

GBIF WORK PROGRAMME

2007-2008

**Approved by the Governing Board at GB13,
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Introductory Note

While it is firmly rooted in previous work programmes, this 2007-2008 Work Programme is the first one to be built upon the ideas and objectives articulated in the document “GBIF Plans for 2007-2011: From Prototype towards Full Operation”.

As is documented in the GBIF 3rd Year Review and outlined in the Plans document, GBIF made many important accomplishments during its initial five-year pilot phase. Among them are the following:

- GBIF proved that the idea of a **distributed database**, serving information from a wide array of data providers around the world, is feasible.
- The large increase in **content** available through the data portal showed that data providers are willing to share their data.
- The critical role of **Participant Nodes** was recognised and several models for the successful operation of such Nodes were identified and implemented by GBIF Participants.
- **Membership** grew dramatically.
- The GBIF community developed successful mechanisms for developing **partnerships** among the Participants and with other organisations.

However, the Plans document also indicated that there is need for improvement in each of these areas. In particular:

- User feedback showed the need for the data portal to have a more **user-friendly, intuitive interface**.
- Users also identified the critical need for a more robust **taxonomic backbone** (ECAT), asked for mechanisms and tools for judging **quality of the data** or their **goodness of fit** for particular purposes, and noted the relative **thinness of the data** both geographically and taxonomically.
- Participants indicated the need for additional mechanisms to aid **Node Managers** in recruiting potential data providers and providing value-added tools for those users.
- Several sources identified the need for recruiting **additional Participants** and for encouraging Associate Participants to become **Voting Participants**.
- Participants and other users suggested that the GBIF community should take a greater leadership role in working with GBIF’s major user groups, including the biodiversity-related international conventions, to **identify priorities** and to find and recruit **additional funding and funders**.

The Plans document provided a road map for the transition of GBIF from a prototype (proof of concept) phase to a fully operational facility on the Internet. It recognised that GBIF is a mega-science endeavour that has just begun its development and should be expanded dramatically in order to achieve full mega-science status.

However, budgetary realities mean that GBIF will not be able to fully follow the Plans roadmap. Instead, the organisation must choose among the goals laid out in the Plans, giving priority to those activities that are critical for GBIF's future and that are monetarily feasible.

The Work Programme for 2007-2008 is focused on selected components of the four Themes laid out in the "GBIF Plans for 2007-2011". In each case, the Work Programme highlights those components that are critical for GBIF's future and that need to be addressed before the other components of the Plans document. These components are:

1. **Informatics**—Dramatically improve the usability and user-friendliness of the **central data portal**. This is the most critical component of this work programme, as it is through the portal that most users will interact with GBIF. The portal is much more than simply a web site. Rather, it is a major piece of information infrastructure that manages the metadata and data index for the whole network, and supports data providers in getting their data online. It is also a platform which will offer a wide range of web services and programming interfaces for use by other tools and web sites around the world.
2. **Content**—Focus on improving the **quality and usability** of the data being provided through the data portal by:
 - a. developing ECAT as a comprehensive, biologically-informed data discovery and navigation tool that links together GBIF-supplied data with a wide range of other kinds of information, as requested by users.
 - b. developing mechanisms to allow users to judge the quality of data for their intended purposes
 - c. making available to data providers tools and web services to allow them to improve the quality of the data they serve; and
 - d. focusing much of GBIF's seed-money funding on user-identified priorities, to help develop the critical mass of data needed to answer key user-defined questions.
3. **Participation**
 - a. **Participant Nodes**—Work with Participant Node Managers to continue to identify viable models for nodes and provide them with the tools and training needed to reach out to potential data providers and weave them into a functioning network at both the Participant and GBIF-wide levels
 - b. **Recruitment**—Develop a robust recruitment strategy that results in increasing the inclusiveness of GBIF's membership and provides a sounder financial future for GBIF.
4. **Campaigns**—Develop a **campaign strategy** that brings together users, providers, and funders to focus on key topics of interest to these groups. Key goals are to build bridges between the scientific communities and the biodiversity conventions and to enable policymakers to utilise GBIF-supplied data and tools. The Work

Programme is accompanied by a background document outlining recommendations for initiating and running campaigns (Annex 1) and brief descriptions of the four campaign-like activities (“proto-campaigns”) that have been already started and could be developed into full campaigns (Annex 2).

Operationally, the 2007-8 Work Programme differs from previous work programmes in several ways:

- The document focuses on larger-scale goals and activities, and does not include the finer, more specific levels of detail that characterised previous work programmes.
- The document is also focused on meeting the needs of end-users, be they scientists, policymakers, data providers, or GBIF Participants. User groups for each goal are identified and some of the challenges these users face are articulated.
- The five previous programme areas (DADI, DIGIT, ECAT, NODES and OCB) are not specifically referenced because their activities have been integrated into the themes to make a more coherent, unified approach.
- Milestones and a timeline are included in a separate section of the work programme.
- The personnel costs needed to make the work programme function have been incorporated into the Work Programme budget.

In the following Work Programme Description, each Theme is divided into Goals, and each Goal contains several activities. Goals and activities are numbered to aid discussion of them, but the numbers do not imply levels of priority.

Each activity is followed by a listing of the organisations, institutions and/or kinds of individuals that should be involved in implementing that activity. The GBIF Secretariat, as well as carrying out some of the activities, will play a key role in catalysing all of them, with the goal of ensuring outcomes that benefit the growth and improvement of GBIF. GBIF Participants, working at national and/or regional levels, will take the lead in some activities, for example in defining and developing new campaigns, thus ensuring the relevance and value of GBIF to national priorities and policies. (This approach is further developed in Annex 1 on “Setting up GBIF Campaigns”.)

The involvement of all GBIF Participants in implementing the Work Programme is crucial, and it is encouraged that each Participant should reflect this involvement in its internal planning, programming and funding.

WORK PROGRAMME DESCRIPTION

Theme 1: Informatics

Goal 1: Improve user functionality of GBIF portal

Challenge: GBIF should organise the portal's presentation of data to meet the real needs of users, by rapidly retrieving relevant subsets of data from the whole network (e.g. all data for a higher taxon or geographic area; all data with associated specimens; all data from projects using particular protocols for atlasing or long-term monitoring), and by supporting the development of flexible mapping, visualisation and analysis tools.

Target/user group: All users

Budget 2007: €80,000; Budget 2008: €80,000

Activities:

1. **Continue to improve user functionalities** (both human-mediated and machine-mediated interactions) , including supporting the integration of tools developed by GBIF Participants [*Secretariat, Participants*]
2. **Continue to monitor and establish users' needs** by convening advisory groups and developing user questionnaires [*Secretariat*]
3. **Establish beta-tester groups** for all new user interfaces [*Secretariat, with wide involvement of Participants*]
4. **Encourage users to develop their own extensions** and share analyses based on GBIF-mediated data [*Secretariat, with wide involvement of Participants*]
5. **Encourage the development of improved tools for data providers** to help them serve data through the portal [*Secretariat coordination and promotion of activities throughout Participants*]
6. **Develop a robust mechanism with which users can identify the data sets that they have used from the portal** (e.g. a unique URL where the data can be stored) [*Secretariat, Participants, other developers*]

Goal 2: Incorporate new types of information into the portal

Challenge: GBIF should identify what additional data elements (for existing classes of data) and what additional classes of data should be exchanged through the network. GBIF should work with standards development bodies and data providers to integrate these components in ways that address user needs.

Target/user group: All users

Budget 2007: €80,000; Budget 2008: €80,000

Activities:

1. **Establish advisory groups and beta testers** for developing methodologies for linking to new data types maintained by other communities (e.g. molecular data, ecological data, geospatial data, keys, phylogenies) [*Secretariat, with wide involvement of Participants and other users*]
2. **Develop registries of these additional data types**, so that users can easily move back and forth among them, using the GBIF portal and web services as a conduit [*Secretariat, with wide involvement of Participants*]
3. **Develop tools and services to engage new data provider communities** currently not impacted by GBIF activities. [*Secretariat, with wide involvement of Participants*]
4. **Promote use of globally unique identifiers (GUIDs)** and work with other organisations to provide services for establishing and registering GUIDs [*Secretariat, with wide involvement of Participants and other users*]
5. **Incorporate the GBIF Demonstration Projects' tools/services** into the mix of services offered by the portal [*Secretariat, working with Demonstration Project teams*]

Goal 3: Improve data quality – work with data providers to enrich or correct data to increase usefulness and fitness for different purposes

Challenge: GBIF should provide users with tools that allow them to determine the goodness of fit of various data for their intended purposes. GBIF should also help data providers to understand how their data will appear to users and how to address potential issues and misconceptions.

Budget 2007: €80,000; Budget 2008: €80,000

Target/user group: All users

Activities:

1. **Establish tools and protocols for scrutinising data registered with GBIF** for missing, incomplete, and/or ambiguous data [*Secretariat, with wide involvement of Participants and developers*]

2. **Establish mechanisms for communicating problems with data** to the data providers [*Secretariat, with wide involvement of Participants and data providers*]
3. **Provide access to tools to help data providers improve the quality of their data** (e.g. CRIA data-cleaning tools, Biogeomancer, etc.) [*Secretariat, with wide involvement of relevant projects*]
4. **Encourage the development of tools to allow users to determine the goodness of fit of data** for their intended purposes – integrate such tools into GBIF portal and web services [*Secretariat, developers, Participants*]
5. **Develop data evaluation and indexing reports** that draw upon ECAT and DIGIT indices to create new information products and services that provide reciprocating value to providers. [*Secretariat*]
6. **Develop mechanisms for continuing feedback on data quality** from users [*Secretariat, data providers*]

Goal 4: Continue to develop relevant standards

Challenge: GBIF should be active in furthering the development of new and improved standards to support the exchange of both existing and new data types

Target/user group: Data providers

Budget 2007: €25,000; Budget 2008: €25,000

Activities:

1. **Continue relationship with the Taxonomic Databases Working Group (TDWG) and other standards-setting bodies** [*Secretariat, Participants*]
2. **Encourage development of methodologies for users to identify needs for new or improved standards** [*Secretariat, users*]
3. **Develop improved mechanisms for informing data providers** about the use of data they are serving to the portal [*Secretariat, data providers*]

Goal 5: Training in use of portal and related tools

Challenge: GBIF should encourage the development of training and written materials to help data providers to serve their data efficiently and to help users to access data of interest through the portal

Target/user group: Both data providers and data users

Budget 2007: €30,000; Budget 2008: €35,000

Activities:

1. **Develop training activities and modalities**, including workshops, on-line training modules, and written explanations, to help users understand how to use the portal and serve data through it [*Secretariat for coordination and development of materials, Participants for translation and for most workshops*]
2. **Improve partnerships with other organisations** to aid in carrying out training [*Secretariat, with wide involvement of Participants*]

Theme 2: Content

Goal 1: Increase the quantity and richness of the data served through the GBIF data portal

Challenge: The amount and richness of the data served through the GBIF network are currently very uneven in both taxonomic and geo-spatial coverage. To meet user group expectations, it is essential that significant gaps in the data be identified, and the amount of data being served is considerably increased. It is necessary to integrate names linked to GBIF-mediated content with authoritative nomenclatural and taxonomic treatments of these names. This will enable biologically informed and comprehensive access to those data, and will allow ECAT to serve as a robust pathway to authoritative information on species names. Considerably more data, documenting a broader range of taxonomic groups, is required and an increase in the geographic coverage for all groups is needed. It will be important to work with Participant Nodes and with a broad range of data holders and scientific organisations to ensure the provision of the content needed to fill the gaps identified in the context of user needs.

Target/User group: All users and data providers including potential data providers.

Budget 2007: €175,000; **Budget 2008:** €405,000

Activities:

1. **Develop a scientific outreach programme**, through various international and/or regional scientific societies and organisations, to increase awareness and participation in GBIF from potential data providers in both the natural history collections/taxonomy community and various observational and monitoring programs. This will be coordinated with other promotional efforts articulated elsewhere in this document (e.g. Theme 3, Goals 1 and 2). [*Secretariat, Participants, Nodes, scientific societies and organisations*],
2. **Address barriers to sharing data** through the development by domain-expert contractors, finalisation by expert working groups and distribution through the Secretariat of best-practices documents on digitising and sharing of data (also see Theme 3, Goal 2, activity 5 on IPRs). [*Secretariat, domain expert contractors, expert working groups*]
3. **Develop and test data exchange tools** for sharing Natural Collections Descriptor records that document the existence of collections of specimens and/or observational data sets. Integrate these Descriptor data sets to assemble a better picture of the biodiversity data universe. [*Secretariat, external contractors, natural history collections, Participants*]

4. **Develop and package training modules on digitisation and data sharing** in conjunction with Informatics Goal 5. [*Secretariat, external contractors, data providers and users, Participants*]
5. **Develop name cataloguing tools and processes** to incorporate a wide range of nomenclatural and taxonomic information sources within ECAT. (in conjunction with Informatics Goals 1 and 2). This includes a 90% complete catalogue of all organism names with at least provisional taxonomic placement, and a 99% complete catalogue of all genera such that a user can enter a name within the portal and be assured of an informed response. [*Secretariat, developers, taxonomists*]
6. **Develop services and tools that leverage ECAT content** to benefit affiliate organisations and engage new user communities. [*Secretariat, Participants, biodiversity conventions*]
7. **Integrate and expand the cataloguing of vernacular names** within ECAT to provide additional navigation and discovery pathways to data. [*Secretariat, taxonomists and other users, Participants*]
8. **Adopt and launch a suite of software tools for converting printed information into taxonomic databases** [*software developers, taxonomists, Participants, Secretariat*]
9. **Develop a targeted seed-money programme for 2007-8**, focusing on particular taxa and/or geographic regions and based upon broad consultation with the user community, as well as the lessons learned in previous seed-money competitions [*Secretariat, Participants, users*]

Goal 2: Improve the documentation related to the fitness of use of both geographic and taxonomic records served through the GBIF network and supply this feedback to data providers to help them improve data quality

Challenges: The reliability of taxonomic identification and georeferencing associated with each record served through the GBIF network is poorly documented. Therefore, this component of the record cannot be assessed for fitness of use by the majority of potential GBIF data users, and evaluations of such documentation are not returned to the data providers. Also, different users may wish to approach the data via different taxonomic classification systems; further, it is at present difficult for taxonomists to contribute to the taxonomic classifications being served through the network.

Target/User group: All users

Budget 2007: €50,000, Budget 2008: €45,000

Activities:

1. **Develop evaluation methods to assess the fitness of use and other critical parameters of GBIF mediated data** [*Secretariat, Participants*]
2. **Facilitate standardised approaches to geo-referencing** and to documenting levels of uncertainty – include reporting to data providers on conformance with these approaches [*Secretariat, external consultants, data users and data providers, Participants*]
3. **Increase the GBIF network’s capacity to share specimen images** including images of type specimens and their associated metadata to facilitate the online annotation of these specimens and their use in confirming the identification of organisms by users. [*user communities, Participants, Secretariat*]
4. **Develop a software tool for cleaning up and cross-referencing among taxonomies** [*taxonomic community, developers, Participants, Secretariat*]
5. **Enable representation and user choice among multiple taxonomies** [*Secretariat, external consultants, data users and data providers, Participants,*]

Theme 3: Participation

Goal 1: Participants have adequate assistance and guidance to set up and maintain effective Nodes

Challenge: Participants need to be empowered to do their work effectively by mobilising existing knowledge and experiences at the Nodes level (including identifying best practices for developing their Participant Nodes).

Target/user group: Participants, data providers, users

Budget 2007: €75,000; Budget 2008: €80,000

Activities:

1. **Enhance the Nodes reporting system** to incorporate additional indicators of progress. Integrate it with the GBIF metadata registry. [*Secretariat, Nodes*]
2. **Update the Nodes best practices Guide** [*Nodes, Secretariat*]
3. **Catalyse key activities to help Nodes overcome barriers** that prevent them from participating effectively. [*Nodes, Secretariat, Participants*]
4. **Further the benefits of the Nodes mentoring programme** [*Nodes, Secretariat*]

Goal 2: Improve impact of GBIF, and increase active participation of countries, scientific communities, organisations and biodiversity-related Conventions on a global basis.

Challenges: Increase GBIF effectiveness and representativeness at the global level by 1) ensuring participation from all parts of the world, and in particular from the megadiverse countries; 2) increasing visibility and influence with the various biodiversity-related conventions; and 3) ensuring further involvement and buy-in among scientific communities about GBIF and of the benefits of open access policies in their scientific endeavours.

Target/User Groups: Governmental institutions, biodiversity conventions, scientific communities, decision-makers.

Budget 2007: €70,000; Budget 2008: €45,000

Activities:

1. **Develop and carry out a new recruitment strategy** for new Participants and for stimulating existing Associate Participant countries to become Voting Participants. [*Secretariat together with Executive Committee*]

2. **Target key scientific societies, academies of science and other organisations** (in coordination with Theme 2, Goal 1, Activity 1), to increase active membership participation in GBIF and to encourage support for the GBIF principles of open access to scientific data and having these principles reflected in the scientific publication processes. [*Secretariat, Participants, Nodes*]
3. **Publicise launch of the new GBIF data portal** at the 2007 meeting of the CBD's Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA) and at the same time within GBIF countries. [*Secretariat,, external contractors, Participants*].
4. **Further enhance GBIF visibility and influence with biodiversity-related conventions.** [*Secretariat, Executive Committee, Participants*]
5. **Examine relevant intellectual property rights issues** of interest and importance to GBIF's Participants, including licensing agreements. Produce and disseminate associated educational materials and documents. [*Pro bono Legal Expert Group (PROLeg), Secretariat, Participants*]

Goal 3: Strengthen human and institutional capacities for Nodes and GBIF Participants, including regional initiatives.

Challenge: Address issues and barriers in biodiversity informatics including appropriate training and access to other capacities that will allow GBIF Nodes and members to exploit available data effectively. Encourage development of value-added applications which use GBIF-mediated data. Take advantage of regional initiatives to meet these challenges.

Target/user group: Node managers, students and policymakers, regional organisations

Budget 2007: €85,000; Budget 2008: €107,000

Activities:

1. **Organise training sessions for Node Managers** [*Nodes Committee, Secretariat, external contractors, Participants*]
2. **Organise regional training sessions**, in coordination with relevant regional organisations, [*Participants, regional organisations, Secretariat*]
3. **Promote the development of value-added applications** that utilise GBIF-mediated data. [*Secretariat, Participants, data providers and users*]

Theme 4: Campaigns

Goal 1: Examine and flesh out the campaign concept and strategy.

Challenges: The Strategic Plan identifies campaigns as an appropriate way to unite data providers, users and funders in order to ensure that data is being provided in a way, and on a timescale, of value to the users. However, the concept is still rather undeveloped and needs to be tested against real-world examples.

Target/user groups: Participants, users, data providers, funders

Budget 2007: €125,000

Activities:

1. **Finalise the rules and procedures for developing and implementing campaigns** (See Annex 1) [*Governing Board, Secretariat*]
2. **Continue examining the four existing proto-campaigns** (see Annex 2) to determine their suitability and readiness for development into full campaigns [*Secretariat, interested Participants, data providers, potential funders*]

Goal 2: Put new campaigns into place

Challenges: Depending on available funding and human resources, begin implementing the campaign strategy, and start new campaigns, in order to increase the amount and quality of data for answering key questions of value to users.

Target/user groups: Participants, users, data providers, funders

Budget 2008: €200,000

Activities:

1. **Consider proposals for new campaigns** put forward by consortia of Participants, using the criteria and procedures approved at GB13 (a draft is included in Annex 1) [*Governing Board*]
2. **Provide initial funding** for starting phases of selected new campaign(s) and already existing ones [*Participants, Secretariat*]

Timeline and Milestones for 2007-8 Work Programme	
INFORMATICS	
Goal 1	Improve user functionality of the GBIF Portal
	<i>Activity 1</i> Continue to improve user functionalities
02/07	Data portal version 2.0 release
12/07	Data portal version 2.1 release (functions prioritised by committee)
12/08	Data portal version 2.2 release (functions prioritised by committee)
	<i>Activity 2</i> Continue to monitor and establish users' needs
03/07	(After launch of Data Portal 2.0) Develop process for regular cycle of enhancement requests, committee review and prioritisation, development work (in-house and through partnerships with participants), test and release
03/07	Call for participants in data portal advisory committee
06/07, 06/08	Convene advisory committee (no budget – so must be a virtual meeting) to develop priorities for next release and roadmap for further developments
	<i>Activity 3</i> Establish beta-tester groups
03/07	Publicise online bug report/enhancement request system, request suggestions for version 2.1
09/07, 09/08	Broadcast calls for testing of enhancements and fixes for next release, including volunteers for a core rapid-response test group
	<i>Activity 4</i> Encourage users to develop their own extensions
03/07	Publicise initial set of extensions and analytic tools for occurrence data in portal and the interfaces for development of additional tools
04/07, 04/08	Issue call through participants for development of extensions and tools for inclusion as part of next release
12/07	(As part of Data Portal 2.1) Include interface for adding tools for visualisation of multiple taxonomies (see also CONTENT Goal 2 Activity 3)
	<i>Activity 5</i> Encourage the development of improved tools for data providers
	See CONTENT Goal 1 Activities 3, 5, 7
	<i>Activity 6</i> Develop a robust mechanism for users to characterise the data sets they have used from the portal
06/07	Online survey of requirements and expectations
10/07	Produce feasibility study and recommendations (including infrastructure requirements, costing, and potential partners, as appropriate), including elements to be developed as part of data portal version 2.2
Goal 2	Incorporate new types of information into the portal
	<i>Activity 1</i> Establish advisory groups and beta testers

06/07, 06/08	Review potential new data types, data standards and desirable linkages within data portal advisory committee
03/07	Begin implementation of the strategic plan created in GEOSS task BI-06-03 to incorporate new sources of geospatial and ecological data.
12/07	Data portal index database mapped to TDWG domain ontology
	<i>Activity 2</i> Develop registries of these additional data types
08/07	Produce feasibility study and recommendations for registry and ontology-level linkages with other domains within biodiversity informatics
2008	Implement recommendations from feasibility study
	<i>Activity 3</i> Develop tools and services to engage new data provider communities
03/07	Data Portal version 2.0 includes support for tab-delimited data import of DIGIT and ECAT data, and for taxon-related link-outs
06/07, 06/08	Review potential additional tools and services within advisory committee and incorporate in plans for next release of data portal
	<i>Activity 4</i> Promote use of globally unique identifiers (GUIDs)
2007, 2008	Work closely with TDWG Working Group on GUIDs to promote standards and with TDWG Interest Groups to develop applicability statements for LSIDs within TDWG data standards
03/07	Publicise inclusion of LSID-based data within data portal version 2.0 (especially names from nomenclators, specimen records)
06/07	Develop strategy for visualisation of RDF graphs based on LSIDs as part of data portal version 2.1
12/07	Data portal version 2.1 includes graph-based navigation through data via LSIDs
	<i>Activity 5</i> Incorporate the GBIF Demonstration Projects' tools/services
	See INFORMATICS Goal 1 Activity 4
03/07	Data portal version 2.0 integrates past demonstration projects as visualisations of occurrence data
Goal 3	Improve data quality – work with data providers to enrich or correct data to increase usefulness and fitness for different purposes
	<i>Activity 1</i> Establish tools and protocols for scrutinising data registered with GBIF
03/07	Data portal version 2.0 includes framework for scrutinising data within indexer workflow
06/07, 06/08	Review potential enhancements within advisory committee and incorporate in plans for next release of data portal
	<i>Activity 2</i> Establish mechanisms for communicating problems with data
03/07	Data portal version 2.0 includes scrutiny data from indexer workflow in reports for data providers
06/07,	Review potential enhancements within advisory committee and incorporate in plans

06/08	for next release of data portal	
	<i>Activity 3</i>	Provide access to tools to help data providers improve the quality of their data
05/07	Produce review of data portal components and services, as well as external tools, to develop plan for packaging toolkits for data providers	
06/07, 06/08	Review potential enhancements within advisory committee and incorporate in plans for next release of data portal	
	<i>Activity 4</i>	Encourage the development of tools to allow users to determine the goodness of fit of data
03/07	Data portal version 2.0 includes metadata for each data set including automated outputs from indexer scrutiny (e.g. completeness and consistency of georeferencing, consistency of taxonomy)	
06/07, 06/08	Review potential enhancements within advisory committee and incorporate in plans for next release of data portal	
	<i>Activity 5</i>	Develop data evaluation and indexing reports
03/07	Data portal version 2.0 includes automated generation of reports to data providers summarising the results of indexing (including record counts by country, higher taxa and record basis, as well as information on apparent inconsistencies and fields which could not be interpreted) and pointers to web page showing summary information for each data resource (maps of locality distribution, measures of georeferencing completeness, etc.)	
06/07, 06/08	Review potential enhancements within advisory committee and incorporate in plans for next release of data portal	
	<i>Activity 6</i>	Develop mechanisms for continuing feedback on data quality
03/07	Data portal version 2.0 includes feedback mechanisms for all data items, including option to include such feedback as part of the resource scrutiny	
06/07, 06/08	Review potential enhancements within advisory committee and incorporate in plans for next release of data portal	
Goal 4	Continue to develop relevant standards	
	<i>Activity 1</i>	Continue relationship with the Taxonomic Databases Working Group (TDWG) and other standards-setting bodies
2007, 2008	Ongoing involvement in relevant TDWG Interest Groups	
12/07	End of GBMF TDWG project – establishment of long-term support model for TDWG	
10/07	Workshop at TDWG annual meeting to seek recommendations for enhancements to data portal to support users of TDWG data standards (e.g. data transformation services, taxonomy checking tools)	
	<i>Activity 2</i>	Encourage development of methodologies for users to identify needs for new or improved standards
03/07	See INFORMATICS Goal 1 Activity 3 – include opportunity to identify any requirements as part of the bug report/feature request tool	

	<i>Activity 3</i>	Develop improved mechanisms for informing data providers
03/07	Data portal version 2.0 includes logging of data usage and makes this information available to providers	
06/07, 06/08	Review potential enhancements within advisory committee and incorporate in plans for next release of data portal	
12/07	Greater flexibility for data providers in setting the level of detail reported for usage of their data sets	
Goal 5	Training in use of portal and related tools	
	<i>Activity 1</i>	Develop training activities and modalities
03/07	Data portal version 2.0 with online documentation, including user tutorial	
06/07	Documentation, including user tutorial, translated into at least French and Spanish	
06/07, 06/08	Review documentation and training needs within advisory committee and incorporate in plans for next release of data portal	
	<i>Activity 2</i>	Improve partnerships with other organisations
2007, 2008	Work with TDWG Interest Groups to define documentation needs for TDWG data standards and related software and to collaborate in developing such materials	
2007, 2008	As required, offer training workshops at GBIF, TDWG or other relevant meetings to train trainers in the installation, configuration and use of GBIF/TDWG software packages – in all cases appropriate manuals and other documentation are developed first and used as the basis of the training. Encourage GBIF participants to use these materials to organise their own training courses.	
2007, 2008	Identify needs and priorities for translation of user documentation for GBIF/TDWG software packages. This is the primary use of the budget allocated to this goal.	

CONTENT	
Goal 1	Increase the quantity and richness of the data served through the GBIF data portal
	<i>Activity 1</i> Develop a scientific outreach programme
01/07	Initiate preparation of materials targeted at potential data providers that outline advantages of serving data through GBIF and identify best practices
03/07	Develop a list of target international/regional scientific societies
04/07	Initiate a program to contact these societies and their members
06/07	Post documents for download on GBIF web site and provide interested societies with documentation
06-/07	Based on responses to initial contacts refine and expand these outreach activities
2008	Based on the experiences in 2007 refine and expand these outreach activities
	<i>Activity 2</i> Address barriers to sharing data
03/07	Finalise the review of documents prepared in 2006
05/07	Post documents for download on GBIF web site
06/07	Print hard copies of documents for distribution
06-/07	Promote and distribute both the electronic and printed versions
2008	Promote and distribute both the electronic and printed versions
2008	Through an on line survey assess whether data providers are adopting these recommendations
	<i>Activity 3</i> Develop and test data exchange tools
04/07	Investigate the development of data exchange tool
05/07	Test tool with available data sets
06/07	Compile as large an integrated data set as possible from existing sources
07/07	Identify potential data providers for targeted out reach activity
10/07	Utilising the integrated data set, develop gap analysis of potential data providers
2008	Based on the outcomes of 2007 activities increase to content of the integrated data set and update the gap analysis
	<i>Activity 4</i> Develop and package training modules on digitisation and data sharing
05/07	Based on Best practices Documents define curricula
06/07	Develop course materials to support these curricula
07/07	Distribute for input from various advisory groups
10/07	Package this material for download from GBIF web site
01/08	Test material prepared in 2007, improve and augment
2008	Promote the use of these material within the GBIF community
2008	Monitor their use and based on this feed back improve the modules
	<i>Activity 5</i> Develop name cataloguing tools and processes
01/07	Evaluate scope of data formats and granular degree of taxon concept
03/07	Establish protocols for handling data formats and concept types
04/07	Stage 1 name indexing tools tested – pushing data to GBIF

	Beta version of an online catalog of all genera
06/07	Stage 1 in function, linked to a few nomenclators and Seed Money projects
12/07	Stage 2 functional with user documentation
06/08	Stage 3 implemented and central for GBIF names service
	<i>Activity 6</i> Develop services and tools that leverage ECAT content
01/07	Clarify future relationships with CoLp and other names-providing partners, identifying services and outreach opportunities enabled by GBIF
03/07	Plan for reciprocating collaborations, maximising collaborator recognition and integration.
Rest of year	Development of reciprocating mechanisms
2008	Joint outreach between providers and GBIF to new partners.
	<i>Activity 7</i> Integrate and expand the cataloguing of vernacular names
07/07	Vernacular concept documented
12/07	Names provider tool to mediate vernacular concepts
06/08	Analysis of Latent semantic indexing tool for parsing vernacular concepts from freetext
12/08	Vernacular concept management system and services
	<i>Activity 8</i> Adopt and launch a suite of software tools for converting printed information into taxonomic databases
02/07	uBio Tools incorporated in GBIF armoury
06/07	Develop modular and extensible library of taxon data transformation tools
09/07	Develop and evaluate taxon name recognition products within OCR conversion process
12/07	Tool-suite for integrated production of taxonomic databases from a printed source available online
06/08	Develop and evaluate free-text parsers that recognise and preserve taxon concept structure.
12/08	Develop and evaluate web fully integrated application (from text to TCS)
	<i>Activity 9</i> Develop a targeted seed-money programme for 2007-8
02/07	Begin broad consultation to develop a strategy that maximises the benefits of the seed money program
05/07	Based on this consultation, release Request for Proposals
10/07	Deadline for receipt of proposals
12/07	Announce the results of the review of proposals
01/08	Distribute first instalment of funds to successful applicants
06/08	Based on receipt of satisfactory mid-term report distribute second instalment of funds
06- 08	Monitor output of proposals to insure any resulting products are connected to the GBIF network in a timely manner
Goal 2	Improve the documentation related to the fitness of use of both geographic and taxonomic records served through the GBIF network and supply this feedback to data providers to help them improve data quality.
	<i>Activity 1</i> Develop evaluation methods to assess scope, fitness of use, and other critical parameters of GBIF mediated data.

02/07	Identification of classes and components of evaluation elements
06/07	Develop and implement evaluation procedures
09/07	Integration of evaluation products with source providers
12/07	Development of provider feedback interfaces
04/08	Protocols for development of generalised evaluation methods for new data types
	Activity 2 Facilitate standardised approaches to geo-referencing
04/07	Print hard copies of Biogeomancer documents released in 2006
04-/07	Promote and distribute both the electronic and printed versions
2008	Promote and distribute both the electronic and printed versions
2008	Through an on line survey assess whether data providers are adopting these recommendations
	Activity 3 Increase the GBIF network's capacity to share specimen images
02/07	Review existing capacity to share images and associated metadata
03/07	Identify barriers or problems based on this review
05/07	Develop recommendations for overcoming these barriers
08/07	Post these recommendations for further discussion
2008	Through an on line survey assess whether data providers are adopting these recommendations
	Activity 4 Develop a software tool for cleaning up and cross-referencing among taxonomies
03/07	Overview of tool functionality
05/07	Prototype with public β -test of user input
12/07	Feedback loop to data providers in place
	Activity 5 Enable representation and user choice among multiple taxonomies
02/07	Assessment of available methodology and target functionality
06/07	Multiple classifications fully implemented on portal and in web services
10/07	Methodology for incorporating and documenting Default Taxonomy
03/08	Software development kit (SDK) for application of taxonomic metadata within external applications.

PARTICIPATION	
Goal 1	Participants have adequate assistance and guidance to set up and maintain effective Nodes
	<i>Activity 1</i> Enhance the Nodes reporting system
04/07	Specification defined
06/07	Beta version released
09/07	Operational version released
	<i>Activity 2</i> Update the Nodes best practices Guide
04/08	Identify elements to incorporate or enhance for the new version of the Guide
09/08	Guide update completed
	<i>Activity 3</i> Catalyse key activities to help Nodes overcome barriers
02/07,	Based on identified needs and with active involvement of Nodes Committee issue first call for proposals for year 2007
04/07,	Award announcements for first call
07/07,	Projects from first call concluded
07/07,	Second call for proposals (2007)
08/07,	Award announcements for second call
12/07,	Projects from second call concluded
02/08	Based on identified needs and with active involvement of Nodes Committee issue first call for proposals for year 2008
04/08	Award announcements for first call
07/08	Projects from first call concluded
07/08	Second call for proposals (2008)
08/08	Award announcements for second call
12/08	Projects from second call concluded
	<i>Activity 4</i> Further the benefits of the Nodes mentoring programme
02/07, 02/08	Put out call for proposals for Nodes Mentoring awards
07/07	e-conference on effects of previous Mentoring awards
11/07	Hands-on Nodes mentoring workshop
Goal 2	Improve impact of GBIF, and increase active participation of countries, scientific communities, organisations and biodiversity-related Conventions on a global basis
	<i>Activity 1</i> Develop and carry out a new recruitment strategy
10/06	Expanded recruitment strategy developed
12/08	At least three Associate Participant countries become Voting Participants
12/08	At least two new countries join as Voting Participants
12/08	At least two new megadiverse countries join GBIF
	<i>Activity 2</i> Target key scientific societies, academies of science and other organisations
12/08	Identify and conduct targeted contacts with relevant scientific societies and

	academies of science, of which at least 5 become Associate Participants in GBIF
	<i>Activity 3</i> Publicise launch of the new GBIF data portal
2007	Carry out well-designed publicity launch at SBSTTA 12 in which GBIF's potential to assist countries in fulfilling Convention goals and also assist the Conventions themselves is demonstrated
2007	In conjunction with SBSTTA publicity, GBIF Participants also promote the new portal
	<i>Activity 4</i> Further enhance GBIF visibility and influence with biodiversity-related conventions
05/07	Hold meetings with CITES and AEWA/CMS Secretariats to identify areas of common interest and potential synergies
12/08	Work Plan with the Ramsar Convention is proposed and being implemented
08/07	Build alliances with key partners and achieve greater presence engaging in highly visible international topics/projects (e.g. 2010 target and indicators, GSPC, GTI, alien invasive species, Protected Areas)
12/07	Together with GBIF members, actively promote the CBD COP decision on open access to biodiversity data emanating from publicly funded projects
12/08	At least one major project or campaign is underway with the CBD
	<i>Activity 5</i> Examine relevant intellectual property rights issues
12/07, 12/08	With the aid and advice of PROLeg, the GBIF <i>pro bono</i> group of lawyers, hold at least one meeting or workshop per year on IPR issues.
12/08	Produce and disseminate educational materials and white papers on relevant topics, including recommendations on the use of Creative Commons licenses for sharing data
Goal 3	Strengthen human and institutional capacities for Nodes and GBIF Participants, including regional initiatives
	<i>Activity 1</i> Organise training sessions for Node Managers
2007, 2008	Hold at least two training sessions per year
	<i>Activity 2</i> Organise regional training sessions
Early 2007	Identify areas of collaboration in training-related activities at the regional level.
2007, 2008	Hold at least one collaborative regional training activity per year
	<i>Activity 3</i> Promote the development of value-added applications
07/07	Use outputs of previous demonstration projects in developing a CD-ROM containing examples of the usefulness of GBIF-mediated data, to be released at the CBD SBSTTA 12 meeting
mid 2007	Hold a brainstorming workshop to evaluate the best way(s) to stimulate the development value-added applications
02/08	Evaluate the workshop's recommendations, identify the best role for GBIF to play, and develop an appropriate and cost-effective mechanism for implementing it

CAMPAIGNS

Goal 1	Examine and flesh out the campaign concept and strategy.	
	<i>Activity 1</i>	Finalise the rules and procedures for developing and implementing campaigns
02/07	Based on experience on the proto-campaigns and feedback from the Participants, finalise the guidelines for campaigns. Include specific criteria for proposals that will be made by Participants.	
	<i>Activity 2</i>	Continue examining the four existing proto-campaigns
Early 2007	Depending on the progress of the preparations in 2006, take next steps in the current four proto-campaigns.	
Goal 2	Put new campaigns into place	
	<i>Activity 1</i>	Consider proposals for new campaigns
04/07	Announce to Participant the need to come up with new campaign proposals by 07/07	
10/07	Choose at GB14 at least one new campaign to be taken forward.	
	<i>Activity 2</i>	Provide initial funding
11/07	Request specific plans and fund the next steps in campaigns chosen at GB14.	

			Budget proposal for 2007-2008 Work Programme			
				2007	2008	
GBIF Work Programme				2.040.000	2.401.000	
	Informatics			840.000	868.000	
		Goal 1--Improve user functionality of portal		80.000	80.000	
		Goal 2--Incorporate new types of data		80.000	80.000	
		Goal 3--Improve data quality		80.000	80.000	
		Goal 4--Continue standards development		25.000	25.000	
		Goal 5--Training in use of portal		30.000	35.000	
		Advisory committees		10.000	11.000	
		Implementation		535.000	557.000	
	Content			455.000	691.000	
		Goal 1--Increase quantity and richness of data		175.000	405.000	
		Goal 2--Improve documentation of taxonomic Ids		50.000	45.000	
		Advisory committees		20.000	21.000	
		Implementation		210.000	220.000	
	Participation			620.000	642.000	
		Goal 1--Assistance with Participant Nodes		75.000	80.000	
		Goal 2--Promote GBIF		70.000	45.000	
		Goal 3--Strengthen capacity		85.000	107.000	
		Advisory committees		30.000	33.000	
		Implementation		360.000	377.000	
	Governance and Funding			125.000	200.000	
		Goal 1--Develop campaign concept and strategy		125.000		
		Goal 2--Put new campaigns into place			200.000	
		Other campaign related activities				

ANNEX 1. SETTING UP GBIF CAMPAIGNS

Summary

This document highlights the importance to GBIF of the campaign strategy, and describes the criteria, steps and requirements for proposing, evaluating and selecting them with the view of furthering the impact of GBIF' Work Programmes for the next five years by promoting partnerships and leveraging external funding.

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1. Introduction to GBIF Campaigns

According to the GBIF Strategic Plan 2007 - 2011, a campaign is a project, or set of projects, that brings together a range of collaborators with a goal of developing a specific product that meets the needs of a well-defined user group. This product will be taxonomically, thematically, and/or geographically focused. It will include a biodiversity informatics component, increase of biodiversity data content, facilitate the organisation of data providers and users into communities, and promote changes in standard practices to take advantage of new technologies.

Together, GBIF Participants, Nodes, GBIF Secretariat, and the campaign partners will set priorities, mobilise resources, develop external funding models and, through synergy, achieve outcomes that could not have been achieved independently. The Strategic Plan sets a goal of at least one funded campaign added to the GBIF portfolio each year from 2007 to 2011.

Campaigns can and should cut across the Work Programme themes Informatics, Content, and Participation, involving at least two and preferably all three of them. At the same time, accomplishing the goal of a given campaign should directly contribute to the core mission of GBIF, rather than detracting from it by siphoning off work time of GBIF Secretariat staff.

Campaigns will have a global or broad regional networking component. They will go beyond GBIF's traditional seed money projects because they not only aim to increase content, but are also intended to leverage a wider range of benefits, impacts, partnerships, and technical solutions.

GBIF will provide funding only for start-up phases as campaigns will not be funded by GBIF core budget. Instead, campaigns require involvement and funding from multiple partners, including GBIF Participants and external sources such as private foundations and/or government agencies.

Campaigns must be time-bound. General project management guidelines and principles for quality assurance of projects can be used as a framework for defining the procedures for campaigns. However, campaigns are more than just projects aiming at certain outputs because they also involve marketing aspects, commitments of partners, and exploring new ways of working.

The purpose of this paper is to define the characteristics, requirements, needed partnerships, funding mechanisms, and steps for setting up GBIF campaigns.

2. Requirements for GBIF Campaigns

As agreed by the Governing Board when it approved the GBIF Strategic and Operational Plans for 2007 – 2011 (at GB12, April 2006), GBIF will engage in focused campaigns that have the certain characteristics. For the purposes of this paper, these have been further expanded and elaborated below and in the Sections 3 and 4 of this paper.

GBIF campaigns could to have several of the below-mentioned elements, as appropriate:

- Demonstrable scientific merit
- Rigorous quality control and open access for any data sets produced
- Significant scientific or policy issues addressed through use of biodiversity data
- Contribution to GBIF mission and clear linkage to the Work Programme
- Global or broad regional networking component(s)
- Clear explication of operational aspects
- Partnership development (see Section 3)
- External funding (see Section 4)

Demonstrable scientific merit

GBIF was established as a “mega-science” activity that involves many countries and international organisations, with the express purpose of building information infrastructure and biodiversity data content to serve science, society and a sustainable future. As such, projects coordinated by GBIF, including campaigns, should involve discovery of new facts or application of new methodologies that have not been known or used before, data-mining and re-combination, and/or use of primary data in analyses not previously undertaken. A campaign should provide access to data that can be used in multiple ways and that will allow user group(s) to present new facts, opinions, insights, and/or recommendations based on solid scientific evidence. Campaigns should involve highly qualified scientists with well-respected credentials. The product(s) and finding(s) of campaigns should have high potential for publication in peer-reviewed journals as well as be applicable to practical uses in planning instruments and decision-making.

Rigorous quality control and open access to any data sets produced

The *raison d'etre* of GBIF is to liberate and mobilise primary biodiversity data, initially from natural history collections and documented observations, but increasingly from other sources as well. GBIF-mediated data are made freely and universally accessible. Therefore data generated by campaigns must be openly shared (free of any sort of proprietary constraint).

The main bulk of GBIF data (to date) are heterogeneous in taxonomic and geographic coverage. Campaigns are to be designed to fill important gaps in the data, to produce in-

depth coverage for particular taxonomic groups, geographical areas or ecological guilds (for example, pollinators).

It is expected that data produced through campaigns will make use of the best available practices for ensuring data quality. These include use of the most accurate methods of recording and documenting newly generated data or digitising legacy data, and inspection of the resulting data sets for errors and inconsistencies. GBIF has recently made available software tools for “cleansing data”, and it is expected that these tools (or subsequent upgrades) will be utilised.

Use of biodiversity data to address significant scientific or policy issues

Campaigns should help GBIF to focus on particular areas where users have large questions that need answering, such as what is the rate of biodiversity loss, and how to best build up biodiversity informatics capacities in developing countries. They help to prioritise large scale activities to mobilise data to support policy-level decisions.

Each campaign should address and involve an identifiable and definable user community. Examples of user communities for potential campaigns include those involved in the Global Strategy for Plant Conservation, the Global Pollinator Project, the UN Millennium Goals, major agricultural and conservation organisations, centers for disease control, etc. The specific data needs of the intended user community should be explored and documented whenever a campaign is to be considered. Tangible benefits to these users must be identified in the campaign plans. A campaign focused on a particular user community must be designed to meet the needs of that community. At the same time, the activities and outcome of the campaign must contribute to the accomplishment of core GBIF goals.

Contribution to GBIF mission and linkage with the Work Programme

Campaigns should contribute to the overall goals of the Strategic Plan, and must be coordinated with the Work Programmes that lead to those goals. A successful campaign will make a net positive contribution to the GBIF as a whole, by increasing content and/or nodes' and data providers' capacities, and through improvements in or additions to the GBIF information infrastructure.

Global or broad regional networking component(s)

Campaigns should reflect GBIF's role as global organisation and collaborative, coordinating network. They should explore new ways of working together and help to build new partnerships among institutions, individual scientists, between government agencies and scientists and their projects, etc. These social networks could be geographically regional, or focus on certain biomes or on a particular group of organisms. Whatever their nature, the networking component should help to eliminate situations in which multiple small groups are duplicating work on the same problem, bringing them

together to achieve synergies and maximise the return on investment of scientist time and funding.

Operational criteria

In addition to the criteria for the substance of a campaign, there need to be clearly delineated operational responsibilities and requirements.

There must be a strong commitment from one or a consortium of GBIF Participants to drive the process. In the initial phases, a country or group of countries and/or organisations must assume the leadership role by investing funds and time. The campaign and its goal should be of sufficient interest to other countries/organisations, such that they will help develop a concrete proposal for a campaign in which they will take part.

All parties to such a proposal should be aware that a campaign can only succeed if the parties to it raise the funds required to carry it out. Furthermore, the financial and time commitments assumed by each partner must be seriously undertaken, so that campaigns do not fail because one or a few members of a consortium retire from the agreement.

A campaign proposal will

1. Explain the societal issue(s) to be addressed including the need for use of biodiversity data, as well as the expected outcomes, benefits, timeframe and estimated total costs;
2. Provide a good rationale for why GBIF (rather than another organisation) should coordinate such a campaign;
3. Explicate the management structure for the campaign (Who is the project leader? What is the oversight mechanism? Etc.) and how that management will interact with the Secretariat and through it GBIF as a whole; and
4. Give details about the technical achievability of the work, how many data will be made available, the benefits to the selected user group(s) of the results and outcomes of the work, etc.

The proposal should also include:

1. A description of the sources of funding that will meet the costs;
2. Timeline, milestones and well-delineated work assignments (which partner is to carry out what aspect of the work); and
3. A risk analysis (i.e., how will costs be covered if one or more funders retires from the partnership? What alternative data sources can be tapped if proprietary considerations preclude open access to originally selected data? Etc.).

3. Campaign Partnership Roles

GBIF's information infrastructure and the biodiversity data it makes available can be catalytic in joining together those who know and study some taxon, geographic area or

ecological theme with those who need to use the results of those studies in policy, conservation or other application. GBIF is seen as a neutral broker because its mission is to provide accessibility to interoperable biodiversity datasets to anyone in the world, so that those data can be used for many purposes. Further, GBIF has a long-standing and excellent reputation for forging working partnerships with other organisations that have goals associated with understanding and management of biodiversity. In addition, because the GBIF organisational structure is global and its work links together data and information across all levels of biological organisation, GBIF is well-positioned to be a coordinating entity in many campaigns.

It is this coordinating role that GBIF would play in campaigns: Making sure that all potential partners in a campaign are given the opportunity to contribute to designing the campaign plan and participating in the work, facilitating the planning and ultimately the work process (though these would be led and managed by the team selected by the campaign partners), and providing liaison between the campaign management team and the GBIF Work Programme via GBIF Secretariat staff .

GBIF Participants

Campaigns must always be targeted, and may also have a regional focus. This means that GBIF Participants will have differing interest levels in different campaign proposals. This also means that GBIF Participants need to become actively involved in campaigns that are in their areas of special interest or related to their region. Without active, leadership-level involvement of GBIF Participants, the GBIF campaign strategy will not work.

GBIF Participants are strongly encouraged to actively identify opportunities, discuss with other participants and relevant international players and come forward with proposals for GBIF campaigns as described herein.

Governing Board

GBIF Governing Board will review the campaign proposals as they are brought forward and will decide which will be taken to full implementation. Therefore, proposals will have to be made available well in advance (3 months) of Governing Board meetings. The working practices of the Global Science Forum can serve as an exemplar mechanism in this review process.

Science Committee

The Science Committee may act in one or more capacities, such as carrying out an analysis to identify issues or areas in which campaigns could be of great worth and impact. In addition, the Science Committee, as part of the review process, should provide

its advice to the Governing Board concerning the relative costs and benefits of proposed campaigns.

GBIF Secretariat

The Secretariat will analyse the proposals for campaigns that have been brought forward by the Participants, scanning their costs and benefits and impact on GBIF, make suggestions for their improvement, and provide the Governing Board with a cost-benefit analysis (pro vs con listing) for each proposal.

Once a campaign is selected by the Governing Board, the Secretariat will act in a coordinating role. The Secretariat may actively broker partnerships, particularly for potential campaigns that are otherwise of great value but for which there is not a clearly identified Participant leader.

The Secretariat can decide on feasibility and funding of preparatory steps (up to “proto-campaign” stage) but not about full implementation. The latter requires the leadership of a Participant or consortium of Participants described above, and the bringing forward to the Governing Board of a full proposal.

International biodiversity conventions and other user groups

Ideas for campaigns brought forward by well-defined user groups, such as the Convention on Biological Diversity or other international convention will be welcomed by GBIF, because much of the task of meeting user needs is accomplished once those needs are understood. GBIF can play a coordinating role in such instances, helping the user community find partners among GBIF Participants who will form the leadership consortium to flesh out the proposal and identify funders.

Foundations and other donor agencies

The implementation of campaigns is dependent on suitable sources of funding that are external to GBIF’s core mission support. It is anticipated that funding bodies will respond favourably to campaign ideas with a focus in an area(s) of interest of the foundation or other agency. Representatives from such funding bodies will become part of the team that puts together the proposal for a GBIF campaign, and of the management and/or oversight team that carries out the campaign project if it is selected full implementation.

Private industry

Partnership with industry (and their co-investors) is an increasingly interesting option for GBIF, and some experience has already been gained in this area. Not excluding other types of industry, in particular computer software companies have relevance for GBIF.

4. Funding of GBIF campaigns

The agreed level of Participant contributions in the 2007 - 2011 GBIF Memorandum of Understanding is not sufficient to achieve all the goals identified in the Strategic and Operational Plans for GBIF 2007 - 2011. Also, since the beginning of GBIF it has been intended that significant support for GBIF goals would originate within and be used within the countries that participate in GBIF.

According to its Strategic Plan, GBIF during 2007 – 2011 will “Conduct campaigns that bring together data users, data providers and funders to work together and design projects that synergistically serve everyone.” Such GBIF campaigns are intended to be an instrument to bring in sources of funding above and beyond the core contributions, to help implement the GBIF vision and goals.. This leads to the necessity that the selection process of which campaigns to undertake will incorporate a heavy emphasis on the existence and commitment of this external funding. Thus, success of campaign proposals will necessarily depend on the scientific or societal relevance of the project, in order to attract the favorable attention of external funding sources.

The GBIF Secretariat can and will invest some Work Programme budget resources toward the initial phases of campaigns, in order to support early coordination activities, facilitate awareness-raising, and other measures that must be undertaken before external funding can materialise. However, the core budget of GBIF cannot and will not provide funding for full implementation of a campaign.

In some cases, the implementation funding may come directly from the particular user community involved. In other cases, the user community will need to work (with GBIF in its coordinating role) to find potential funders among Participants, governmental agencies or private foundations. It is essential that all funding agencies involved in campaign proposals understand and ascribe to the GBIF requirements for campaigns outlined here.

Campaign funding may also involve in-kind resources such as staff time from partner organisations, materials and supplies from interested industries, travel or research subventions from involved institutions for visiting scientists and the like. These will be accounted for in the total financial plan for a campaign that involves them.

GBIF Supplementary Fund

An important mechanism for channeling funds for campaigns is through the GBIF Supplementary Fund. One of the main purposes of the fund is to accept and administer funds/grants to enable the full implementation of the GBIF Work Programme and of the GBIF computer network, including allowing extensions to the Work Programme, such as campaigns as described here.

Contributors to the Supplementary Fund may be Participants, or ministries, agencies, foundations, institutions, private companies, other organisations or individuals. The fund is being held by the GBIF Secretariat, kept separate from other contributions, and used only for the purposes specified by the donors making the contribution.

Because of its status as an international organisation, some contributors to a campaign may be unable to provide funds directly to GBIF. In those cases, the funds may go directly from the funding organisation to a campaign partner.

5. Phases and staging of GBIF Campaigns

In most cases it will take some time to prepare a proposal, have that proposal accepted by the Governing Board and bring the campaign into full implementation.

Therefore, campaign ideas will go through several phases. What the steps will be will depend on the particular situation, and cannot be rigidly delineated here, but the steps could include some of the following , as appropriate:

1. Concept: Identification of an issue of societal and scientific importance that could be addressed using the kind of data made accessible by GBIF.
2. Exploration / feasibility: Define the idea, identify users, their needs and expected benefits; find partners, build consortium, identify funding sources.
3. Proposal phase: Detailed planning by leadership team (GBIF Secretariat may facilitate) and proposal preparation.
4. Evaluation phase: Secretariat and Science Committee cost-benefit analysis; Governing Board selection.
5. Implementation: Project management team puts planning into practice (liaison with GBIF Work Programme).
6. Promotional / follow-up phase: Protect, publish, and utilise the data, tools, connections, and knowledge generated.

In some cases, feasibility studies and/or preparatory steps may have already been done before GBIF becomes involved; in some cases various of these phases could be merged. However, it is highly likely that a staged approach will be required for almost all campaigns.

GBIF will need to institute a mechanism for reviewing ongoing campaigns, including decision criteria for going from one step to another. As part of the management strategy, the funding agencies will require evaluation before committing large sums to long and costly campaigns, but these cannot be described here in detail. Therefore, a follow-up document to this one will need to be generated as the GBIF Campaign strategy is implemented.

Annex 2. Descriptions of current campaign activities

GBIF's Capacity Enhancement Programme for Developing Countries (CEPDEC). Background information and current situation (July 2006)

CEPDEC Current Proposal

http://doiop.com/GBIF_CEPDEC_Proposal

Background information

The overall aim of CEPDEC is to support a sustainable social and economic development supported by easily accessible biodiversity information and capacity. This will be achieved by supporting the creation of functional GBIF nodes and networks of data providers, building capacity by training and mentoring, and supporting digitalisation projects in selected developing countries. This is consubstantial to the GBIF's vision. However the task involved is too large for the GBIF Secretariat alone to undertake it, or even for GBIF. On the other hand, the developmental and environmental implications of CEPDEC make it attractive to countries and development agencies as a way to tackle issues –very relevant to them – in an efficient way. These elements make CEPDEC an initiative very well suited for a GBIF campaign.

The Danish Ministry of Foreign Affairs (DMFA) has shown a keen interest in linking GBIF, biodiversity research and management, and development. The DMFA funded a project , “Biodiversity Research and Training in Tanzania and Uganda” (2003-2005), that had among its goals to promote the creation GBIF Nodes in Tanzania and Uganda, and in 2004 it opened a dialog with the GBIF Secretariat to explore a CEPDEC initiative.

In 2005 several meetings and interaction between the Danish Ministry of Foreign Affairs and the GBIF Secretariat produced:

- Terms of Reference DMFA-GBIFS
(CEPDEC proposal, Annex 5)
- A concept document on CEPDEC
(CEPDEC proposal Annex 6)
- A feasibility Study for CEPDEC (funded by DMFA)
(Report at CEPDEC proposal Annex 4)

In parallel, The CEPDEC was presented at the GBIF's 11th Governing Board Meeting (GB11, Oct. 2005). Subsequently, GBIF participants mostly from developing countries expressed their ideas on elements needed for CEPDEC. Some contacts for potential donors of CEPDEC were gathered as well.

In January 2006 a first CEPDEC proposal was submitted to DMFA, to interested parties and potential donors. The same month a workshop was held in

Copenhagen to discuss the proposal. As a result, a revised proposal was prepared and submitted to DMFA in March 2006. It was circulated and made available to GBIF members in the GB12 meeting (April 2006). This is the current proposal.

CEPDEC's elements

CEPDEC is envisaged as:

- A framework programme open to multiple Development Agencies that will serve development goals by implementing GBIF core activities in developing countries.
- An instrument to identify complementarities with ongoing initiatives to produce balanced outcomes.
- An expandable initiative open to new partners, countries, or regions to work together on common goals.
- An opportunity for developing countries to contribute to and benefit from GBIF's global framework of strategies, partnerships, methods and data.

CEPDEC purports to the following outputs and activities:

1. A Strategy and Action Plan for developing, consolidating and sustaining scientific work in Asia, Africa and Latin America prepared and under implementation.
(Needs analysis – recommendations- plan)
2. Strategic partnerships established and best practices/models developed.
(Mentoring – data repatriation– demo projects – N-S and S-S partnerships)
3. Functional biodiversity data nodes in selected developing countries.
(Data sharing infrastructure)
4. National network as a mechanism to provide long-term, unified access to all relevant sources of biodiversity information for target developing countries.
(Training –culture change- data digitalisation and sharing)
5. A set of tools and procedures for developing and sustaining national Nodes.
(Tools & services repository for data digitalisation, e-science & problem solving)
6. Options and partnerships for funding of GBIF capacity enhancement in individual developing countries identified and facilitated.
(Capacity building and networking for sustainability --partnerships & funding)

Partnerships

- As a framework programme, CEPDEC provide the element to identify, link and provide mutual support to a variety of projects with common elements and complementarities. At these point a strong linkage between

CEPDEC and a French IRD's project, "Sur-Expert-Plantes" and its regional platforms (3.300K Eur, 4 years) has been identified, and collaboration is in progress (see CEPDEC proposal Annex 8).

Recent developments and next steps

The proposal is under revision for DMFA, with a decision to come later this year.

It is planned in the next months to set up appointments with potential donors. This will require to prepare customised dossiers for potential donors where a) Full CEPDEC is depicted, b) Information on CEPDEC current initiatives is presented and c) Potential activities and partners relevant for the activities, priorities and lines of action of potential donors. An important component of this operation is to request Participants to identify people and agencies that we should visit.

Amazon Basin Biodiversity Information Facility (ABBIF)

Introduction:

The Amazon region is one of the richest and most diverse areas of the planet; however, most of the biodiversity information about the Amazon Basin is neither readily available nor accessible. Access to taxonomic information (scientific names and synonymic lists) and specimen data (primary data, including geospatial information) is fundamental to science, conservation, planning and decision-making at all levels. An initiative to integrate worldwide distributed species and specimen information on the fauna, flora and micro-biota of the Amazon Basin is urgently needed.

Goal:

The Amazon Basin Biodiversity Information Facility (ABBIF) aims at building a decentralised, coordinated data infrastructure for the Amazon region, mobilising biodiversity data from collections, projects and other scientific activities. This project is based on the broad participation of local institutions and scientists and the active involvement and collaboration of large repositories of Amazonian data in Europe and North America.

An action plan has been proposed to digitise and integrate all relevant information on the region in a structured manner, with the adoption of standards and protocols that allow transparent data integration and systems interoperability.

The objective is to increase the value, visibility and usage of data on the Amazon basin through dynamic networking and thereby contribute to better science, conservation practices and sustainable use of the region's natural resources.

Background:

In 2004 GBIF was approached by John Marchioni, at that time Programme Officer (Eco Intelligence) at the Betty and Gordon Moore Foundation. A discussion on areas of work identified the Amazon Region as an area of interest where a project could be build. As a result it was agreed that GBIF would submit a proposal for a feasibility study to build an Amazon Basin Biodiversity Information Facility (ABBIF) and mobilise vast quantities of biodiversity data while building capacities in the Amazonian countries involved. A total of USD 60,000 was disbursed for this feasibility study.

Work accomplished to date:

[CRIA \(The Reference Center on Environmental Information\)](#) and the [Global Biodiversity Information Facility \(GBIF\)](#) worked in a feasibility study for ABBIF to identify potential Amazonian data providers and/or custodians, study different architectures, evaluate existing and needed infra-structure.

The first step of the feasibility study consisted of carrying out a survey on existing providers and custodians of species and specimen data within the Amazon region. Questionnaires were available in [english](#), [spanish](#), and [portuguese](#)

- [Information about the project](#)
- [First preliminary report, June, 2005](#)
- Definition of a strategy:
 - [Proposal for digitisation of biological collections](#)
 - [Proposed Architecture](#) (version March 14, 2006)
 - [Data Sharing and Repatriation of Biodiversity Information: Setting-up a Collaboration Program with Collections from Non Amazonian Countries](#) (version March 14, 2006)
 - [Final report with the proposal to structure ABBIF](#)

All the documents are available at: <http://www.gbif.org/prog/ocb/abbif>

Additionally a workshop with scientific experts from the region was held in Campinas 16-17 March 2006. With a strong endorsement from the scientific community. For more information on the workshop <http://www.cria.org.br/eventos/abbif/>

A briefing session on ABBIF was held in Curitiba in March for representatives from European and North American natural history collections that house Amazonian data and specimens. They expressed their keen interest in ABBIF and the importance of establishing a fruitful collaboration.

Next steps:

A full project proposal was submitted to the Betty and Gordon Moore Foundation aiming at the development of a decentralised, coordinated data infrastructure for the Amazon region associated to a modeling framework, with a broad and inclusive participation of local stakeholders. The objective is to increase the value, visibility and usage of data on the Amazon basin through dynamic networking and thereby contribute to better conservation practices and sustainable use of the region's natural resources.

Fundraising efforts: In addition to submitting the proposal to the Moore Foundation. GBIF has approached the European Commission via its EDIT and Synthesis Projects. The call for add-ons to the FP6 projects unfortunately did not include either EDIT or Synthesis. A new effort to reach out the European Commission and the Organization of the Amazon Treaty is under way.

GBIF Campaign in Support of the International Initiative for the Conservation and Sustainable Use of Pollinators (IPI)

Introduction

Pollination is critical for food production and human livelihoods, and directly links wild ecosystems with agricultural production systems. The vast majority of flowering plant species only produce seeds if animal pollinators move pollen from the anthers to the stigmas of their flowers. Without this service, many interconnected species and processes functioning within an ecosystem would collapse. Approximately 80 percent of all flowering plant species are specialised for pollination by animals, mostly insects. In agro-ecosystems, pollinators are essential for orchard, horticultural and forage production, as well as the production of seed for many root and fibre crops. About two-thirds of the crop plants that feed the world, plus many plant-derived medicines in our pharmacies, rely on pollination by insects or other animals to produce healthy fruits and seeds. For human nutrition the benefits of pollination include not just abundance of fruits, nuts and seeds, but also their variety and quality; the contribution of animal-pollinated foodstuffs to human nutritional diversity, vitamin sufficiency and food quality is substantial.

Goal

The 25,000 - 30,000 species of bees (Hymenoptera: Apidae) are the most significant group of insect pollinators: Of the slightly more than 100 crop species that provide 90 percent of national per capita food supplies for 146 countries, 71 species are bee-pollinated (but relatively few by honeybees). The most immediate and critical need for the International Pollinators Initiative and other pollinator-related projects is for primary scientific data on bees and their interactions with other taxa.

Background

In 1996 the Third Conference of Parties to the United Nations Convention on Biological Diversity (CBD) established, through Decision III/11, the Programme of Work on Agricultural Biodiversity and called for priority attention to be given to components of biological diversity responsible for the maintenance of ecosystem services important for the sustainability of agriculture, specifically including pollinators. In October 1998, the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture, with an Emphasis on Bees, was held in São Paulo, Brazil. The outcome of this workshop was the São Paulo Declaration on Pollinators, which was submitted by the Government of Brazil to the CBD's fifth meeting of its Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA 5). The Conference of the Parties to the Convention Biological Diversity established an International Initiative for the Conservation and Sustainable Use of Pollinators (also known as the International Pollinators Initiative-IPI) in 2000 (COP decision V/5, section II) and requested the development of a plan of action. The CBD Executive Secretary was requested to "invite the Food and Agriculture Organization of the United Nations to facilitate and co-ordinate the Initiative in close co-

operation with other relevant organisations.” In November 2000, FAO organised a meeting with the participation of key experts to discuss how to elaborate the International Pollinators Initiative. Subsequently, a Plan of Action was prepared by FAO and the CBD secretariat; the Plan of Action of the IPI, as adopted at COP 6 (decision VI/5), provides a contextual background for this memorandum of understanding.

The aim of the International Initiative for the Conservation and Sustainable Use of Pollinators (IPI) is to promote coordinated action worldwide to:

- Monitor pollinator decline, its causes and its impact on pollination services;
- address the lack of taxonomic information on pollinators;
- assess the economic value of pollination and the economic impact of the decline of pollination services; and
- promote the conservation, restoration and sustainable use of pollinator diversity in agriculture and related ecosystems.

Work accomplished to date:

Following a GBIF e-conference, pollinators were identified as one of the target groups for both the DIGIT and ECAT 2005 Request for Proposals. In response to this call, two pollinator proposals, one each for DIGIT and ECAT, were received. Both of these proposals were coordinated by FAO, Rome. The DIGIT and ECAT RFP review committees found both proposals had high merit but the review committees expressed concerns that the proposals were possibly premature in that both proposals anticipated spending a lot of effort developing standards and community networking. Although neither proposal was selected for funding, both review committees recommended that the secretariat explore ways of working with these communities to achieve their goals.

A follow-up meeting was arranged at FAO head quarters to explore this possibility. Following this meeting, it was decided to invest the remaining un-committed seed money funds to work with the communities identified in the two proposals to develop a proto-pollinator-campaign. A letter of intent with FAO in support of developing a Pollinator Information Management is under development. A call was released through the pollinator community for expressions of interest for the position of coordinator for this campaign. Mike Ruggerio from ITIS (USGS) has been contracted to take on this position for the next six months. Mike is well connected with the pollinator community and well connected with pollinator activities in the Americas.

Next Steps

A work plan for 2006 has been developed. Our expectation is to utilise the remaining funds to liberate in 2006 the ‘low hanging fruit’ identified in the FAO proposals. It may be possible to share 1 million already digitised specimen records and by combining existing nomenclatural list produce an almost 80% complete global list of names. A major component of the 2006 work plan is targeted at identifying additional partners and additional funding opportunities for the continuation and expansion of the pollinator campaign in 2007/2008.

2010 Target and Indicators

Background:

The Convention on Biological Diversity' Strategic Plan has set the target of significantly reducing the current rate (as of 2002) of biodiversity loss by the year 2010 at global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on earth. The target was subsequently endorsed by the World Summit on Sustainable Development (Johannesburg, 2002).

In 2004 the CBD-COP 7 adopted an indicators framework to assess progress towards the 2010 target at a global scale. The indicators framework included 7 focal areas with 22 indicators (13 of those indicators being ready for immediate testing). See Annex for a full listing of all the agreed indicators.

GBIF and the 2010 Target and Indicators Process:

As part of our on-going work and collaboration with the CBD and in light of our approved work programme, GBIF considered of great importance to get involved in the 2010 target and indicators process with the view of mobilising data towards and also attaining highly visible in front of the international community.

Staff members have been involved in diverse meetings and have connected to several key players. We have recently requested being a member of the 2010 Biodiversity Indicators Partnership .

Collaboration with DEFRA (UK):

- GBIF held a fruitful dialogue with the UK delegation (March and April 2006) to assess how GBIF could best mobilise data in regards the 2010 initiative.
- DEFRA made funds available and commissioned a study lead by UNEP-WCMC. This study is preparing recommendations to GBIF on how best we can engage in the 2010 process (e.g. identify specific taxa, specific opportunities, etc).
- A first draft has been sent to us containing a broad range of general suggestions/recommendations (26 June)
- The Secretariat sent back inputs and recommendations requesting a more focused and concrete recommendations (30 June)
- A second draft report was sent to GBIF (31 July) and comments were prepared.
- By end of August the final report and recommendations will be ready.

Areas where GBIF could contribute to the 2010 indicators process:

1. Mobilisation of data for given taxa
2. Mobilisation of data for a particular country or region

3. Identification of data gaps that could be filled by GBIF
4. GBIF could link up and contribute to indicators 1.2, 1.4 and 3.2 (see annex).
Assess the appropriateness of linking up to the Red List Index, the Living Planet Index and others.
5. Position GBIF within the 2010 Biodiversity Indicators Partnership (including identifying roles and activities) -> Membership has been requested (Aug. 2006)

Additionally, GBIF could benefit from the fact that other indicator frameworks are in the process of being developed by Ramsar, CMS Convention, as well as regional frameworks such as SEBI 2010. In some cases they draw from the same indicators such as the Red List Index (RLI) and the Living Planet Index (LPI).