Survey of existing publicly distributed collection management and data capture software solutions used by the world's natural history collections

Contracting body: the Global Biodiversity Information Facility Secretariat,
Universitetsparken 15, DK-2100 Copenhagen

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Content

1. Introduction

The contract specifies the following task: *"To undertake a survey of existing publicly distributed collection management and data capture software solutions that are currently being used by the world's Natural History Collections*[1] *to capture, organize and manage specimen based data."* The deliverable was defined as *"A report and associated spreadsheet documenting the results of the survey by listing the available digitization software and documenting its*

- *Availability and cost*
- *Any documented limitations to scalability*
- *Any computing platform limitations or specialization*
- *Any specialization by taxonomic group*
- *Estimate of size and distribution of user base*
- *Appropriate contact information including a URL if available.*
- *Data import capabilities and/or limitations*
- *Data export capabilities and/or limitations"*

Limitations

An important limitation build into the contract was the restriction to software "available commercially or free of charge, with some degree of support, and in use by at least two institutes or collections." One of us (Berendsohn) has been editing a simple link collection to such collection software for some years, under the auspices of the Taxonomic Databases Working Group's subgroup on accession data. We are thus very conscious of the limitations of our approach. Many more software products exist in the world's Natural History Collections, some of which may be more sophisticated and/or usable than those here investigated. However, most of these do not provide resources for the support of external users. Especially in non English-speaking nations we did probably miss quite a few existing solutions. However, to our best knowledge we do cover those products that have expressed an intention to offer some support on an international level.

Approach

We first identified relevant software products in our TDWG / BioCISE site on "Software for Biological Collection Management" http://www.bgbm.org/TDWG/acc/Software.htm. An intensive search on the World Wide Web revealed a few additional candidates and served to update links.
Available information was extracted from the site in accordance with the questions posed in the contract, adding sources for user information and database model. The results were entered in the questionnaire and send by email to the respective contact person, asking for verification and improvement of the information (see appendix A).

[1] For the purposes of this contract, 'Natural History Collection' is defined as permanently preserved (non-living) collections of extant species including botanical and vertebrate and invertebrate zoological collections.

This mail was answered by 12 of 24 contacts, with varying degrees of attention (see Appendix B). For the non-respondents, some information from archives or personal knowledge was added.
The results are detailed in the following document and summarized in the attached Excel spreadsheet. We also tried to summarize the limitations imposed by the database management system itself (chapter 3 below), because all systems investigated stated that „limitations to scalability" depended on the DBMS. Consequently, we replaced that item with „DBMS" in the spreadsheet.

Outlook

The report should be completed by either establishing contact to the non-responding program providers or by excluding those who do not respond. From the point of view of contents this report can just provide the base for further investigation, which in our opinion should be extended to cover subjects like:

- Nomenclatural types: categories of types, including typoid material, cleptotypes, etc.? Is the verification procedure of the nature of the type included? Protologue information for types? Who said it was the category of type that is indicated in the database?
- Images: existence and form of link(s) to specimen(s)? Can several images per unit be linked under appropriate categories (e.g. detail of x, output from EM of x)? Can (additional) links be made to taxon names? How extensive is the metadata coverage?
- Rights: is unit-level IPR covered? How are permits managed? Room for restrictions on dissimination of information (e.g. for protected plant locations or according to specific "stakeholder's" conditions for use)?
- Collection management: loans, specimen exchange, general transaction management, curation tasks, etc.
- Determination history: can old determinations be tracked? Are they fully searchable? Can known duplicates in other institutions be cited with their determination?
- Complex unit relationship: are the following cases covered: several specimens – single unit; several units - single specimen; multiple derivations (e.g. specimen batch or duplicate set – single specimen – sample from single specimen – preparation from sample); host-parasite; nest-eggs; plant – pollinator(s); etc. ?
- Rapid data entry, different procedures for existing collections (taxa with low variation, provenance highly variable) vs. new collections (provenance with low variation, taxa highly variable)?
- Possibilities / plans for data capture in the field and online data capture via WWW?
- Language and internationalization: language versions available? Adaptation of user interface to different languages possible? Support for non-English character sets?

Some of these questions can be answered by looking at the respective system's information model, so providers should be urged to supply that information. In other cases more intensive consultation with the developers is needed. Discussions with actual users of the systems are needed to gain insight into usability of the software. The results of the present survey should be made available on the WWW and linked to from GBIF and other sites to encourage software providers to instigate the updating process.

2. System descriptions

BIOLINK V1.5

URL:	http://www.ento.csiro.au/biolink/software.html
Source of information:	web site & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Dr. Steve Shattuck Address: CSIRO Entomology P.O. Box 1700 Canberra ACT 2601 , Australia Phone: +61 2 6246 4272 Fax: +61 2 6426 4264 Email: ento-biolink@csiro.au
Availability and cost	Freely available from publisher (send email to biolink@ento.csiro.au). Free of cost (full client server system needs SQL-Server 2000 licensing[2]).
Specialization by taxonomic group	All taxa
Computing platform	Microsoft Windows 98/NT/2000/XP, client software has been successfully installed on an Apple Macintosh G3 running PC Soft Windows
Limitations to scalability	No limitations documented, database management system is Microsoft SQL Server
Data import capabilities and/or limitations	Microsoft SQL Server import capabilities, supporting imports from various formats such as tab-delimited text files, Excel spreadsheets, Access, and DBF databases as well as all ODBC compliant data sources. The Biolink Import Wizard allows to map source attributes to BioLink attributes..
Data export capabilities and/or limitations	Raw data export via user defined report module Query Tool results can be directly exported to delimited text, XML (two formats), Excel, Word, Access and RTF.
Size and distribution of user base	Approximately 250 active users in 65 countries.
Source of user documentation	Full documentation (online help as well as 140 page User Guide) supplied with the software
Database model documentation	http://www.ento.csiro.au/biolink/development.html

[2] Microsoft licensing conditions and prices are highly variable according to client, country, and versions.

BibMaster

URL:	http://www.rjb.csic.es/bibmaste/bibmastere.htm
Source of information:	**website only**
Last updated:	July 2003
Bibmaster is primarily a taxon-oriented programme, "a database application for nomenclature, literature and specimen management – Reference lists, key-words, nomenclature, check-lists, specimen lists, herbarium labels – ". It does not include collection management tools such as loans etc.	

Contact information	Name: F.Pando Address: Real Jardín Botánico Plaza de Murillo 2 28014 Madrid Fax: +34-91-420 0157 Email: pando@ma-rjb.csic.es
Availability and cost	Free download from http://www.rjb.csic.es/bibmaste/bibdownload.htm
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft Windows 95 and higher (an old version for Windows 3.11 and Access 2.0 is available on the website)
Limitations to scalability	No limitations documented, Microsoft Acess97 and Microsoft Access2000 versions available
Data import capabilities and/or limitations	No information Microsoft Access import capabilities
Data export capabilities and/or limitations	No information Microsoft Access export capabilities
Size and distribution of user base	No information provided.
Source of user documentation	http://www.rjb.csic.es/bibmaste/bibdownload.htm
Database model documentation	No information

BIOTA - The Biodiversity Database Manager

URL:	http://viceroy.eeb.uconn.edu/Biota
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Robert K. Colwell Address: 75 North Eagleville Road, Unit 3043 University of Connecticut, Storrs, CT 06269-3043, USA Phone: 860-486-4395 Fax: 860-486-6364 Email: colwell@uconn.edu
Availability and cost	Published software, can be ordered from http://www.sinauer.com/ BiotaApp (single user): 125USD Biota4D (multiuser): 175USD (needs 4D server[3])
Specialization by taxonomic group	All taxa
Computing platform	Microsoft Windows 95/98/NT, Apple Mac OS PPC
Limitations to scalability	No limitations documented, standalone single user application BiotaApp can be upgraded to a multi-user client-server application Biota4D. For this a 4D Server has to be purchased separately.
Data import capabilities and/or limitations	Conversion of existing (plain text) data sets with "Import Editor" tool.
Data export capabilities and/or limitations	Delimited plain text files, HTML, image files, NEXUS
Size and distribution of user base	About 1000 copies sold, registrants in some 40 countries and 48 US states.
Source of user documentation	Paper manual plus two Supplements, 620 pp, fully illustrated
Database model documentation	http://viceroy.eeb.uconn.edu/BiotaPages/DataModel.html

[3] You can purchase 4D Server either directly from its maker, ACI-US, or from an authorized reseller. ... With educational pricing, a recent quote was $829 for the basic 4D Server pack, for 2 users (2 simultaneous connections); plus $195 for each additional user ("a 1-pack"), or $1535 for a "10-pack" (10 additional simultaneous users). Street prices are about $900 for 4D Server basic pack, $225 for a "1-pack," $900 for a "5-pack," and $1700 for a "10-pack." [Quoted from http://viceroy.eeb.uconn.edu/BiotaPages/FAQ.html]

BIOTA 2 - The Biodiversity Database Manager

URL:	http://viceroy.eeb.uconn.edu/Biota
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Robert K. Colwell Address: 75 North Eagleville Road, Unit 3043 University of Connecticut, Storrs, CT 06269-3043, USA Phone: 860-486-4395 Fax: 860-486-6364 Email: colwell@uconn.edu
Availability and cost	Can be ordered from http://www.sinauer.com/ BiotaApp (single-user, stand-alone) for Microsoft Windows or Apple MacOS: $200 BiotaApp upgrade pricing (for registered users of BiotaApp 1.X): $150.00. Biota4D (multi-user, client/server, requires 4D Server[4]) for Windows or MacOS servers: $300.00 (individuals), $600 (institutions), incl. 2 client connections. Biota4D upgrade pricing not yet decided.
Specialization by taxonomic group	All taxa
Computing platform	Microsoft Windows XP/NT/ME/2000/98 and Apple Macintosh OS X or OS 9
Limitations to scalability	No limitations documented. Standalone single user application BiotaApp upgradable to multi-user client-server application Biota4D (needs 4D Server). Data Files have a 64 GB limit, which corresponds to several hundred million records. Images are in external image files linked to thumbnails in the Biota Data File.
Data import capabilities and/or limitations	Conversion of existing (plain text) data sets with "Import Editor", "batch mode" image import and linking tool (guided by a log file that the user prepares, or that is automatically created by batch export of images or image links from another Biota Data File)
Data export capabilities and/or limitations	Delimited plain text files, HTML, image files, NEXUS Locality-by-Taxon matrices for any set of records or taxa at any level
Size and distribution of user base	Not applicable (not yet released); beta v. 24 used productively by 50 beta testers in 10 countries.
Source of user documentation	CD ROM, 880 pages, fully illustrated and hyperlinked
Database model documentation	Will be updated to reflect Biota 2's new tables

[4] See footnote 3 for pricing.

BIOTICA 4.1

URL:	http://www.conabio.gob.mx/informacion/biotica_espanol/doctos/acerca_biotica.html
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Address: EMail: URL:	Patricia Ramos Av. Liga Periférico-Insurgentes sur 4903 Parques del pedregal. Delegación Tlalpan. C.P. 14010. México D.F. biotica@xolo.conabio.gob.mx http://www.conabio.gob.mx/
Availability and cost	Freely available from CONABIO as download or as Biótica CD incl. the printed user manual (send request to biotica@xolo.conabio.gob.mx), registration required. Free of cost (client-server environment needs MS SQL Server software and licensing).	
Specialization by taxonomic group	All taxa. Biótica includes authority catalogues for the following biological groups: Benthic marine Algae, Pteridophytes, Angiosperms and Gymnosperms, Amphibians and Reptiles, Birds, Mammals and Arthropods. The files are available from http://www.conabio.gob.mx/informacion/catalogo_autoridades/doctos/acerca.html	
Platform	Microsoft Windows	
Limitations to scalability	No limitations documented; Up to Biótica version 4.0 the DBMS used was Microsoft Access. The latest version 4.1 (released on June 16th, 2003) both MS Access and Microsoft SQL Server 2000 can be used. The maximum number of records depends on the database engine.	
Data import capabilities and/or limitations	No specific data import procedures implemented yet but planned for the next software version.	
Data export capabilities / limitations	Export to various formats possible (e.g. Microsoft Access, Microsoft SQL Server, Excel, text files, XML, HTML, etc).	
Size and distribution of user base	No information (> 90 projects in Mexico for version 2)	
Source of user documentation	http://www.conabio.gob.mx/informacion/biotica_ingles/doctos/manual_v4.0.html (Spanish only)	
Database model documentation	http://www.conabio.gob.mx/informacion/biotica_ingles/doctos/manual_v4.0.html (Spanish only). Download section XII (pdf file), appendix A to J. The database dictionary is contained in: Anexo H. Diccionario de datos de Biótica. An E/R diagram is available on request.	

BRAHMS

URL:	http://www.brahms.co.uk
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: The BRAHMS Project Address: Department of Plant Sciences University of Oxford OXFORD, OX1 3RB UK Email: info@brahms.co.uk
Availability and cost	Freely available from the publisher by download from http://storage.plants.ox.ac.uk/brahms/, registration required. Free of charge ("institutions and projects that use BRAHMS routinely for herbarium management or longer term research work - and have the resources - are encouraged to adopt a BRAHMS Support Agreement").
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft Windows 95 or later
Limitations to scalability	No limitations documented, database system is Visual FoxPro 8
Data import capabilities and/or limitations	Visual FoxPro 8 import capabilities.
Data export capabilities and/or limitations	Visual FoxPro 8 export capabilities.
Size and distribution of user base	BRAHMS has herbarium-based project activities in the Europe (Baltic states, Germany, Netherlands, Portugal and the UK); Africa (Benin, Cameroon, Gabon, Ghana, Kenya); Asia (Bangladesh, Indonesia, Kuwait, Malaya, Philippines, Sabah, Sarawak, Singapore, Thailand) and the Americas (Bolivia, Brazil, Colombia, Honduras, Panama, Puerto Rico, USA). Regional networks are being established in the Netherlands, South East Asia and Amazonian Brazil.
Source of user documentation	http://storage.plants.ox.ac.uk/brahms/manual/manual.html Online help available
Database model documentation	No information available

Miscellaneous	Many projects use BRAHMS for managing taxon related information (names and related data such as images, descriptions, and other facts).

Clubtail 1.0 – dragonfly database

URL:	http://www.OnMyMountain.com
Source of information:	website & feedback to questionnaire
Last updated:	July 2003
Primarily intended for use within North America	

Contact information	Name: John C. Robinson Address: President, LANIUS Software, Inc. 5055 Business Center Drive, Suite 108, #110; Fairfield, CA 94534 USA Phone: 1-866-864-8279 Email: birdshrike@cs.com
Availability and cost	Can be purchased at 60 US$ from http://www.onmymountain.com/store/show_product/?product_id=16661
Specialization by taxonomic group	Dragonflies
Computing platform	Microsoft Windows 95 and later versions
Limitations to scalability	The database (Microsoft Access 97) is primarily intended for use within North America ("states" and "counties"). If it were to be expanded for use in other countries, the database structure and programming interface would need to be modified to allow data entry for countries that have different political boundaries, such as provinces, regions, parishes, etc.
Data import capabilities and/or limitations	Microsoft Access 97 import capabilities.
Data export capabilities and/or limitations	Microsoft Access 97 export capabilities.
Size and distribution of user base	Most database users reside in North America or perform studies of dragonflies in North America. The number of users is probably less than 100, however the exact number of users is unknown.
Source of user documentation	User's Manual is available from LANIUS Software, Inc. (Word Perfect document).
Database model documentation	Database model documentation is provided in Appendix A of the user manual written for the product.

DEMUS - museum collection system

URL:	http://www.mzm.cz/engmzm/demus/demus.html
Source of information:	**website only**
Last updated:	July 2003
Currently only Czech version available	

Contact information	Name: Jarmila Podolníková Address: Zelny trh 6, 659 37, Brno Czech Republic Phone: +420 5 42 32 12 05 Fax: +420 542 21 13 02 Email: demus@pandora.cz
Availability and cost	Base installation: 2 000 - 5 000 CZK according to the size of the museum, branch application: plus 2000 CZK
Specialization by taxonomic group	General collection management. Branch applications for zoology, botany, and entomology.
Computing platform	Microsoft Windows 95/98/2000
Limitations to scalability	No limitations documented, database system is Microsoft Access 97
Data import capabilities and/or limitations	Data import from text files and dbase format. Data conversion service offered
Data export capabilities and/or limitations	ISO SEUD, Microsoft Access 97 export capabilities: all common database formats
Size and distribution of user base	Botany application: 10 installations Zoology application: 7 installations Entomology: 5 installations
Source of user documentation	No information
Database model documentation	No information

FLORIN Information System

URL:	http://www.florin.ru/florin/
Source of information:	**website only** (apparently not updated since 1999)
Last updated:	July 2003

Contact information	Email: floriner@florin.ru
Availability and cost	Download from http://www.florin.ru/florin/ > 1500 US$ + costs of Informix DBMS
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft DOS, Microsoft Windows, and Unix
Limitations to scalability	Client/Server database management system IBM-Informix
Data import capabilities and/or limitations	No information IBM-Informix import capabilities
Data export capabilities and/or limitations	No information IBM-Informix export capabilities
Size and distribution of user base	No information
Source of user documentation	http://www.florin.ru/florin/brief/b_florin.htm
Database model documentation	No information

HERBAR

URL:	http://www.rjb.csic.es/herbario/herbar.htm
Source of information:	**website only**
Last updated:	July 2003

Contact information	Name: F. Pando Address: Real Jardín Botánico Plaza de Murillo 2 28014 Madrid Fax: +34-91-420 0157 Email: pando@ma-rjb.csic.es
Availability and cost	Freely available for download from http://www.rjb.csic.es/herbario/herbar.htm. Free of charge.
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft Windows 98/NT/2000/XP
Limitations to scalability	No limitations documented, database system is Microsoft Access 2000
Data import capabilities and/or limitations	Bibmaster (Access) Microsoft Access import capabilities. Files of genera availble for Algae (4287 genera), Musci (825), Hepaticae (426), Fungi and Lichenes (8215) and vascular plants (7490)
Data export capabilities and/or limitations	Bibmaster (Access) Microsoft Access export capabilities
Size and distribution of user base	6 herbaria in Spain, according to http://www.rjb.csic.es/herbario/herbaruse.htm
Source of user documentation	Manual for v. 2.6 (1998) included in current download. Upgrade history information on the website.
Database model documentation	Some field and table information provided by the manual.

KE Emu - Electronic Museum

URL:	www.kesoftware.com/emu
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: John Doolan Address: 57 University Street, Carlton VIC 3053 Australia Email: John.Doolan@kesoftware.com
Availability and cost	Available by subscription. Subscribing users do have access to a very broad range of Web resources including free access to new versions of the software. KE EMu is licensed by the number of concurrent users on a single server, starting with two concurrent users
Specialization by taxonomic group	General collection management including biological objects (all taxa), that is configured to the needs of the institution. The catalogue supports multiple disciplines, each with their own field structure. Supported disciplines: • Invertebrates • Vertebrates (mammalogy, herpetology, ichthyology, ornithology) • Mineral Sciences, including petrology, mineralogy, meteorites, volc-anoes and eruptions (with supporting modules, e.g. chemical analyses) • Botany, including herbarium and living collections (incl. propagation) • Palaeobiology, with vertebrate, invertebrate and botanic palaeontology • Entomology • Anthropology
Computing platform	Client on Microsoft Windows 95/98/NT/2000/XP. Apple Mac client via terminal server. Server Unix/Linux and Microsoft Windows NT/2000/XP.
Scalability	Many millions of records possible. Database system is KE Texpress.
Data import capabilities	Data conversion carried out by KE from any file format, preferred are TAB delimited ASCII files and contemporary database formats.
Data export capabilities	The default export format is XML. Other export formats include CSV, Tab delimited, as an ODBC data source, HTML, KE Texpress format
Size and distribution of user base	Several installations in large natural history museums, see http://www.kesoftware.com/clients-region.html for the list of installations
Source of user documentation	Product base documentation is available at http://emuhelp.kesoftware.com/master/en/index.htm. It is augmented with additional information related to a specific implementation (e.g. inclusion of gazetteer or sites modules plus details of a customised design). An example of the product documentation augmented in this way can be found at http://emuhelpnmnh.mel.kesoftware.com/.
Database model documentation	The product documentation incorporates data dictionary information (under the *Modules* chapter). For example, the data dictionary for the Catalogue component of the NMNH product documentation can be seen at http://emuhelpnmnh.mel.kesoftware.com/Modules/Catalogue/field_tech.htm

Mandala

URL:	http://pherocera.inhs.uiuc.edu/
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Gail E. Kampmeier Address: Illinois Natural History Survey 1101 W. Peabody, Urbana, IL 61801 USA Email: gkamp@uiuc.edu
Availability and cost	Software distributed freely and free of cost upon request (http://pherocera.inhs.uiuc.edu/). User feedback requested and acknowledgement of software use required in publications.
Specialization by taxonomic group	Although website shows specific use for flies, Mandala can be customized for any taxon governed by the ICZN.
Computing platform	Microsoft Windows OS that is compatible with FileMaker Pro version utilized to access system.
Limitations to scalability	No limitations documented, database system: FileMaker Pro 5.x or Filemaker Pro 6
Data import capabilities and/or limitations	Filemaker Pro import capabilities: Data may be imported from tab delimited text files, Excel, XML, ODBC, and FileMaker Pro. Specialized import scripts and layouts created to aid in importing taxonomic nomenclature.
Data export capabilities and/or limitations	Filemaker Pro export capabilities: All data fields may be exported as tab-delimited or comma separated text, or the following file formats: SYLK, DBF, DIF, WKS, Basic, Merge, HTML table, FileMaker Pro, XML. Some specialized export scripts developed such as specimens examined lists.
Size and distribution of user base	Fewer than 100 installations worldwide.
Source of user documentation	Integrated within Mandala. About Mandala: http://pherocera.inhs.uiuc.edu/about.htm. Metadata about Mandala: http://pherocera.inhs.uiuc.edu/metadata.htm
Database model documentation	http://pherocera.inhs.uiuc.edu/MandalaModel.pdf is an annotated pdf of the Mandala model.

Miscellaneous	The nomenclature file (NAMES.FP5) can also be modified further to comply with other international codes. All other files (=tables) handling specimens, literature, illustrations, loan management, etc. could be used for any taxa.

Mantis

URL:	http://140.247.119.145/Mantis/
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Piotr Naskrecki Address: Museum of Comparative Zoology, Harvard University, 26 Oxford St., Cambridge, MA 02138, USA Email: p.naskrecki@conservation.org
Availability and cost	Free of cost download from http://140.247.119.145/Mantis/ . For web publishing FileMaker Pro Unlimited is needed, for the standalone version no additional software is required.
Specialization by taxonomic group	All taxa
Computing platform	Microsoft Windows 98 / NT 4 or later, Apple MacOS 8.6 – 9.22 or OS-X
Limitations to scalability	No limitations documented, database system is FileMaker 6.0
Data import capabilities and/or limitations	Filemaker import capabilities: Text, FileMaker, SYLK, DIF, Lotus, Merge, Basic, dBase, Excel, ODBC, XML
Data export capabilities and/or limitations	Filemaker export capabilities: Text, FileMaker, SYLK, DIF, Lotus, Merge, Basic, DBIF, HTML table, XML; exporting embedded images requires a third-party plug-in
Size and distribution of user base	200-250 individual users worldwide. Databases published online: Type Collection of the Museum of Comparative Zoology, Harvard University Household Pests of New England, Orthoptera Species File (Katydids), Harvard Database of Caribbean Insects, University of Nebraska Insect Collection
Source of user documentation	http://140.247.119.145/Mantis/
Database model documentation	No information

Multi MIMSY 2000

URL:	http://www.willoughby.info/mimsy/
Source of information:	**website only**
Last updated:	July 2003

Contact information	Name: Willoughby Associates, Limited Address: 266 Linden Street, Winnetka, Illinois 60093 Phone: 847.332.1200 Fax : 847.332.1272 Email: info@willo.com
Availability and cost	Contact info@willo.com, Licence > 10000USD including Oracle DBMS[5]
Specialization by taxonomic group	General collection management system including natural history collections; presumably all taxa
Computing platform	Server: Oracle 8i DBMS platforms (Windows NT, Windows 2000, Windows XP, Apple, several dozen varieties of UNIX, and a number of proprietary operating systems including MPE/XL and VMS). Client: Unix, PCs and Macs may be used on the same server. PC clients may run under Windows 95, Windows 98, Windows 2000, Windows XP, or Windows NT 4.0
Limitations to scalability	Client/Server database: Oracle Standalone version for Microsoft Windows 95/98/NT/2000 and Apple Macintosh available
Data import capabilities and/or limitations	Oracle import capabilities Import from ASCII flat files with pipe character delimited fields
Data export capabilities and/or limitations	Oracle export capabilities
Size and distribution of user base	USA
Source of user documentation	No information
Database model documentation	No information

[5] According to company's statement, it is not clear if the use of Personal Oracle is envisioned nor if there are educational pricing schemes.

PaleoTax – Information System for Palaeontologists

URL:	www.paleotax.de
Source of information:	website & feedback to questionnaire
Last updated:	July 2003
Originally, PaleoTax is a tool for biodiversity research rather than collection management software. A module for collection specific tasks is about to be released.	

Contact information	Name: Hannes Loeser Address: Estación Regional del Noroeste, Instituto de Geología, UNAM Apartado Postal 1039, Hermosillo, Sonora, Mexico 83000 Email: info@paleotax.de
Availability and cost	Free download from http://www.paleotax.de/
Specialization by taxonomic group	Any group of fossil and recent organisms, preferred animals (because in accordeance with the IRZN)
Computing platform	Microsoft Windows
Limitations to scalability	No limitations documented, Hierarchical-Relational Data Bank System HDB
Data import capabilities and/or limitations	Access, text files, dbf, other formats have to be converted to dbf in advance; presently limited to literature, but generally not difficult to extend options
Data export capabilities and/or limitations	ASCII, RTF, HTML
Size and distribution of user base	Germany; ca.10 installations worldwide (at least Germany, France, Russia, Japan, Mexico, USA) number of installations unknown, ca. 30 downloads per month
Source of user documentation	**German:** Löser, H. (2001) PaleoTax - Datenbanksystem zur Erfassung, Verarbeitung und Ausgabe taxonomischer, geographischer und stratigraphischer Daten in der Paläontologie. Version 2.0. Handbuch und Referenz. -- 136 Seiten; Dresden (CPress). **English:** Löser, H. 2003. PaleoTax. Database management system to record, process, analyse and output taxonomic, geographic and stratigraphic data in palaeontology. - Publicaciones Ocasionales, 3: 148 pp.; Hermosillo (UNAM).
Database model documentation	http://www.paleotax.de/pvn17.htm

The PANDORA taxonomic database system

URL:	http://193.62.154.29/rbge/web/science/pandora.jsp
Source of information:	website, feedback to questionnaire, and in-house expertise
Last updated:	July 2003
Pandora is a taxonomic rather than a collection management software, but it includes detailed data capture for specimens.	

Contact information	Name: Dr. Richard Pankhurst Address: R.B.G. Edinburgh Inverleith Row Edinburgh United Kingdom Email: R.Pankhurst@rbge.org.uk
Availability and cost	Freely available, contact Richard Pankhurst (R.Pankhurst@rbge.org.uk). Download of a 1999 version possible through: http://www.ibiblio.org/pub/academic/biology/ecology+evolution/software/pandora/ . Free of charge.
Specialization by taxonomic group	Herbarium collections
Computing platform	DOS, including DOS boxes in Windows95, NT, OS/2, and various UNIX flavors (but company-supported only under DOS)
Limitations to scalability	No limitations documented, database system is Advanced Revelation
Data import capabilities and/or limitations	Import from ASCII text files possible
Data export capabilities and/or limitations	ASCII text files, any other user defined format via report programs
Size and distribution of user base	No information. Used in 6 internal database projects at the RBG Edinburgh and for the Euro+Med Plantbase project (Flora Europaea checklist).
Source of user documentation	User documentation (dated 1993) included in the download mentioned above (availability).
Database model documentation	No information

PLabel: Herbarium Label Program

URL:	http://www.flmnh.ufl.edu/natsci/herbarium/pl/
Source of information:	**website only**
Last updated:	July 2003

Contact information	Name: Kent D. Perkins Address University of Florida Herbarium (FLAS) 379 Dickinson Hall Florida Museum of Natural History PO Box 110575 Gainesville, FL 32611-0575 USA Phone: (352) 392-1721 ext. 208 FAX: (352) 846-2016 EMail: kperkins@flmnh.ufl.edu
Availability and cost	Freely availble for download from http://www.flmnh.ufl.edu/natsci/herbarium/pl/. Free of charge.
Specialization by taxonomic group	Herbarium Label Program
Computing platform	Microsoft DOS
Limitations to scalability	No limitations documented, database system is DBaseIII / Clipper 97
Data import capabilities and/or limitations	No information DBaseIII import capabilities
Data export capabilities and/or limitations	DBaseIII export capabilities
Size and distribution of user base	No information
Source of user documentation	No information
Database model documentation	No information

SAMPADA - Natural History Collection Database Software

URL:	http://www.ncbi.org.in/sampada/index.html
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Address: Email:	Vishwas Chavan, Scientist National Centre for Biodiversity Informatics Information Division National Chemical Laboratory Dr. Homi Bhabha Road Pune 411008 India vishwas@ems.ncl.res.in
Availability and cost	Freely available (registration required) by download from http://www.ncbi.org.in/sampada/index1.htm or as CDROM . Free of charge.	
Specialization by taxonomic group	All taxa	
Computing platform	SAMPADA is platform independent (Java implementation).	
Limitations to scalability	No limitations documented, database management system is MySQL 3.23. Currently, SAMPADA is a standalone application.	
Data import capabilities and/or limitations	MySql 3.23 import capabilities	
Data export capabilities and/or limitations	SAMPADA application does not have export capabilities, but MySql 3.23 export capabilities can be used.	
Size and distribution of user base	More than 20 collections / museums in India have requested for SAMPADA for use in automating their collections. There also has been request from Bangladesh, Sri Lanka and other neighboring South Asian countries. Modest customization is underway for using SAMPADA by these museums outside India.	
Source of user documentation	http://www.ncbi.org.in/sampada/userguide.jsp	
Database model documentation	Not available on-line, but can be provided on request.	

Miscellaneous	A next generation of SAMPADA is expected by end of 2003. It will be both a standalone or a web-based client-server application.

SPECIFY 4.0

URL:	http://usobi.org/specify/
Source of information:	website and in-house expertise (GBIF.DE project)
Last updated:	July 2003

Contact information	Name: Specify Software Project Address: Biodiversity Research Center The University of Kansas 1345 Jayhawk Boulevard Lawrence, Kansas 66045 USA Email: specify@ku.edu
Availability and cost	Freely avaible, download from http://usobi.org/specify/. Free of charge (client-server environment needs MS SQL Server software and licensing).
Specialization by taxonomic group	All taxa. User interface can be pre-set for specific collection types by means of downloadable sets of customised forms for botany, entomology, herpetology, ichthyology, invertebrate palaeontology (under development), mammalogy, ornithology, palaeobotany (under development), and vertebrate palaeontology. The forms can be further modified to suit specific user needs.
Computing platform	Microsoft Windows XP Professional (not XP Home), 2000 Server, 2000 Professional, 98SE.
Limitations to scalability	No limitations documented, database engine is MSDE / Microsoft SQL Server/
Data import capabilities and/or limitations	Specify project helps to convert and import existing collection data sets. Import of taxonomic authority files (in ITIS format) possible, extensive files available.
Data export capabilities and/or limitations	Data export into delimited text format and MS Access files via query reporting function. Specify is able to produce reports with a wide variety of options for layout, fonts, graphical design, bar codes, and other formatting features.
Size and distribution of user base	At least 100 installations (incl. version 3.x) worldwide.
Source of user documentation	Extensive user manual available with by download: http://usobi.org/specify/4_whatisspecify/usermanual40.htm
Database model documentation	http://usobi.org/specify/3_whatisspecify/datamodel.htm

SysTax

URL:	http://www.biologie.uni-ulm.de/systax/
Source of information:	**website + in-house information only**
Last updated:	July 2003

Contact information	Name: Jürgen Hoppe Address: Systematische Botanik und Ökologie Universität Ulm D- 89069 Ulm Germany Email: juergen.hoppe@biologie.uni-ulm.de
Availability and cost	Projects are encouraged to use the central SysTax database and remote editing tools.
Specialization by taxonomic group	All taxa
Computing platform	Systax client: Windows 95/98/NT/2000. SysTax Server (not normally provided): Oracle compatible platforms.
Limitations to scalability	No limitations documented, database management system is Oracle
Data import capabilities and/or limitations	Oracle import capabilities. Several text and XML import data definitions supported, see http://www.biologie.uni-ulm.de/systax/documentation/interfaces/index.html
Data export capabilities and/or limitations	No information Oracle export capabilities
Size and distribution of user base	Several projects (among them 3 of the 7 GBIF-nodes) in Germany are using SysTax for information integration and data input.
Source of user documentation	http://www.biologie.uni-ulm.de/systax/handbuch/index.html
Database model documentation	http://www.biologie.uni-ulm.de/systax/documentation/index.html

TAXIS - Taxonomic Information System

URL:	http://bio-tools.tcn.ru/products/taxis/index.htm
Source of information:	**website only**
Last updated:	July 2003

Contact information	Name: Jevgeni Meike Address: University of Helsinki Department of Ecology and Systematics P.O. Box 17 (Arkadiankatu 7), FIN-00014 University of Helsinki Finland Email: http://www.bio-tools.net/contact.htm
Availability and cost	Download from http://bio-tools.tcn.ru/download/index.htm. Free licence for students. Single non-commercial licence: 59 EUR.
Specialization by taxonomic group	All taxa
Computing platform	Microsoft Windows 95/98/Me/NT4/2000/XP
Limitations to scalability	Limitations of DBMS: Borland Database Engine (BDE) accessing tables Paradox format (Paradox is not needed)
Data import capabilities and/or limitations	Data import tool included
Data export capabilities and/or limitations	Data export into text files
Size and distribution of user base	No information
Source of user documentation	http://bio-tools.tcn.ru/download/index.htm
Database model documentation	Table attributes available under http://www.bio-tools.net/products/taxis/help/dbdetails_index.htm

TRACY - A Herbarium Management System

URL:	http://www.csdl.tamu.edu/FLORA/input/inputsys.html
Source of information:	**website only (last updated in 1999)**
Last updated:	July 2003

Contact information	Name: H. Wilson [?] Address: Texas A&M 3258 TAMU College Station TX 77843-3258 USA Email: h-wilson@tamu.edu
Availability and cost	Free of charge and freely available for download from http://www.csdl.tamu.edu/FLORA/input/download2.html
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft Window 95/NT or higher
Limitations to scalability	No limitations documented, database system is Corel-Paradox
Data import capabilities and/or limitations	No information Paradox import capabilities
Data export capabilities and/or limitations	No information Paradox Access import capabilities
Size and distribution of user base	Apparently in use at the S. M. Tracy Herbarium and the Texas A&M Biology Department Herbarium
Source of user documentation	http://www.csdl.tamu.edu/FLORA/input/HowTo.html
Database model documentation	No information

University of California Davis Herbarium Management System

URL:	http://herbarium.ucdavis.edu/database.html
Source of information:	website & feedback to questionnaire
Last updated:	July 2003

Contact information	Name: Director of the Herbarium Address: Section of Plant Biology, Univ. of California, Davis, Davis, CA 95616 Email: herbarium@ucdavis.edu
Availability and cost	Freely available for download from http://herbarium.ucdavis.edu/download.html. Free of charge.
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft Windows 95/98/ME/NT/2000
Limitations to scalability	No limitations documented, database system is Microsoft Access 97 or Microsoft Access 2000
Data import capabilities and/or limitations	Microsoft Access import capabilities
Data export capabilities and/or limitations	None provided in application. Microsoft Access export capabilities
Size and distribution of user base	Not recorded
Source of user documentation	http://davisherb.ucdavis.edu and http://herbsoc.ucdavis.edu.
Database model documentation	Some information provided in the readme file contained in the download.

Miscellaneous	With respect to the GBIF agenda: developments are ported to XML capable applications and also towards standards such as DiGIR and providing web services for data integration/sharing over the web.

Virtual Herbarium Express

URL:	http://www.nybg.org/bsci/vh/
Source of information:	**website only**
Last updated:	July 2003

Contact information	Name: Tony Kirchgessner Address: The New York Botanical Garden Bronx River Parkway at Fordham Road Bronx, New York 10458 USA Email: vhnybg@nybg.org
Availability and cost	Freely available for download from http://www.nybg.org/bsci/vh/#Library. Free of cost.
Specialization by taxonomic group	Herbarium collections
Computing platform	Microsoft Windows 98/ME/NT/2000
Limitations to scalability	No limitations documented, database system is Microsoft Access XP
Data import capabilities and/or limitations	Microsoft Access XP import capabilities. Authority files on persons, publications, families, and genera provided by the programme, other data on request.
Data export capabilities and/or limitations	Microsoft Access XP export capabilities. Special output for import to NYBG database, were the data can be hosted as a separate catalogue
Size and distribution of user base	No information
Source of user documentation	http://www.nybg.org/bsci/vh/VHE_UserManual.pdf
Database model documentation	No information

Miscellaneous	English and Spanish version available

3. Limitations of used database management systems

DBMS	Limitations:
4D Server	Data Files have a 64 GB limit, which corresponds to several hundred million records ftp://ftp.4d.com/ACI_PRODUCT_REFERENCE_LIBRARY/4D_PRODUCT_WHITE_PAPERS/4th_Dimension_Tech_Overview.pdf
4th Dimension	Data Files have a 64 GB limit, which corresponds to several hundred million records ftp://ftp.4d.com/ACI_PRODUCT_REFERENCE_LIBRARY/4D_PRODUCT_WHITE_PAPERS/4th_Dimension_Tech_Overview.pdf
Advanced Revelation	No data available
Corel-Paradox	Max users connected to database: 300 Max users connected to table: 255 Max fields in table: 255 Max number of tables open per system: 127 (4.0 and earlier) Max number of tables open per system: 254 (4.01 32 Bit) Max number of record locks on one table: 64 (16Bit) per session Max number of record locks on one table: 255 (32Bit) per session Max number of records in transactions on a table: 255 (32 Bit) Max number of files open simultaneously: 512 Open physical files (4.0 and earlier) Max number of files open simultaneously: 1024 Open physical files (4.01 32 Bit) Max number of records in a table: 2 Billion Max number of bytes in .DB (Table) file: 2 Billion Max number of passwords per session: 100 Max password length: 15 Max passwords per table: 63 http://www.thedbcommunity.com/pdox/specs.htm
DBaseIII	dBase III each .DBF file can be up to 2GB
Filemaker Pro 5.5	Max file size: 2 GB Max users connected to database: 25 Max number of users via a Web browser: Access to web-published database is limited to 10 IP addresses per 12 hour period. Max object name length: Up to 60 characters (60 bytes) Max objects in database: Limited only by disk space or file size. Max record length: Limited by disk space or maximum file size. Max fields in table: Approximately 5,900 Max number of files per disk: Limited only by disk space. Max number of files open simultaneously: Up to 50 files. http://www.filemaker.com/ti/107472.html
Filemaker Pro 6.0	No practical database limits other than those imposed by the hardware and operating system.
HDB	No data available

DBMS	Limitations:
IBM – Informix	No practical database limits other than those imposed by the hardware and operating system.
KE Texpress	KE Texpress imposes no practical database limits other than those imposed by the hardware and operating system. Therefore the system is applicable to databases of all sizes, from a few objects to hundreds of millions of objects. http://www.kesoftware.com/texpress/engine.html
Microsoft Acces 97 (working with JET database engine)	Max mdb file size: 1GB Max users connected to database: 255 Max object name length: 64 Max objects in database: 32768 Max record length (without Memos and BLOBs): 2048 Max fields in table: 255 Max modules in database: 1024 Max password length: 14 Max user/group name length: 20 Max nested transactions: 7
Microsoft Access 2000/XP (if used with MSDE as database engine see Microsoft MSDE 2000)	Max mdb file size: 2GB Max users connected to database: 255 Max object name length: 64 Max objects in database: 32768 Max record length (without Memos and BLOBs): 2048 Max fields in table: 255 Max modules in database: 1000 Max password length: 14 Max user/group name length: 20 Max table size: 1GB
Microsoft MSDE 2000	Differences to Microsoft SQL Server: Max size of addressable ram: 2 GB Max number of usable processors: 2 Max number of current processes, queries: 5 No graphical administration tool like Enterprise Manager
Microsoft SQL Server	No practical database limits other than those imposed by the hardware and operating system.
Microsoft Visual Foxpro 8	No practical database limits other than those imposed by the hardware and operating system.
MySql 3.23	8 million terabytes practical database limit depending on the selected hardware and operating system.
Oracle	No practical database limits other than those imposed by the hardware and operating system.

4. Appendices

A) Example questionnaire (BioLink)

Dear Dr. Shattuck,
on behalf of the Global Biodiversity Facility (GBIF), the Botanic Garden and Museum Berlin, Dept. of Biodiversity Informatics is carrying out a survey of collection management and data capture solutions. The scope of this survey is restricted to publicly available systems that are used by natural history collections.

BioLink has been identified as one of the important software tools for collection management which should be itemised on this list. So far, we have collected the following information from your world wide web site (http://www.ento.csiro.au/biolink/software.html).

--> Availability and cost
Freely available (send email to biolink@ento.csiro.au)

--> Limitations to scalability
n/a, DBMS is Microsoft SQL Server

--> Computing platform limitations or specialization
Windows 98/NT/2000/XP, client software has been sucessfully installed on an Apple Macintosh G3 running PC Soft Windows

--> Specialization by taxonomic group
All taxa

--> Contact information and URL
Dr. Steve Shattuck
CSIRO Entomology
P.O. Box 1700
Canberra ACT 2601
Australia
Phone: +61 2 6246 4272
Fax: +61 2 6426 4264
Email: ento-biolink@csiro.au
URL: http://www.ento.csiro.au/biolink/software.html

--> Data import capabilities and/or limitations
Import wizard imports from various formats such as tab-delimited text files, Excel spreadsheets, Access, and DBF databases

--> Data export capabilities and/or limitations
Raw data export via user defined report module

--> URL or other source of database model documentation (tables, attributes, relationships, and their semantics)
http://www.ento.csiro.au/biolink/development.html

We would like to ask you to correct these information as well as completing the following items which we could not see from your website.

--> Estimate of size and distribution of user base
--> URL or other source of user documentation

We would be grateful if you could answer this email by July 6 so that we can include your response in our report to the GBIF secretariat. Our apologies for the short deadline!

With best wishes and many thanks
Anton Güntsch, Dominik Röpert & Walter Berendsohn

// Anton Güntsch
// Botanic Garden and Botanical Museum Berlin Dahlem,
// Dept. of Biodiversity Informatics
// Königin-Luise-Str. 6-8, D-14191 Berlin
// Phone: +49-30 / 83850-166 Fax: +49-30 / 841729-55
// Email: a.guentsch@bgbm.org
// URL: http://www.bgbm.org/guentsch/

B) Responses in alphabetical order (internal use only)

BIOLINK V1.5

Dear Anton,
It's good to hear you are working on a survey of software packages. It will be very helpful to have this information in a single place.

Regarding your specific questions concerning BioLink, you've done a very good job finding information from our web site. I've corrected and added to this information below:

--> Availability and cost
Freely available (send email to ento-biolink@csiro.au)

--> Limitations to scalability
n/a, DBMS is Microsoft SQL Server (tested successfully to 4 million specimens)

--> Computing platform limitations or specialization
Windows 98/NT/2000/XP, client software has been sucessfully installed on an Apple Macintosh G3 running PC Soft Windows

--> Specialization by taxonomic group
All taxa

--> Contact information and URL
Dr. Steve Shattuck
CSIRO Entomology
P.O. Box 1700
Canberra ACT 2601
Australia
Phone: +61 2 6246 4272
Fax: +61 2 6426 4264
Email: ento-biolink@csiro.au
URL: http://www.ento.csiro.au/biolink/software.html

--> Data import capabilities and/or limitations
Import wizard imports from various formats such as tab-delimited text files, Excel spreadsheets, Access, and DBF databases

--> Data export capabilities and/or limitations
Raw data export via user defined report module. Query Tool results can be directly exported to delimited text, XML (two formats), Excel, Word, Access and RTF.

--> URL or other source of database model documentation (tables, --> attributes, relationships, and their semantics)
http://www.ento.csiro.au/biolink/development.html

We would like to ask you to correct these information as well as completing the following items which we could not see from your website.

--> Estimate of size and distribution of user base
Approximately 250 active users in 65 countries.

--> URL or other source of user documentation
Full documentation (online help as well as 140 page User Guide) supplied with the software

If you need additional details please let me know.

Thanks, Steve

Steve Shattuck
CSIRO Entomology
Steve.shattuck@csiro.au

Dear Colleagues,

Thank you again for your inquiry. I hope my delayed reply has not come to late to be useful.

Before I get into any of the details of your message, I should tell you that Biota 2 is at last in the final stages before publication/release by Sinauer Assoc. The application itself is now in its 24th beta version, quite stable, used productively by 50 beta testers in 10 countries, ranging from single-user applications to some major client/server installations (e.g. New Zealand Landcare, California Academy of Sciences Entomology Dept.).

Meanwhile, Biota 1 continues to be used (and to be purchased), with about 1000 copies sold, and registrants in some 40 countries and 48 US states.

The delay in Biota 2 has primarily been the Manual, which is a godawful thing to write...nothing duller or less inspiring than writing a software manual. If you know the Biota 1 manual, it was quite extensive (580 pp) and quite pedagogically written, to minimize the need for followup training and support, and it was very successful in that regard.

As it happens, I finally completed the Biota 2 manual on Monday (my self-imposed do-or-die deadline of June 30). It is 870 pages, profusely illustrated and hyperlinked, CD only. So the Biota 2 now faces only the normal delays of copyediting and production, and Sinauer is quite eager to get it out.

I tell you all of this because, while the description of Biota you came up with is largely correct, it is also on the verge of being out of date. I have attached thre documents to help you get a view of Biota 2:

(1) The section of the Quickstart chapter for Biota 1 users, outlining what is new in Biota 2.

(2) An overview chapter (primarily for new users) that briefly outlines all the tools and features of Biota 2.

(3) An appendix with the schema.

Note: the hotlinks are not yet linked in these excepts.

Now to your email:
> Biota has been identified as one of the important software tools for collection management which should be itemised on this list. So far, we have collected the following information from your world wide web site (http://viceroy.eeb.uconn.edu/Biota).
>
> --> Availability and cost
> Can be ordered from http://www.sinauer.com/BiotaApp (single user) 125USDBiota4D (multiuser)175USD

Pricing (all US$) for Biota 2 is as follows (you may not want all this but...):

BiotaApp (single-user, stand-alone) for for Windows or MacOS $200
BiotaApp upgrade pricing (for registered users of BiotaApp 1.X), $150.00

Biota4D (multi-user, client/server, requires 4D Server) for Windows or MacOS servers, $300.00 to individuals, $600 to institutions
Comes with license for two Client connections, additional licenses extra. (Biota4D upgrade pricing not yet decided.)

> --> Limitations to scalability

Data Files have a 64 GB limit, but that is several hundred million records, and images in Biota 2 are in external image files (virtually any format), transparently linked to thumbnails in the Biota Data File.

> Standalone single user application BiotaApp can be upgraded to a multuser client-server application Biota4D, for this a 4D ServerTM or 4th DimensionTM has has ti be purchased separately

Correct, but 4D Server is needed for client/server use (4th Dim would simply make it the equivalent of BiotaApp).
>
> --> Computing platform limitations or specialization
> Windows (95/98/NT), Mac OS PPC

Biota 2: Windows (XP, NT, ME, 2000, or 98) and Macintosh (native OS X or OS 9)
>
> --> Specialization by taxonomic group
> All taxa
>
> --> Estimate of size and distribution of user base
> Installations in 40 countries
>

> --> Contact information and URL
> Robert Colwell
> Address:
> Email: colwell@uconn.edu
> URL: http://viceroy.eeb.uconn.edu/Biota
>
> --> Data import capabilities and/or limitations
> Conversion of existing (plain text) data sets with "Import Editor"

Correct. In Biota 2, there is also a "batch mode" image import and linking tool (guided by a log file that the user prepares, or that is automatically created by batch export of images or image links from another Biota Data File).
>
> --> Data export capabilities and/or limitations
> Delimited plain text files, HTML, image files, NEXUS
I would add: Locality-by-Taxon matrices for any set of records or taxa at any level (Biota 2; Biota 1 has this but only for Species).
>
> --> URL or other source of database model documentation (tables, attributes, relationships, and their semantics) >
http://viceroy.eeb.uconn.edu/BiotaPages/DataModel.html

This will of course be updated to reflect Biota 2's new tables; see the attached Appedix A.
>
> We would like to ask you to correct these information as well as completing the following items which we could not see from your website.
>
> --> URL or other source of user documentation
The Biota manual.
Biota 1: Paper manual plus two Supplements, 620 pp, fully illustrated.
Biota 2: CD ROM, 880 pages, fully illustrated and hyperlinked.

I hope that gives you the information you need. Please feel free to write.

With best regards,

Rob Colwell
>
> We would be grateful if you could answer this email by July 6 so that we can include your response in our report to the GBIF secretariat. Our apologies for the short deadline!
>
> With best wishes and many thanks
> Anton Güntsch, Dominik Röpert & Walter Berendsohn
>
> // Anton Güntsch
> // Botanic Garden and Botanical Museum Berlin Dahlem,
> // Dept. of Biodiversity Informatics
> // Königin-Luise-Str. 6-8, D-14191 Berlin
> // Phone: +49-30 / 83850-166 Fax: +49-30 / 841729-55
> // Email: a.guentsch@bgbm.org
> // URL: http://www.bgbm.org/guentsch/

_____
Robert K. Colwell, Board of Trustees Distinguished Professor
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Voice: 860-486-4395 Fax 860-486-6364
colwell@uconn.edu
Visit the Biota Website at http://viceroy.eeb.uconn.edu/biota
the EstimateS Website at http://viceroy.eeb.uconn.edu/estimates
& the ALAS website at http://viceroy.eeb.uconn.edu/alas/alas.html

BIOTICA 4.1

Dear Anton Guentsch:
I'm attaching a word document with information about Biotica. For anything else, contact to me.
With best wishes
Patricia Ramos
CONABIO
Subdireccion de desarrollo de sistemas

BRAHMS

Hi
The information you provide is fine and I am impressed by your efficiency. I have added a few comments in bold.
Thank you,
Denis

--> Specialization by taxonomic group
Herbarium collections
I'm not 100% sure what this means. But I had better add that many projects use BRAHMS for managing taxon names and related data (images, descriptions and other facts).

--> Data export capabilities and/or limitations
Export functionality for Access, Excel, and other formats including text files and direct links to Word

--> URL or other source of user documentation
http://storage.plants.ox.ac.uk/brahms/manual/manual.html
We do now have on-line help

--> Data import capabilities and/or limitations
Data may be imported from ACCESS, EXCEL and also from any file that can be converted to DBF format.

--> URL or other source of database model documentation (tables, attributes, relationships, and their semantics)
On-line functions exist to list all tables and their structure but not the relations.

Clubtail 1.0 – dragonfly database

Dear Anton,
Here is the information that you need:

--> Specialization by taxonomic group
Under "Specialization by taxonomic group", please note that the software contains a copy of the North American odonata prepared by Paulson and Dunkle in 1996 and described more fully in "The Odonata of North America, by Dennis R. Paulson and Sidney W. Dunkle, November 1996".

--> Contact information and URL
Under Contact information and URL, you may add my URL: www.OnMyMountain.com

--> Limitations to scalability
The database is primarily intended for use within North America (where we have "states" and "counties"). If it were to be expanded for use in other countries, the database structure and programming interface would need to be modified to allow data entry for countries that have different political boundaries, such as provinces, regions, parishes, etc.

--> Estimate of size and distribution of user base
Most users of this database reside in North America or perform studies of dragonflies in North America. The number of users is probably less than 100, however the exact number of users of this database is unknown.

--> Data import capabilities and/or limitations
The database is built on Microsoft Access 97 technology. Data could feasibly be imported from ASCII delimited text files, however, it would require a functional copy of Microsoft Access 97 to do this since the database could become corrupted by opening it up with a later version of Microsoft Access, such as Access 2000.

--> Data export capabilities and/or limitations
The database is built on Microsoft Access 97 technology. Data could feasibly be exported into ASCII delimited text files, however, it would require a functional copy of Microsoft Access 97 to do this since the database could become corrupted by opening it up with a later version of Microsoft Access, such as Access 2000.

--> URL or other source of user documentation
User's Manual is available from our company, LANIUS Software, Inc. It exists as a WordPerfect document.

--> URL or other source of database model documentation (tables, attributes, relationships, and their semantics)
Database model documentation is provided in Appendix A of the user's manual written for the product. The User's Manual is available from our company, LANIUS Software, Inc. It exists as a WordPerfect document.

Sincerely,

/s/ John C. Robinson

President, LANIUS Software, Inc.
"Birding is for Everyone"
1-866-864-8279
Email: birdshrike@cs.com
See our Web Site at: www.OnMyMountain.com

KE Emu - Electronic Museum

Dear Anton,

We are delighted to be able to contribute to your survey. I have inserted comments below in blue.

If you would like any further information regarding KE EMu, please do not hesitate to contact me.

Yours faithfully,
John Doolan
KE Software
www.kesoftware.com

-----Original Message-----
From: Guentsch, Anton [mailto:a.guentsch@bgbm.org]
Sent: Saturday, 28 June 2003 1:52 AM
To: info@kesoftware.com
Subject: GBIF survey

Dear Sir or Madam,
on behalf of the Global Biodiversity Facility (GBIF), the Botanic Garden and Museum Berlin, Dept. of Biodiversity Informatics is carrying out a survey of collection management and data capture solutions. The scope of this survey is restricted to publicly available systems that are used by natural history collections.

KE EMu has been identified as one of the important software tools for collection management which should be itemised on this list. So far, we have collected the following information from your world wide web site (http://www.ke.com.au/ke/products/emu/emu.html).

Please note that we have retired the ke.com.au domain. The correct web address for information on KE EMu is now www.kesoftware.com/emu.

--> Availability and cost
The software cannot be directly obtained (e.g. as a download), KE EMu is licensed by the number of concurrent users that can access KE EMu on a single server. The smallest license is for two concurrent users.

You are correct in that trial copies of the software are not available for download (although exceptions can be made). Subscribing users do have access to a very broad range of Web resources including free access to new versions of the software which are available to them over the Web.

--> Limitations to scalability
Many millions of records possible.

We have many examples of clients with millions of records on-line.

--> Computing platform limitations or specialization
Client on Windows 95/98/NT/2000
Mac client via terminal server
Server on Unix/Linux and Windows NT/2000

Client support is also available on Windows XP
Server support is available on most mainstream versions of Unix/Linux as well as Windows NT, 2000 and XP

--> Specialization by taxonomic group
General collection management including biological objects (all taxa).

KE EMu can be configured to the collection needs of any institution. The catalogue supports multiple disciplines, each with their own field structure, in a single, heterogeneous table. Supported disciplines include:
a.. Invertebrate Zoology
b.. Vertebrate Zoology, including mammalogy, herpetology, ichthyology, ornithology

c.. Mineral Sciences, including petrology, mineralogy, meteorites, volcanoes and eruptions (with supporting modules such as chemical analyses)
d.. Botany, including herbarium and living collections (with supporting modules such as propagation)
e.. Palaeobiology, including vertebrate, invertebrate and botanic palaeontology
f.. Entomology
g.. Anthropology
plus a host of cultural and art related disciplines

--> Estimate of size and distribution of user base
Several installations in natural history museums (e.g. Smithsonian National Museum of Natural History and the Natural History Museum London). See http://www.kesoftware.com/clients-region.html for the list of installations.

Other large and significant natural history users include:
a.. American Museum of Natural History
b.. New York Botanical Gardens
c.. Field Museum of Natural History
d.. Peabody Museum of Natural History
e.. Australian Museum
f.. Royal Botanic Gardens
g.. Museum Victoria
h.. Manchester Museum
There are also several other medium sized natural history clients.

--> Contact information and URL
Name: Address: Email: info@kesoftware.com
URL: http://www.ke.com.au/ke/products/emu/emu.html

Suitable contact details would be:
Name: John Doolan
Address: 57 University Street, Carlton VIC 3053 Australia
Email: John.Doolan@kesoftware.com
URL: www.kesoftware.com

--> Data import capabilities and/or limitations
Data conversion can be done from any file format, preferred formats are TAB delimited ASCII files and contemporary database formats such as Microsoft Access. Data conversions are carried out by KE Software.

--> Data export capabilities and/or limitations
Export possible to tab and comma delimited text files, KE Texpress format, and html.

The default export format is XML. Other export formats include CSV, Tab delimited, as an ODBC data source, HTML, KE Texpress format.

We would like to ask you to correct these information as well as completing the following items which we could not see from your website.

--> URL or other source of user documentation

Product documentation is available at http://emuhelp.kesoftware.com/master/en/index.htm. Please note that this is the base documentation. It is augmented with additional information related to a specific implementation (e.g. inclusion of our gazetteer or sites modules plus details of a customised design). An example of our product documentation augmented in this way can be found at http://emuhelpnmnh.mel.kesoftware.com/.

--> URL or other source of database model documentation (tables,
--> attributes, relationships, and their semantics)

The Product documentation incorporates data dictionary information. This can be found under the Modules chapter. For example, the data dictionary for the Catalogue component of the NMNH product documentation can be seen at http://emuhelpnmnh.mel.kesoftware.com/Modules/Catalogue/field_tech.htm.

We would be grateful if you could answer this email by July 6 so that we can include your response in our report to the GBIF secretariat. Our apologies for the short deadline!

Again, please let me know if you require any further information regarding KE EMu.

Yours faithfully,
John Doolan

Mandala

>Dear Sir or Madam,
>on behalf of the Global Biodiversity Facility (GBIF), the Botanic
>Garden and Museum Berlin, Dept. of Biodiversity Informatics is
>carrying out a survey of collection management and data capture
>solutions. The scope of this survey is restricted to publicly
>available systems that are used by natural history collections.
>
>Mandala has been identified as one of the important software tools
>for collection management which should be itemised on this list. So
>far, we have collected the following information from your world
>wide web site (http://pherocera.inhs.uiuc.edu/index.htm).

Web address can be shortened to http://pherocera.inhs.uiuc.edu/

>
>--> Availability and cost
>Request software from http://pherocera.inhs.uiuc.edu/index.htm

Mandala software distributed freely upon request; user feedback
requested and acknowledgement of software use required in
publications.

Web address can be shortened to http://pherocera.inhs.uiuc.edu/

>--> Limitations to scalability
>underlying database engine is FileMaker(tm) Pro

Underlying database engine is FileMaker(tm) Pro, which currently has
a 2 GB file size limit on any one file. To prevent file bloat, images
(photos, scientific illustrations, maps, etc.) can and should be
stored in the images folder and references to these files made in the
appropriate database (ILLUS.FP5). Other limits are based on
underlying software version (currently FileMaker Pro 5.x and 6 are
supported), hardware (memory), operating system, and platform. See
http://filemaker.com/products for details. Every attempt to keep
Mandala fully cross-platform without third-party plugins has been
made.

The number of users operating concurrently depends on the mode.
Although FileMaker Pro allows multiple users (between 5-10) from the
client (FileMaker Pro) software, it is not recommended that Mandala
operate in multiuser mode without FileMaker Pro Server, which serves
files via TCP/IP. This affords access to Mandala systems by clients
using FileMaker Pro from internet connections (reliable cable modem
or faster recommended) anywhere in the world. Such files should of
course be password protected. The number of concurrent users hosted
by FileMaker Pro Server is limited to 250 guests with 125 hosted
files. Mandala currently has 28 files. Mandala files can also be
served to the Web either using FileMaker Pro (limit 10 users/24 h
period) or FileMaker Pro Unlimited (unlimited number of users).

>--> Computing platform limitations or specialization
>MacOS; Windows 95/98

Compatible with Mac and Windows OS that are compatible with FileMaker
Pro version utilized to access system. Currently requires FileMaker
Pro 5.x or 6.

>--> Specialization by taxonomic group
>Flies

Although website shows specific use for flies, Mandala is easily
customized for any taxon governed by the ICZN. The nomenclature file
(NAMES.FP5) can also be modified further to comply with other
international codes. All other files (=tables) handling specimens,
literature, illustrations, loan management, etc. could be used for

any taxa. Note that although the feature set of Mandala is rich, it is not necessary that all of these components be employed when you use Mandala.

>
>--> Contact information and URL
>Name: Gail E. Kampmeier
>Address: Illinois Natural History Survey, 1101 W. Peabody, Urbana,
>IL 61801 USA
>Email:gkamp@uiuc.edu
>URL: http://pherocera.inhs.uiuc.edu/
>
>We would like to ask you to correct these information as well as
>completing the following items which we could not see from your
>website.
>
>--> Estimate of size and distribution of user base

fewer than 100 worldwide.

>--> Data import capabilities and/or limitations

Data may be imported from tab delimited text files, Excel, XML, ODBC, and FileMaker Pro. Specialized import scripts and layouts created to aid in importing taxonomic nomenclature.

>
>--> Data export capabilities and/or limitations

All data fields may be exported as tab-delimited or comma separated text, or the following file formats: SYLK, DBF, DIF, WKS, Basic, Merge, HTML table, FileMaker Pro, XML. Some specialized export scripts developed such as specimens examined lists.

>
>--> URL or other source of user documentation

Integrated within Mandala:
* Context sensitive file and field specific help (HELP.FP5) integrated in Mandala. Link to General Help (housed within HELP.FP5) available from navigation file (control.fp5).
* General introductory information about Mandala in README.FP5.
* Developer documentation in CHANGES.FP5 records enhancements, features, and fixes implemented and changes still needed by version number, file, and element changed. In-house developers customizing Mandala can also add to this file.
* Electronic tracking of data problems available in ENTRYQ.FP5. Problems and their solutions linked by file and record key.

On-line URLs
http://pherocera.inhs.uiuc.edu/about.htm About Mandala
http://pherocera.inhs.uiuc.edu/metadata.htm Metadata about Mandala
http://pherocera.inhs.uiuc.edu/MandalaModel.pdf annotated downloadable data model for Mandala

>
>--> URL or other source of database model documentation (tables,
>attributes, relationships, and their semantics)

http://pherocera.inhs.uiuc.edu/MandalaModel.pdf is annotated pdf of Mandala model.

>
>We would be grateful if you could answer this email by July 6 so
>that we can include your response in our report to the GBIF
>secretariat. Our apologies for the short deadline!
>
>With best wishes and many thanks
>Anton Güntsch, Dominik Röpert & Walter Berendsohn

Hi to Walter--don't know if he remembers me from TDWG... --Gail

>
>// Anton Güntsch
>// Botanic Garden and Botanical Museum Berlin Dahlem,
>// Dept. of Biodiversity Informatics
>// Königin-Luise-Str. 6-8, D-14191 Berlin
>// Phone: +49-30 / 83850-166 Fax: +49-30 / 841729-55
>// Email: a.guentsch@bgbm.org
>// URL: http://www.bgbm.org/guentsch/

--

=======
Gail E. Kampmeier
Senior Research Entomologist
Illinois Natural History Survey,
Box 5 NSRC, MC-637
1101 W. Peabody, Urbana, IL 61801 USA
ph. 217-333-2824
fax 217-244-1707
email: gkamp@uiuc.edu
See therevid webMandala at http://pherocera.inhs.uiuc.edu/
=======

Mantis

Here is the completed information for the Mantis database manager:

--> Availability and cost
Free download from http://140.247.119.145/Mantis/

--> Limitations to scalability
n/a, database system is FileMaker 6.0

--> Computing platform limitations or specialization
MacOS, Microsoft Windows

--> Specialization by taxonomic group
All organisms

--> Estimate of size and distribution of user base
200-250 individual users worldwide; databases published online: Type
Collection of the Museum of Comparative Zoology, Harvard University
Household Pests of New England, Orthoptera Species File (Katydids), Harvard
Database of Caribbean Insects, University of Nebraska Insect Collection

--> Contact information and URL
Name: Piotr Naskrecki
Address: Museum of Comparative Zoology, Harvard University, 26 Oxford St.,
Cambridge, MA 02138, USA
Email: p.naskrecki@conservation.org
URL: http://140.247.119.145/Mantis/

--> Data import capabilities and/or limitations
Text, FileMaker, SYLK, DIF, Lotus, Merge, Basic, dBase, Excel, ODBC, XML

--> Data export capabilities and/or limitations
Text, FileMaker, SYLK, DIF, Lotus, Merge, Basic, DBIF, HTML table, XML;
exporting embedded images requires a third-party plug-in

--> URL or other source of user documentation
http://www.filemaker.com

--> URL or other source of database model documentation (tables,
--> attributes, relationships, and their semantics)
http://140.247.119.145/Mantis/

Piotr Naskrecki, Ph. D.
Director, Invertebrate Diversity Initiative
Conservation International
Museum of Comparative Zoology, Harvard University
26 Oxford Street, Cambridge, MA 02138
Phone: (617) 496-2326
Fax: (617) 495-5667

PaleoTax - Information System for Palaeontologists

Guten Tag, liebe Kollegen,
und danke für die Mail.

> PaleoTax - Information System for Palaeontologists
> has been identified as one of the important software
> tools for collection management which should be
> itemised on this list.

PaleoTax ist eher ein Werkzeug zur Biodiversitätsforschung. Die
Struktur-Erweiterung für das "Collection Management" ist gegenwärtig in der
Erprobung und steht noch vor der Auslieferung.

Habe unten hinter dem Doppelkreuz (#) ergänzt.
Alles unveränderte = Bestätigung.

Ich wünsche Ihnen und Ihrem Team viel Erfolg.

--> Availability and cost
Free download from http://www.paleotax.de/

--> Limitations to scalability
#no

--> Computing platform limitations or specialization
Microsoft Windows

--> Specialization by taxonomic group
#any group of fossil and recent organisms, preferred animals (because in
accordeance with the IRZN)

--> Estimate of size and distribution of user base
Germany; ca.10 installations
#worldwide (at least Germany, France, Russia, Japan, Mexico, USA) number of installations unknown, ca. 30 downloads per month

--> Contact information and URL
Name: Hannes Loeser
Address:
Estación Regional del Noroeste,
Instituto de Geología, UNAM
Apartado Postal 1039,
Hermosillo, Sonora, Mexico 83000
Email: info@paleotax.de
URL: www.paleotax.de

The PANDORA taxonomic database system

Dear Anton

Yes, PANDORA can be used for collection management (of herbaria) and is being so used. It does however lack any feature for handling loans. It is still available for download for free from a website.

Best wishes, Richard

Sampada

Hi:

Sorry that I was delayed than promised. Here are the details that you need about SAMPADA.

>SAMPADA has been identified as one of the important software tools for collection management which should be itemised on this list. So far, we have collected the following information from your world wide web site (http://www.ncbi.org.in/sampada/index.html).
>--> Availability and cost

>Free download from http://www.ncbi.org.in/sampada/index1.htm or as CDROM. Registration required.
>--> Limitations to scalability
>Database management system is MySql 3.23. This is standalone version.
>
>--> Computing platform limitations or specialization
>SAMPADA is platform independent (Java implementation)
>
>--> Specialization by taxonomic group
>All taxa
>
>--> Contact information and URL
>Vishwas Chavan, Scientist
>Information Division, National Chemical Laboratory
>Dr. Homi Bhabha Road, Pune 411008, India
>Email: vishwas@ems.ncl.res.in http://www.ncbi.org.in/sampada/index.html
>
>--> URL or other source of user documentation
>http://www.ncbi.org.in/sampada/userguide.jsp
>
>--> Estimate of size and distribution of user base
SAMPADA alongwith its associated packs is 77 MB. There are more than 20 collections / museums in India have requested for SAMPADA for use in automating their collections. There also has been request from Bangladesh, Sri Lanka and other neighbouring South Asian countries. Modest customization is underway for using SAMPADA by these museums outside India.

>--> Data import capabilities and/or limitations
SAMPADA application do not have import capacilities, however, mySQL has features to import which can be used. Next version of SAMPADA which would be client-server would have this feature inbuilt. It would be able to import from any standard data formats.

>--> Data export capabilities and/or limitations
SAMPADA application do not have export capacilities, however, mySQL has features to import which can be used. Next version of SAMPADA which would be client-server would have this feature inbuilt. It would be able to export to any standard format such as XML, ABCD schema etc.

>--> URL or other source of database model documentation (tables, attributes, relationships, and their semantics)
We do not have online database model documentation. It can be provided on request.

>--> Any other information
We are developing next generation of SAMPADA which will would cover all teh drawbacks of current version. Further, it can be used as standalone or web-based cleint-server application. It is expected to be released by end 2003.

With kind regards,

vishwas
--
Vishwas Chavan
Scientist, Information Divsion
National Chemical Laboratory
Dr Homi Bhabha Road, Pune 411008, INDIA
Tel. 91 20 5893457 (o)
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vishwasc@yahoo.com
Web : http://www.ncbi.org.in & http://www.ncl-india.org

Univ. of California Davis Herbarium Management System

Hi,

The information you have gathered is still current/correct. Below answers
your additional questions:

>--> Contact information and URL
>Name: Director of the Herbarium
>Address: Section of Plant Biology, Univ. of California, Davis, Davis, CA 95616
>Email: herbarium@ucdavis.edu
>URL: http://herbarium.ucdavis.edu/database.html
>--> Estimate of size and distribution of user base: unknown, we have not
>recorded or kept this information; although we do provide assistance when
>asked/requested.
>
>--> Data import capabilities and/or limitations: PC/Windows platform.
>
>--> Data export capabilities and/or limitations: none provided in application.
>
>--> URL or other source of user documentation: davisherb.ucdavis.edu, herbsoc.ucdavis.edu.
>
>--> URL or other source of database model documentation (tables, >attributes, relationships, and their semantics):
none in addition to the information provided in the readme file.

Hope this answers your questions. Regarding issues within your (GBIF) agenda: We are porting our developments to XML capable applications and also working towards standards such as DiGIR and providing web services for data integration/sharing over the web.

Thanks,
-Tom Starbuck
Herbarium, Section of Plant Biology
Univ. of California, Davis
One Shields Ave.
Davis, CA 95616
tjstarbuck@ucdavis.edu