 2004
Bulgaria	Aug 2001
Colombia	Sep 2003
Czech Republic	Oct 2002
Ghana	Mar 2001
India	Aug 2003
Indonesia	Nov 2004
Madagascar	Jan 2003
Morocco	Jun 2003
Pakistan	Aug 2001
Papua New Guinea	Mar 2004
Poland	Mar 2001
Slovak Republic	Aug 2001
Switzerland	Feb 2001
Taiwan (Economy)	Sep 2002

Associate Participants: Organisations

ASEAN Regional Centre for Biodiversity Conservation	Dec 2003
ASEANET	Oct 2002
All Species Foundation	Mar 2002
BIOSIS	Mar 2002
BioNET-INTERNATIONAL	May 2001
Botanic Gardens Conservation International	Aug 2004
CABI Bioscience	Sep 2001
EASIANET	Oct 2002
European Commission	Feb 2001
Expert Center for Taxonomic Identification	Mar 2001
Finding Species	Dec 2003
Freshwater Biological Association - FreshwaterLife	Oct 2003
IUCN	Sep 2003
Integrated Taxonomic Information System	Mar 2001
Inter-American Biodiversity Information Network	May 2001
International Centre for Insect Physiology and Ecology	Mar 2004
Natural Science Collections Alliance	Dec 2004
NatureServe	May 2001
Nordic Gene Bank	Mar 2004
Ocean Biogeographic Information System	Jun 2001
Pacific Biodiversity Information Forum	Sep 2004
SAFRINET	Aug 2003
Société de Bactériologie Systématique et Vétérinaire	Dec 2002
Species 2000	Mar 2001
Taxonomic Databases Working Group	Mar 2002
United Nations Educational Scientific and Cultural Organisation, Man and the Biosphere Programme	May 2001
United Nations Environment Programme	May 2001
Wildscreen Trust	Jan 2003
World Federation for Culture Collections	Oct 2002



Annex 2: GBIF Secretariat Staff

James L. Edwards, Director

Per de Place Bjørn, Programme Officer

Electronic Catalogue of the Names of Known Organisms

Donald Hobern, Senior Programme Officer

Data Access and Database Interoperability

Larry Speers, Senior Programme Officer

Digitisation of Natural History Collections

Beatriz Torres, Senior Programme Officer

Outreach and Capacity Building

Meredith A. Lane, Public Relations & Scientific Liaison

Hannu Saarenmaa, Deputy Director for Informatics

Ciprian Vizitiu, Webmaster & Network Administrator

Giorgos Ksouris, Software Engineer

Hugo von Linstow, Deputy Director for Management & International Relations

Anne Mette Nielsen, Secretary

Susanne Lønstrup Sheldon, Senior Secretary

Belinda Skeel, Secretary

Else Østergaard Andersen, Liaison Officer (employed by University of Copenhagen)



Annex 3: GBIF Governing Board Standing Committees

Budget Committee

Chair	David Penman
Vice Chairs	Shun-ichi Kikuchi Lars M. Nilsson
Members	Bonnie C. Carroll Helmut Kühn Peter Pedlar Esteban Manrique Reol
<i>Ex-officio</i>	Christoph Häuser James Edwards

Executive Committee

Chair	Christoph Häuser
Vice Chair	Kunio Iwatsuki
Committee	Wouter Los (Science)
Chairs	David Penman (Budget) Lawrence Way (NODES)
<i>Ex-officio</i>	James Edwards

Node Managers Committee (NODES)

Chair	Lawrence Way
Vice Chair	Maria Auxiliadora Mora Elizabeth Watson
Members	Every Participant Node Manager

Science Committee

Chair	Wouter Los
Vice Chairs	Ian Cresswell Jorge Soberón Mainero
Subcommittee	Stan Blum (DADI)
Chairs	Christopher Lyal (ECAT) Erick Mata (OCB) Simon Tillier (DIGIT)
<i>Ex-officio</i>	Christoph Häuser Kunio Iwatsuki

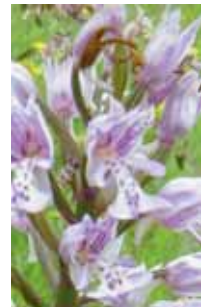


Subcommittee for Data Access and Database Interoperability (DADI)

Chair	Stan Blum	
Members	Walter G. Berendsohn	Derek Munro
	Renato De Giovanni	Sylvia Spengler
	Markus Döring	William Ulate
	Mickael Graf	David A. Vieglais
	William Alex Gray	Greg Whitbread
	Sally Hinchcliffe	John Wieczorek
	Shih Lin	Eric Yen
	Patricia Mergen	Nozomi Ytowa

Subcommittee for Digitisation of Natural History Collection Data (DIGIT)

Chair	Simon Tillier	
Vice Chair	Vanderlei Canhos	
Members	Gerald Guala	Steven Shattuck
	Anton Güntsch	Anders Tehler
	Mervyn Mansell	Tuuli Toivonen
	Keiichi Matsuura	Tomi Trilar
	Francisco Pando	Anna Weitzman
	A. Townsend Peterson	



Subcommittee for Electronic Catalogue of Names of Known Organisms (ECAT)

Chair	Chris Lyal	
Members	Miguel A. Alonso-Zarazaga	Alan Paton
	Paul M. Kirk	David Remsen
	Jerry Cooper	Michael Ruggiero
	Jim Croft	Junko Shimura
	Henrik Enghoff	Karen Wilson
	Gregor Hagedorn	
	Scott Miller	

Subcommittee for Outreach and Capacity Building (OCB)

Chair	Erick Mata	
Members	Salvatore Arico	Horst Freiberg
	Tidane Ba	Lucie Rogo
	Bonnie C. Carroll	Peter Schalk
	Vishwas Chavan	Stella Simiyu
	Carlos Martinez Riera	Richard D. Smith
	Dedy Darnaedi	



Annex 4: GBIF Data Sharing and Data Use Agreements

GBIF Data Sharing Agreement

Background

The goals and principles of making biodiversity data openly and universally available have been defined in the Memorandum of Understanding on GBIF.

The Participants who have signed the MoU have expressed their willingness to make biodiversity data available through their nodes to foster scientific research development internationally and to support the public use of these data.

Data providers often participate in several data sharing arrangements at different levels (thematic, community, national, global).

GBIF data sharing should take place within a framework of due attribution.

Therefore, when registering their services with GBIF, the data providers agree as follows:

1 Data Sharing Agreements

- 1.1 Biodiversity data accessible via the GBIF network are openly and universally available to all users within the framework of the GBIF Data Use Agreement and with the terms and conditions that the data provider has identified in its metadata.
- 1.2 GBIF does not assert any intellectual property rights in the data that is made available through its network.
- 1.3 The data provider warrants that they have made the necessary agreements with the original owners of the data that it can make the data available through GBIF network.
- 1.4 The data provider makes reasonable efforts to ensure that the data they serve are accurate.
- 1.5 Responsibility regarding the restriction of access to sensitive data resides with the data provider.
- 1.6 The data provider includes stable and unique identifier in their data so that the owner of the data is known and for other necessary purposes.
- 1.7 GBIF Secretariat may cache a copy and serve full or partial data further to other users together with the terms and conditions for use set by the data provider. Queries of such data through the GBIF Secretariat are reported to the data provider.
- 1.8 Data providers are endorsed by a GBIF Participant, if applicable, before their metadata is made available by the GBIF Secretariat.
- 1.9 GBIF Secretariat is not responsible for data content or the use of the data.
- 1.10 GBIF Secretariat is not liable or responsible, nor are its employees or contractors, for the data contents; or for any loss, damage, claim, cost or expense however it may arise, from an inability to use the GBIF network.

2 Service Levels

GBIF Secretariat

- 2.1 Services provided by the GBIF Secretariat are managed in accordance with the GBIF Work Programme.
- 2.2 GBIF Secretariat's service provision includes software components and updates, interfaces, indexing and registry services, helpdesk, and training to assist the Participants to maintain Internet portals.

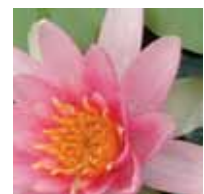


GBIF Participants

- 2.3 GBIF Participants keep the GBIF Secretariat informed of their contact and service information.
- 2.4 GBIF Participants maintain services that enable new and existing data providers in their domain to be integrated within GBIF network, and the data owners be identified, as appropriate.

3. Definitions

- GBIF Participant: Signatory of the GBIF-establishing Memorandum of Understanding (MoU).
- GBIF Secretariat: Legal entity empowered by the GBIF Participants to enter into contracts, execute the Work Programme, and maintain the central services for the GBIF network.
- GBIF network: The infrastructure consisting of the central services of the GBIF Secretariat, Participant nodes and data providers. Making data available through GBIF network means registering and advertising the pertinent services via the GBIF central services.
- Node: A data provider designated by a GBIF Participant that maintains a stable computer gateway that makes data available through the GBIF network.
- Participant Node: An organisational unit designated by the GBIF Participant to coordinate activities in its domain. It may also provide data.
- Biodiversity Data: Primary data on specimens, observations, names, taxonomic concepts, and sites, and other data on biological diversity.
- Metadata: Data describing the attributes and combinations of biodiversity data.
- Data: Biodiversity data and metadata.
- Data sharing: The process of and agreements for making data freely and universally available on the Internet.
- Data provider: A custodian of data making it technically available. This may or may not be the data owner. If not they will have declared to GBIF that they have permission to make the data available.
- User: Anyone who uses the Internet to access data through the GBIF network.
- Owner of data: The legal entity possessing the right resulting from the act of creating a digital record. The record may be a product derived from another, possibly non-digital product, which may affect the right.
- Sensitive data: Any data that the data provider does not want to make available, e.g. precise localities of endangered species.



GBIF Data Use Agreement

Background

The goals and principles of making biodiversity data openly and universally available have been defined in the Memorandum of Understanding on GBIF.

The Participants who have signed the MoU have expressed their willingness to make biodiversity data available through their nodes to foster scientific research development internationally and to support the public use of these data.

GBIF data sharing should take place within a framework of due attribution.

Therefore, using data available through the GBIF network requires agreeing with the following:



1. Data Use Agreements

1. The quality and completeness of data cannot be guaranteed. Users employ these data at their own risk.
2. Users shall respect restrictions of access to sensitive data.
3. In order to make attribution of use for owners of the data possible, the identifier of ownership of data must be retained with every data record.
4. Users must publicly acknowledge, in conjunction with the use of the data, the data providers whose biodiversity data they have used. Data providers may require additional attribution of specific collections within their institution.
5. Users must comply with additional terms and conditions of use set by the data provider. Where these exist they will be available through the metadata associated with the data.

2. Definitions

- GBIF Participant: Signatory of the GBIF-establishing Memorandum of Understanding (MoU).
- GBIF Secretariat: Legal entity empowered by the GBIF Participants to enter into contracts, execute the Work Programme, and maintain the central services for the GBIF network.
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- Biodiversity data: Primary data on specimens, observations, names, taxonomic concepts, and sites, and other related data on biological diversity.
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- Data sharing: The process of and agreements for making data freely and universally available on the Internet.
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- Sensitive data: Any data that the Node does not want to make available, e.g. precise localities of endangered species.



2004 Summary Timeline of GBIF Milestones

4 Jan	Web server statistics tracking on Communications Portal begun
20 Jan	Request for Proposals for 2004 seed money released
19 Jan	GBIF Symposium at IUBS General Assembly
26 Jan	Nomenclators workshop at GBIF Secretariat
1 Feb	GBIF Information Architecture Review released
9 Feb	Prototype Data Portal launched with 8,000,000 specimen records; 486,000 names
15 Feb	Report on Data Sharing with Countries of Origin released
15 Feb	White paper on Intellectual Property Rights released
1-2 Mar	Experts' Meeting on Intellectual Property Rights (Madrid, Spain)
15 Mar	New members of Science Subcommittees appointed
17 - 19 Mar	Joint ENBI - GBIF workshop: Techniques and challenges for digital imaging of biological type specimens (Berlin, Germany)
24 -26 Mar	GBIF training workshop: DiGIR (Capetown, South Africa)
20 Apr	Results of 2003 Demonstration Project available to the public
25 Apr	Third-year Review of GBIF begins
26 - 30 Apr	GB8 Oaxaca, Mexico 1st Science Planning Meeting 2nd Science Symposium: Biodiversity Data Users Serving Science & Society 3rd Ebbe Nielsen Prize awarded to Johan Nilsson of Sweden
17 - 18 May	Joint ENBI - GBIF workshop: Structured Descriptive Data (Berlin, Germany)
21 - 25 Jun	GBIF training workshop (in French): DiGIR (Paris, France)
28 - 30 Jun	Joint Species2000 - GBIF workshop: Working List of Known Plant Species (hosted by RBG Kew, U.K.) in support of the Global Strategy for Plant Conservation
2 Jul	Online user-survey instituted (as part of Third-year Review)
4 Jul	Web server statistics tracking on Data Portal begun
9 Jul	Call for tenders for 2004 Demonstration Project
13 - 16 Jul	Joint ENBI - GBIF workshop: Making Species Databases Interoperable (Prague, Czech Republic)
15 Jul	Call for nominations for 2005 Ebbe Nielsen Prize
15 Jul	Online portal-user survey released
26 - 27 Jul	DiGIR - BioCAsE Integration Meeting
18 Aug	Memorandum of Cooperation signed with Index Fungorum Partnership
20 Aug	GBIF Symposium at International Entomological Congress
27 - 29 Sep	GBIF training workshop: DiGIR (Copenhagen, Denmark)
4-8 Oct	GB9 Wellington, New Zealand
27 Oct	Nodes mentoring programme launched
1 Nov	Two 2004 Demonstration Projects underway
19 Nov	Call for applications for Nodes Liaison Officer
16 Dec	2004 seed money awards announced
31 Dec	Data Portal serving 45,838,724 specimen and observation records; 486,000 names





GBIF itself and the Secretariat Building provided inspiration for the author and cartoonist of "Anders And" (Donald Duck) in a Danish publication of comics, called "Walt Disney's Jumbobog"

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