

A Primer for BIBMASTER

A database application for nomenclature, literature and
specimen management

--Reference lists, key-words, nomenclature, check-lists, specimen lists, herbarium
labels--

version 1.0



F. Pando
Real Jardín Botánico – CSIC
Madrid. Spain
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Introduction

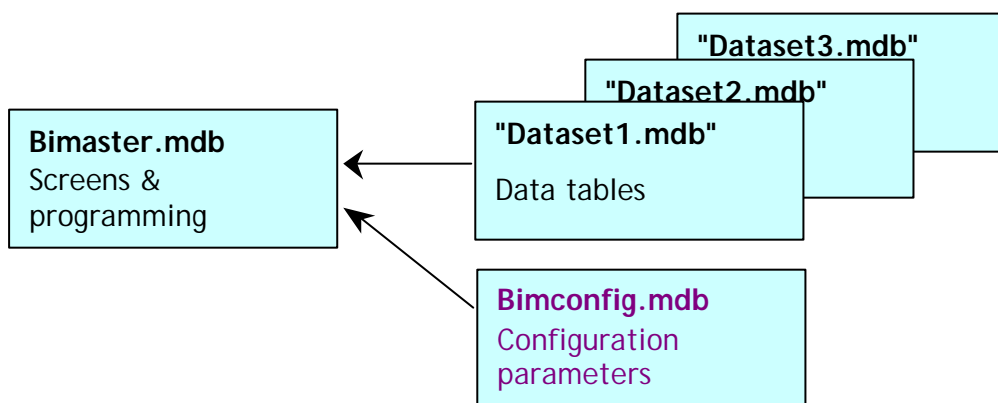
Overview

Bimaster is a database computer application for biodiversity studies. It has been aimed to the assist individuals and projects to compile data on taxon names, specimens, records and literature and to produce specimen labels, checklists, bibliographies, etc. Although Bibmaster has been developed and tested for botanical projects, there is no reason why can not be utilized in zoology.

Organization of the program and tasks

Bibmaster is written in MS-Access and the outputs (lists, labels, etc...) make use of MS-Word. Currently, there are versions for MS-Office97 and MS-Office 2000.

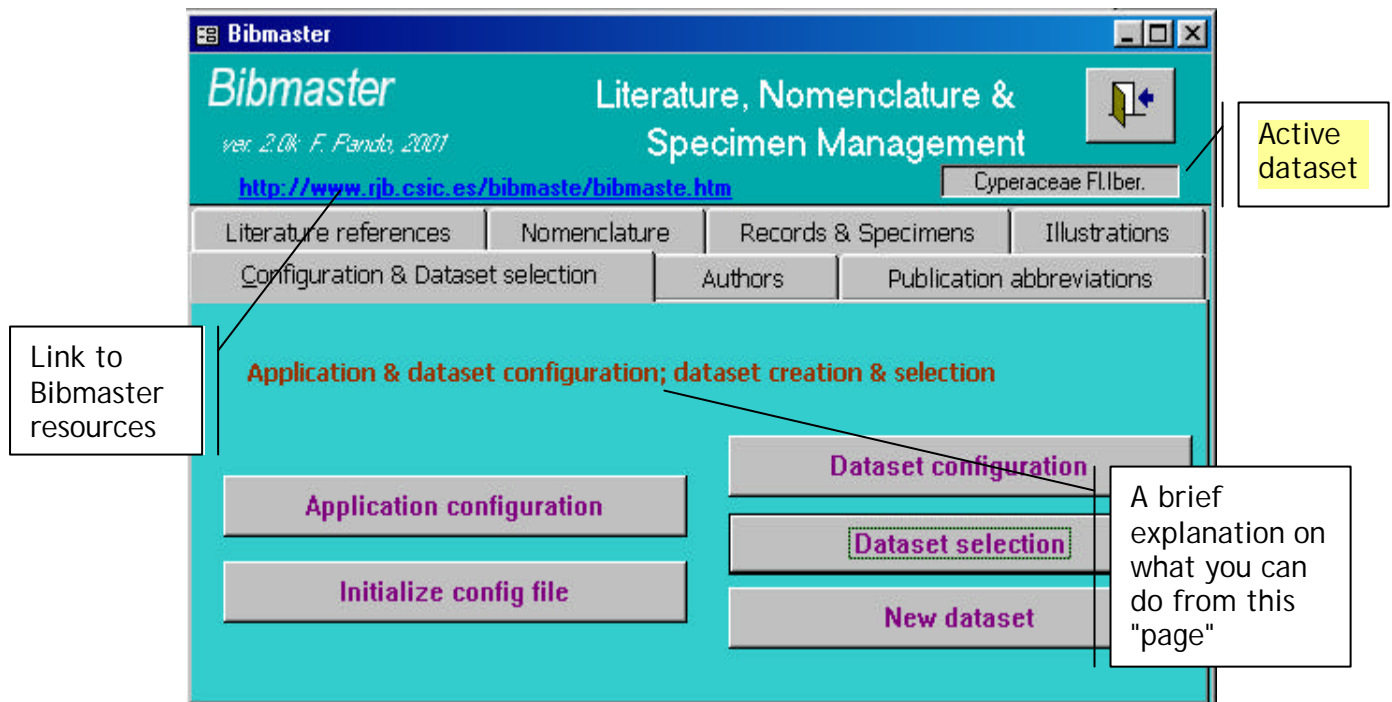
The core of Bibmaster is an Access file called Bibmaster.mdb the data --whatever these are-- are stored in a different database, a ".mdb" file as well. Configuration information is located in a yet another database file called by default "bimconfig.mdb, although this may be changed to allow multiple configurations.



Task within Bibmaster are organized according to the nature of the data. Tasks and configuration are accessed from Bibmaster main screen or "Menu".

Main menu

The main menu screen is displayed at startup. Tasks, dataset selection and configuration are accessed from it. Before doing any work with Bibmaster, proper configuration and dataset selection must be performed.



Bibmaster main menu

Configuration and dataset selection

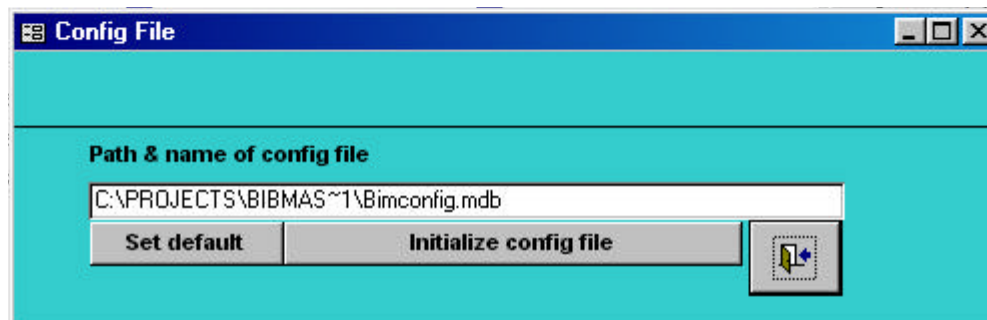
Before doing anything with Bibmaster it has to be properly configured, a dataset has to be created and a connection to established.

Configuration

Configuring Bibmaster implies to link the Bibmaster database file to a suitable config file and then to modify a few parameter to suit user needs and computer setup. Linking the config file is done via the "Initialize config file" button:



If Bibmaster is not linked to a config file at startup, the "initialize config file screen" is opened automatically:



If you press "by default" Bibmaster will select the config file shipped with Bibmaster, Bimconfig.mdb. Once a config file has been selected, press "Initialize config file". Multiple configurations can be attained by copying Bimconfig.mdb to different files and modifying them to suit different needs.

Once the configuration file is initialized, a message "configuration file successfully initialized" pops and we are ready to configure Bibmaster.



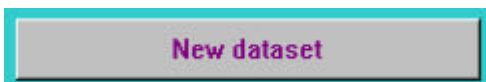
Click on this button and we enter in the configuration screen:

Bibmaster configuration screen

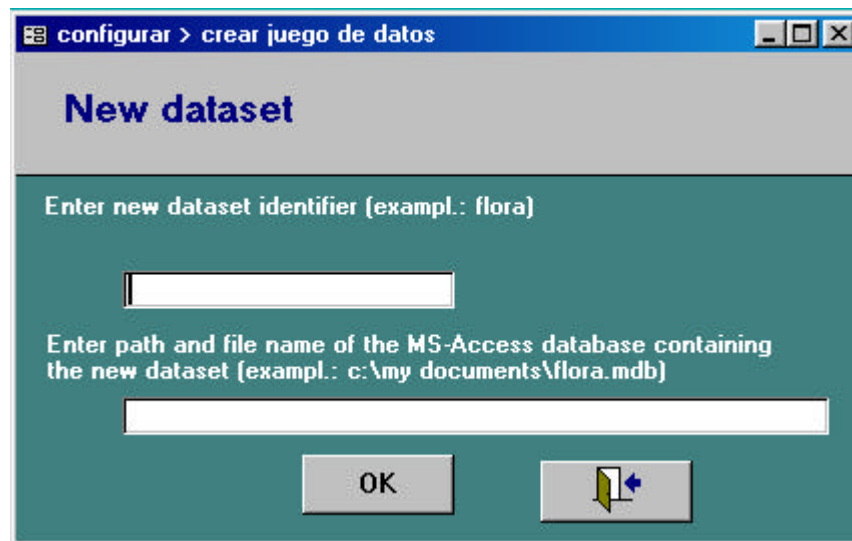
From this screen you enter the location of file winword.exe (MS-Word startup file), enter the desired heading for your labels and select the language for Bibmaster. Currently English, French and Spanish are the available languages.. Location of this databased and associated doc files is done automatically and you cannot change it. It is shown here for your information only.

Dataset selection

Before selecting any dataset, it has to exist. You may start by creating a new dataset:



By clicking on it, the the new dataset screen is opened.



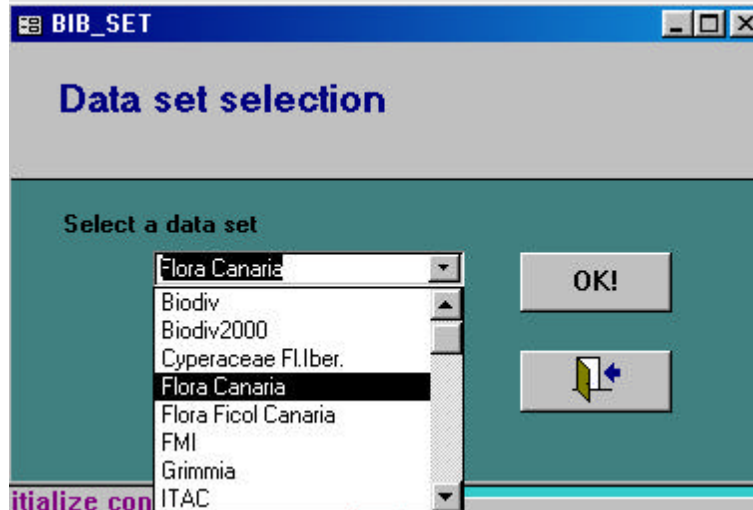
Dataset creation screen

By filling this screen and clicking on OK, Bibmaster performs two tasks:

First, it creates a data set with the name you choose in the folder you decide. The folder must exist before you try to create a dataset file there. Bibmaster uses a file named "juego0.mdb" as a template for doing this. This file is included in the standard Bibmaster .zip file.

Second, it adds a record to the dataset table with all the necessary information to enable Bibmaster access and manipulate the newly created dataset.

When you have one or more dataset created, you can select any of them and start working by clicking on "Dataset selection". What follows is straightforward:



Dataset selection screen

Now we are ready to start to work in any of the tasks that Bibmaster allows.

Tables and relationships of the dataset

Dataset tables and relationships are summarized in appendices 1 & 2. Relationships may be modified to suit special needs, but some understanding of the data, their relationships and database concepts must be attained before trying this.

Editing dataset connection information

Data about each dataset and used by Bibmaster to connect and work are stored in the config file (Bimconfig.mdb by default). These data may be edited by clicking on the "dataset configuration" button in the main menu and opening the following screen:

The screenshot shows the 'Configure access to data sets' window. The 'Data set name' is 'Flora Canaria'. The 'MDB with bibliographic tables', 'MDB with author tables', and 'MDB for specimen data' all point to 'c:\clients\canarias\FloraVascularCanaria.mdb'. The 'Reference table' is 'Bib', 'BPH/TL-2 table' is 'Bib_abrev', 'BPH supersede / succeeded table' is 'Bib_abrev_r', 'Nomenclatural table' is 'nomen', 'Specimen table' is 'Etiquet', 'Record table' is 'Corologica', and 'Collecting site table' is 'Localidades'. The 'Key-words table' is 'Keywords', 'Thesaurus table' is 'Tesauro', 'Author table' is 'autores', 'Author "alias" table' is 'autores firman', 'T. de ref. a icon.' is 'Icones', and 'Hierarchy Table' is empty. The 'Description' field contains 'creado el 19/03/00'. The 'Identify authors by abbreviation' checkbox is unchecked. The dataset list on the right includes 'Biodiv', 'Biodiv2000', 'Cyperaceae FI.Iber.', 'Flora Canaria', 'Flora Ficol Canaria', and 'FMI'. The bottom bar shows 'Record: 6 of 23'.

Dataset access configuration screen

There are some situations that demand some editing of dataset access information. These are connected either with data import from previous databases or when some different projects share data among them.

Importing data from previous databases usually implies changes in data structure and normalization, which require knowledge and skills beyond the scope of this primer. Some cases of data shared by different projects are reviewed in the next section

Overlapping datasets

Two examples will serve to illustrate how to proceed:

1. Two projects share publication abbreviations (B-P-H and TL-2) and taxon names; but not specimen records nor literature references.
2. Two projects share literature references and publication abbreviations (B-P-H and TL-2) but not specimens nor taxon names.

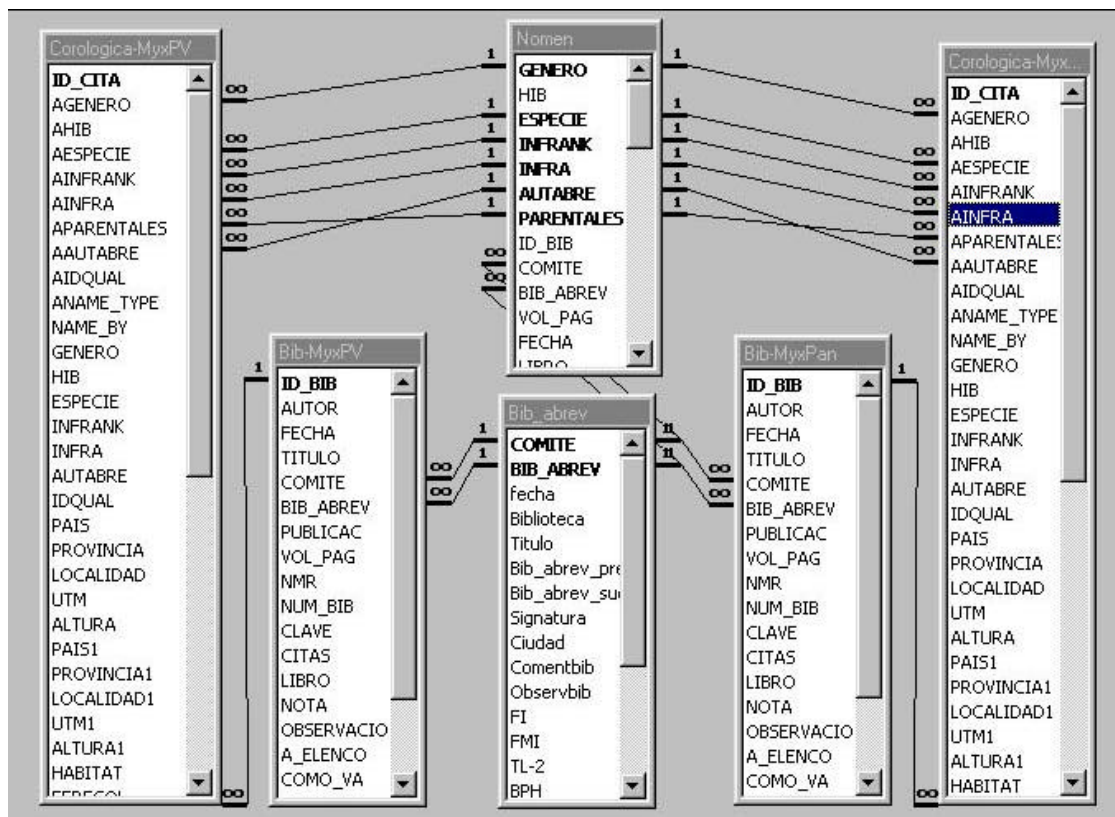
1. Two projects share publication abbreviations (B-P-H and TL-2) and taxon names; but not specimen records nor literature references.

Strategy: To maintain only one dataset file with separate specimen and literature references tables for each project.

Example: Two projects, " Myxomycetes of the Basque Country" (País Vasco) and " Myxomycetes of Panama " could share bibliographical abbreviations and taxon names -since Myxomycetes mostly are cosmopolitans.

Let us suppose that the tables of literature references and specimens of " Myxomycetes of the Basque Country " are called Bib-MyxPV " and " Corológica-MyxPV " respectively " and that those

of " Myxomycetes of Panama " are " Bib-MyxPan " and " Corológica-MyxPan ". The relationships for these tables would be:



* These relationships would be completed with the rest of typical dataset database (see appendix 2)

And the configuration screens for each dataset:

Etimatic

Configurar ficheros de datos

Nombre del juego de datos: Se abre por defecto ☐

MDB con tablas corológicas:

MDB con tablas bibliográficas:

Tabla bibliográfica: Tabla de ejemplares:

Tabla BPH/TL-2: Tabla de citas:

Tabla nomenclatural: Tabla de localidades:

Descripción:

SALIR

Record: 16 of 16

For " Myxomycetes of the Vasco Country "

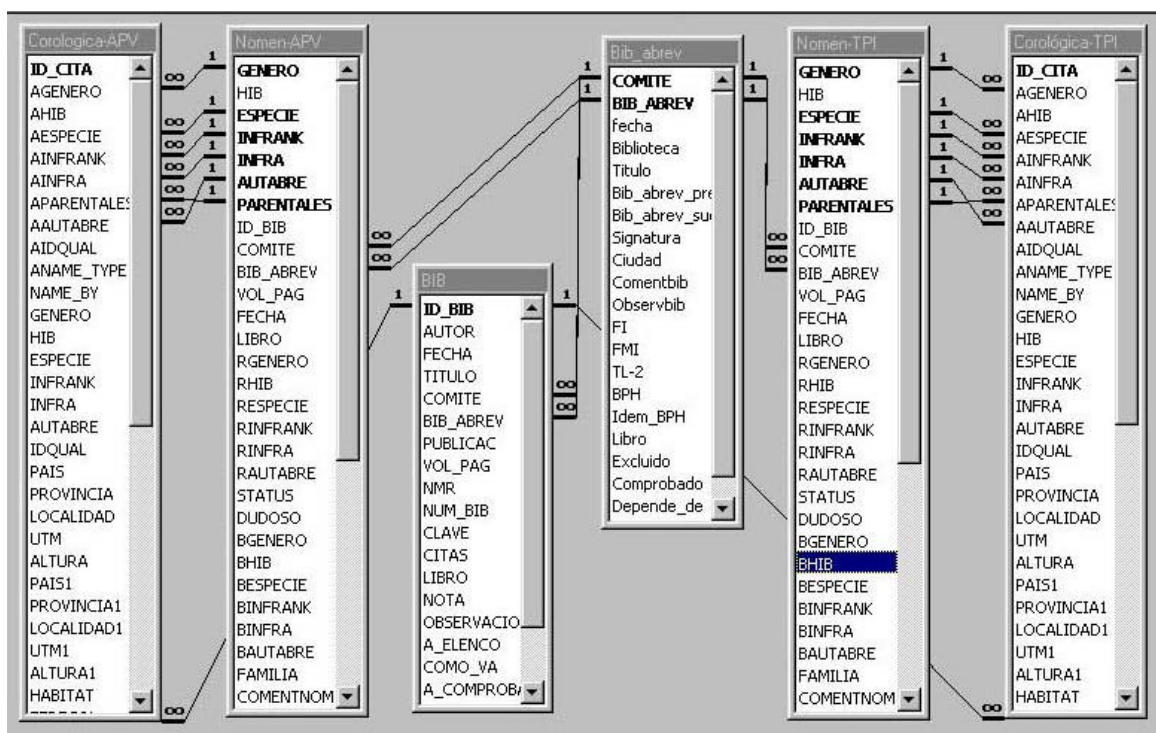
For " Myxomycetes of Panama "

2. Two projects share literature references and publication abbreviations (B-P-H and TL-2) but not specimens nor taxon names.

To maintain only one dataset file with separate names and specimens tables for each project.

Example: Two projects, " Agaricales of the Basque Country" and " The genus *Tricholoma* in the Iberian Peninsula" could share literature references and publication abbreviations and thus implemented in one database file. Keep in mind that *Tricholoma* is a genus of order Agaricales (Fungi) and that the Basque Country is part of the Iberian Peninsula.

Let us suppose that the tables of names and specimens" Agaricales of the Basque Country " are called Nomen-APV " and " Corológica-APV " respectively " and that those of " Tricholoma of the Iberian Peninsula" " Nomen-TPI " and " Corológica-TPI ". The relationships of the mentioned tables would be:



These relationships would be completed with the rest of a typical dataset

And the configuration screens:

The screenshot shows the 'Configurar ficheros de datos' window in the Etimatic application. The title bar says 'Etimatic'. The window has a light blue background. At the top, the title 'Configurar ficheros de datos' is in a larger font. Below the title, there are several input fields and a checkbox. The 'Nombre del juego de datos' field contains 'AgaricPV'. To its right is a checkbox labeled 'Se abre por defecto' which is unchecked. Below this, there are two fields for 'MDB con tablas corológicas' and 'MDB con tablas bibliográficas', both containing 'c:\projects\datos\BioDiv.mdb'. There are four more fields arranged in two rows: 'Tabla bibliográfica' (Bib), 'Tabla de ejemplares' (etiquet), 'Tabla BPH/TL-2' (Bib_abrev), and 'Tabla de citas' (corologica-APV). Below these, there are two more fields: 'Tabla nomenclatural' (Nomen-APV) and 'Tabla de localidades' (localidades). At the bottom, there is a 'Descripción' field containing 'Agaricales del País Vasco' and a 'SALIR' button. At the very bottom, there is a status bar showing 'Record: 16 of 16' with navigation icons.

For Agaricales of the Basque Country "

The screenshot shows the 'Configurar ficheros de datos' window in the Etimatic application, similar to the one above but with different data. The title bar says 'Etimatic'. The title 'Configurar ficheros de datos' is at the top. The 'Nombre del juego de datos' field contains 'Tricholber'. The 'Se abre por defecto' checkbox is unchecked. The 'MDB con tablas corológicas' and 'MDB con tablas bibliográficas' fields both contain 'c:\projects\datos\BioDiv.mdb'. The 'Tabla bibliográfica' field contains 'Bib', 'Tabla de ejemplares' contains 'etiquet', 'Tabla BPH/TL-2' contains 'Bib_abrev', and 'Tabla de citas' contains 'corologica-TPI'. Below these, 'Tabla nomenclatural' contains 'Nomen-TPI' and 'Tabla de localidades' contains 'localidades'. At the bottom, the 'Descripción' field contains 'Tricholoma de la Península Ibérica' and there is a 'SALIR' button. The status bar at the bottom shows 'Record: 16 of 16' with navigation icons.

For " Tricholoma of the Iberian Peninsula"

A word on primary keys and null fields in Bibmaster

In a database table, the primary key is a field or set of fields that uniquely identify each record stored in the table. It is possible to make an artificial primary key, usually a unique arbitrary number choose by the computer. On the other hand a "natural" primary key is part of the data stored in the table (e.g. a the taxon name is the natural key in a table of taxon names). It is much desirable to have "natural" keys in our tables, since data integrity and data merging can be more easily accomplished.

Bibmaster uses natural keys as much as it is reasonable. For instance, for publication abbreviations, the primary key is the author string plus the title abbreviation. However, journals do not have author string and, as is easily understood, primary key fields cannot be a null value. In these cases, the underscore ("_") is entered in Bibmaster. Other case of this occurs in taxon names, for instance a genus name does not have species epithet, and the underscore is entered in the species epithet field in this case.

"Primary key" is a concept of database design and data formalization, which notion and details widely exceeds the scope of this primer. Those interested in database design and information modeling should resource to the many books available on the subject.

Getting the work done with Bibmaster

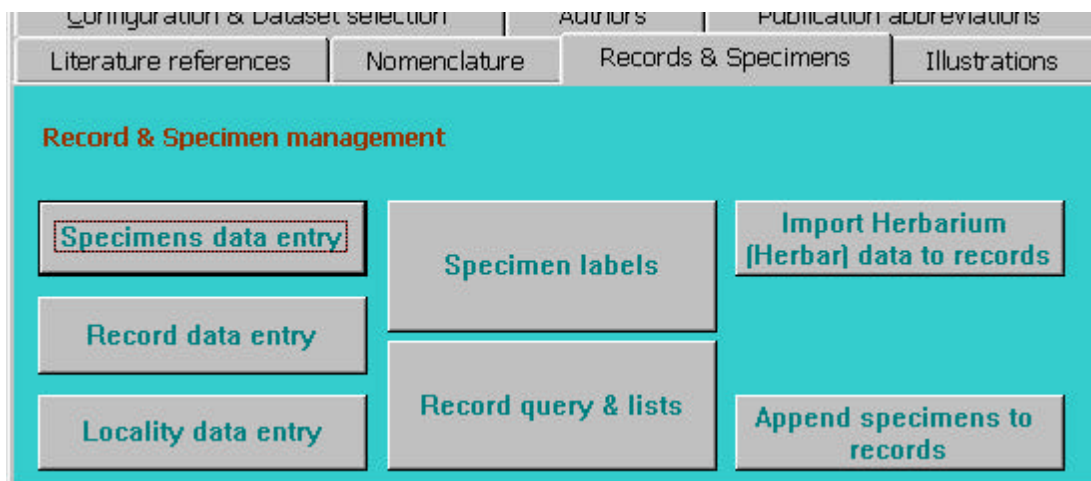
Working with specimens

Bibmaster recognizes two different kinds of specimens level units, on one hand the specimens collected by the researcher, and on the other, any record, observation, or herbarium specimen relevant to the project.

The "own specimens" usually need to be labeled, and a good record of the collecting sites may be kept.

The "other specimens (or observations)" constitutes the basis for any distributional, ecological, phenological, etc. record or observation we may perform.

The tasks related to specimens are available from the "main menu":



Record and specimen "page" in Bibmaster main menu

By specimens we refer to specimens with physical vouchers (e.g. herbarium sheets) that need to be handling. Specimens collected within a project or by researchers that also manage the database usually fall into this category. A "records" is a unit of the type "this species was observed from this site on this habitat this date by someone" and voucher handling is not a concern.

Labels can only be made for specimens. Lists, queries and other outputs can only be performed on records. There is a mechanism to transfer specimens to records since the first, after all, are a logical part of records.

Specimen entry

Editor /añadir ejemplares

Col.: MA-Fungi Herb. No.: 39261 - 1

Group:

Genus: Nematoconus Hyb.: Species: angustatus Names

InfRank: Infra.: AUTABRE: Thorn & G.L. Barron

IdQual: Det.: F. Pando When det. Typus

Localities Repeat locality Hybr. formula

Country: ESP LOC.: Quintanar de la Sierra, Necrópolis

Prov: Bu Id_Loc.: 290 GEO/utm: Coordinates: 30TVM0049 Alt.: 1220

Date: 13/10/ 98 COL.: F. Pando Ncol.: Pando#1959

Habitat: nemátodo en humus en cámara húmeda Assoc. organ. Nemátodo

Format: MIC Ancillary col.

Remarks: campaña F.M.I. Alcohol Alive Fruit / seed

Observ.: anamorfo de Hohenbuehelia Phenology

Sheets: 0 Slides: 1 Last edit: 10/06/99 15:44:49

data entry screen for specimens which physical vouchers that need to be handled

- Features:
- One identification per specimen
 - Support for name entry
 - Support for locality (collecting site entry)
 - Several fields for specimen labeling and handling

Record entry

Editor /añadir citas

Poculum firmum (Pers.)Dumont N.ed.: Rutstroemia firma (Pers.: Fr.) P.Karst. [...]

GEN: Poculum HIB: ESP: firmum 1511

INFRANK: INFRA: AUTABRE: (Pers.)Dumont

Names IDQUAL: DET.:

Locality Edited locality (record not qualified)

COUNTRY: ESP LOC.: Valle de Sta. Fe

PROV: B Localidades Repetir localidad GEO/utm: Coordinates: 31TDG5524 ALT.: 1100 change

DATE: 11-V-1986 HABITAT: sobre restos vegetales muy húmedos

COL.: NCOL.: COL.: SCM NHERBARIO:

Ref.: Rocabruna, A., Tabarés, M. Revista Catalana Micol. 12:31. 1989. <> VOL_PAG: 12:31

Give active ref. to record

REMARKS: LAST MODIF. Excluded

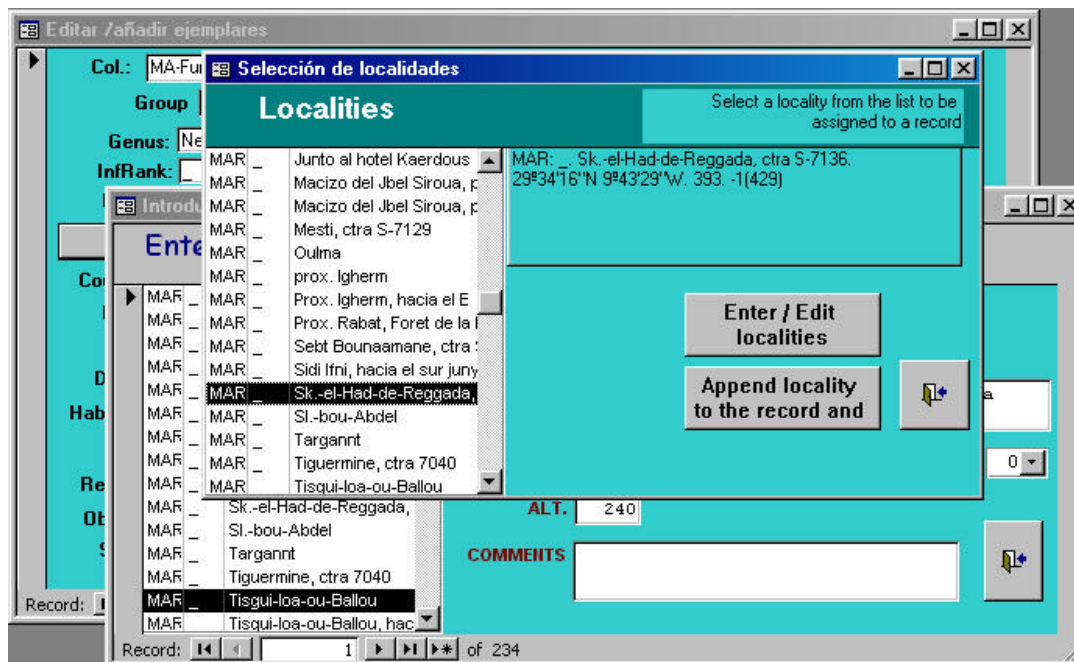
OBSERV.: cita Calonge & al., 1986

Data entry screen for recording units

- Features:
- Two identifications per specimen (one as given in the source, the other choose by the database compiler).
 - Support for name entry
 - Support for locality (collecting site entry)
 - Support for literature references (sources)
 - Fields for adding collecting site data while preserving the original information
 - Several fields for specimen labeling and handling

Working with localities

Collecting site data can be entered either from the main menu or whenever we need to enter a new one while entering specimen or record data



Locality data selection screen

Working with taxon names

The taxon name plays a central role in any biodiversity information system since it is common element that allows referring to any information concerning a living organism. In Bibmaster, the information recorded in the taxon name table may be put as "this name has this basionym and this accepted name" plus publication, type and other details.

Name data recording requires careful standardization, actual taxonomic knowledge of the subject group of the database and a good understanding of the pertinent code of nomenclature.

A manual on taxon name data entry for Bibmaster was prepared and published (Pando & al. Manual de las bases de datos nomenclaturales de Flora Mycologica Iberica y Flora iberica. Cuad. Trab. Fl. Micol. Ibér. 14. 58 pp. 1999; also available at:

http://www.rjb.csic.es/bibmaste/manual_n.pdf)

Currently it is only available in Spanish, but an English version is expected to be issued by the end of 2001.

How names of different ranks are treated in Bibmaster deserve some consideration and this is reviewed in Appendix 4.

Taxon name data entry screen

- Features:
- No artificial keys (i.e. each name record is identified by the own name)
 - Information on the accepted name, basionym, nomenclatural type, etc. for each name
 - A simplified data entry provided when full nomenclatural support is not needed
 - Support for Literature reference (protologue).

Support for name entry

This is provide by an unified "name navigator" available for specimen, record and name entry from any "names" button

Name navigator screen

Working with publication abbreviations

Information on each journal title or book is entered and used for name publication details and appendix building.

Publication abbreviation data entry screen

- Features:
- No artificial keys (each publication record is identified by the author string --set to "_" for journals-- and the title)
 - Support for author data entry
 - Preceded /superseded relationship support

Authors of taxon names and publications

Author's "page" in Bibmaster main menu

The button "Make author dictionary" is an utility to extract author abbreviations from a taxon name or a publication abbreviation table. The data extracted are stored in a table named "c_autores". Author data in "C_autores" may be transferred to the author data table by way of the "transfer author records..." button.

Support for author's abbreviations entry and editing.


Name data entry screen with "author management page" open

By double-clicking on the highlighted author, a list where this author abbreviation would fit on the author table is displayed:

By double-clicking on any element of the list the highlighted author is corrected and now shown on a blue background:

Then by clicking on "propose" we can visualize (and change) the author string before updating it by clicking on "correct"

Other options are to ignore the highlighted author, or to add it to the author table.

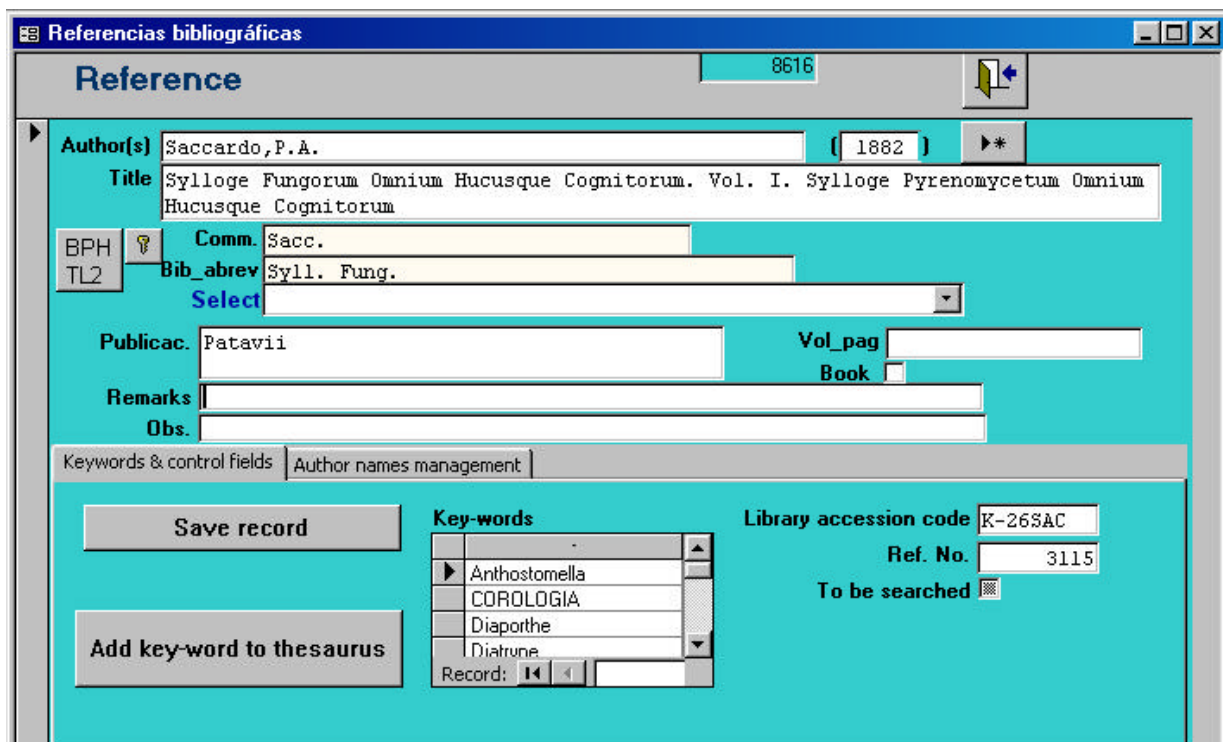
Ignored authors are stored in a separate table that may be viewed and edited by clicking on the  button. Ignored authors appear on a gray background.



Literature references

This module allows recording all the necessary details to manage literature references: List building, link specimens to their source, keywords, etc.

A thesaurus controls kew-words. Any key-word assigned to a reference has to exist in the thesaurus table. The thesaurus may be edited in any way.



The screenshot shows the 'Referencias bibliográficas' window with a 'Reference' tab. The form contains the following fields and controls:

- Author(s):** Saccardo, P.A. (with a dropdown for year, currently 1882)
- Title:** Sylloge Fungorum Omnium Hucusque Cognitorum. Vol. I. Sylloge Pyrenomycetum Omnium Hucusque Cognitorum
- Comm.:** Sacc. (with a dropdown for Bib_abrev, currently Syll. Fung.)
- Publicac.:** Patavii
- Vol_pag:** (with a dropdown for Book, currently empty)
- Remarks:** (text area)
- Obs.:** (text area)
- Keywords & control fields:** (tabbed section)
 - Key-words:** A list box containing Anthostomella, COROLOGIA, Diaporthe, and Diatrane. Below it is a 'Record:' field with navigation buttons.
 - Library accession code:** K-268AC
 - Ref. No.:** 3115
 - To be searched:** (checkbox)
- Buttons:** 'Save record' and 'Add key-word to thesaurus'.

Literature reference data entry screen

A detailed data entry manual is available in Spanish (Pando, F. Manual de las bases de datos de Flora Micológica Ibérica. Cuad. Trab. Fl. Micol. Iber. 2. 67 pp. 1991).

While committee (comm., author abbreviations string) and publication abbreviation (bib_abrev) fields are controlled by an external table and allow a short reference to the publication, in some cases, editor and place of publication are required. A Publication details field (publicac.) is provided.

A reference number field (ref. no.) is provided as a to allow an alternative numbering. This is useful, for instance, for the preparation of numbered bibliographies.

References to illustrations

Many botanical works such as floras and monographs include a "references to illustrations" paragraph for each taxon. This module covers this requirement. Data entry is straightforward.

The "remarks" field is used to include annotations as the original name the taxon was illustrated.

Introducción de nombres

Illustrations for Geum

26/12/00 14:03:31 10/04/01 11:24:51

GEN.: Geum X: ☐ SP.: heterocarpum INK: INF.:

Names AUTABRE: Boiss.

Author(s)

BPH ☐ Committee: Boiss. Date: 1839 Book ☒

TL2 ☐ Bib_abbrev: Voy. Bot. Espagne Vol pag: tab. 58; fig. 3b

Select. publ. >

Remarks, control fields, etc.

Verified ☒ Basic fl. ☒

Remarks

Obsv.

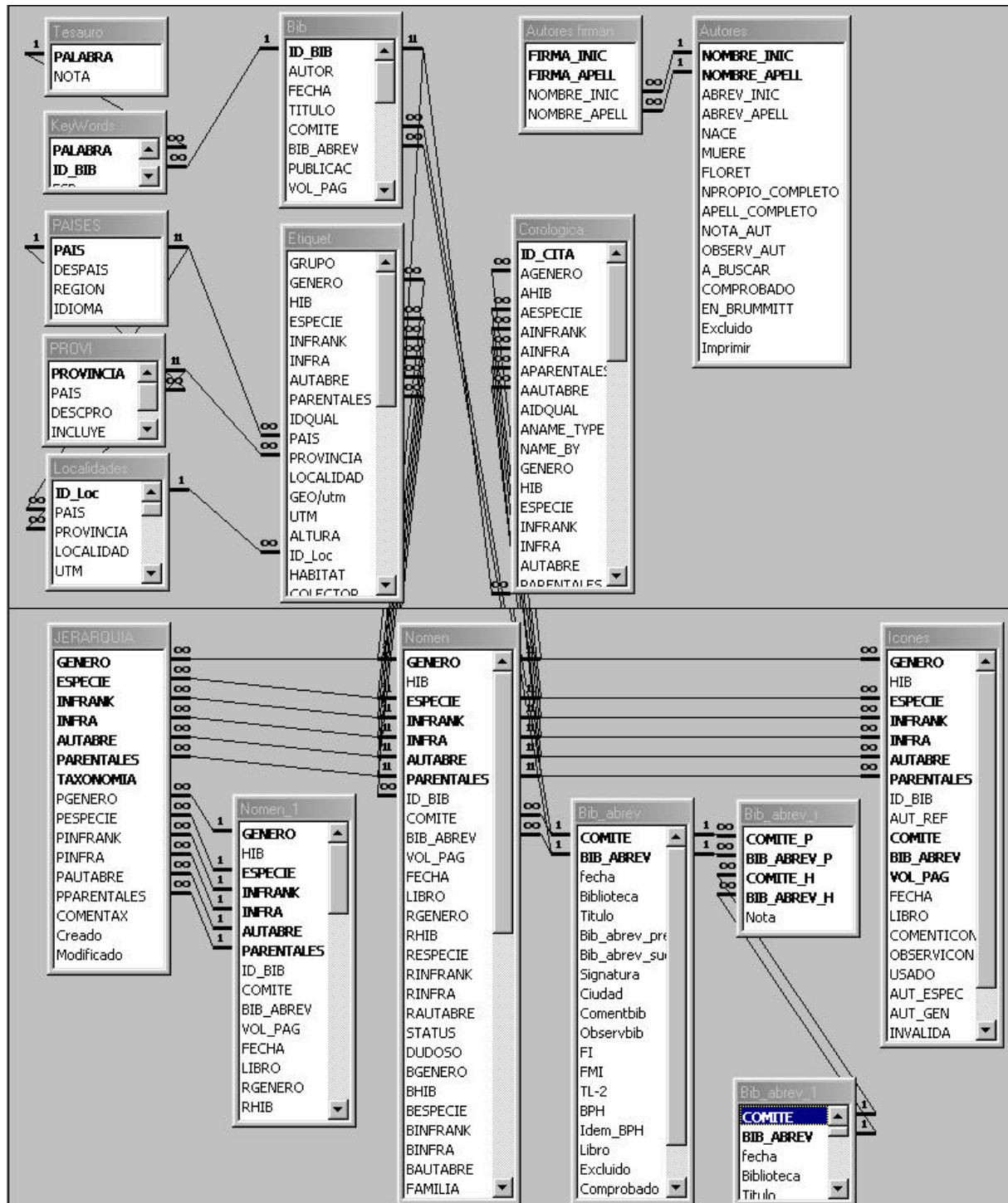
References to illustration data entry screen

Appendix 1. Dataset tables and fields

Any dataset may have some or all of the following tables. Table can be named freely but under Bibmaster they receive a fix "alias"

Names by default	Description	Alias used in Bibmaster
1. Autores	Authors of names and publications; details and	M_autores
2. Autores firman	Variants and alias of authors names as they appear on publications	M_alias
3. Bib	Bibliographic references	M_biblio
4. Bib_abrev	Book and journal standard abbreviations	M_bibabrev
5. Bib_abrev_r	Journal titles superseding/succeeding relationships	M_bibabrev_rel
6. Corologica	Taxa distribution/specimen records	M_citas
7. Etiquet	Collected specimens	M_ejemplar
8. Icones	References to taxon illustrations	M_icones
9. Jerarquia	Taxonomyc hierarchy	M_hierarchy
10. KeyWords	Keywords for literature	M_palabra
11. Localidades	Collecting sites	M_localidades
12. Nomen	Taxon names; synonyms and accepted names	M_nomen
13. Paises	Country acronyms	M_paises
14. Provi	Province acronyms	M_provincias
15. Tesauro	Keyword thesaurus	M_tesauro

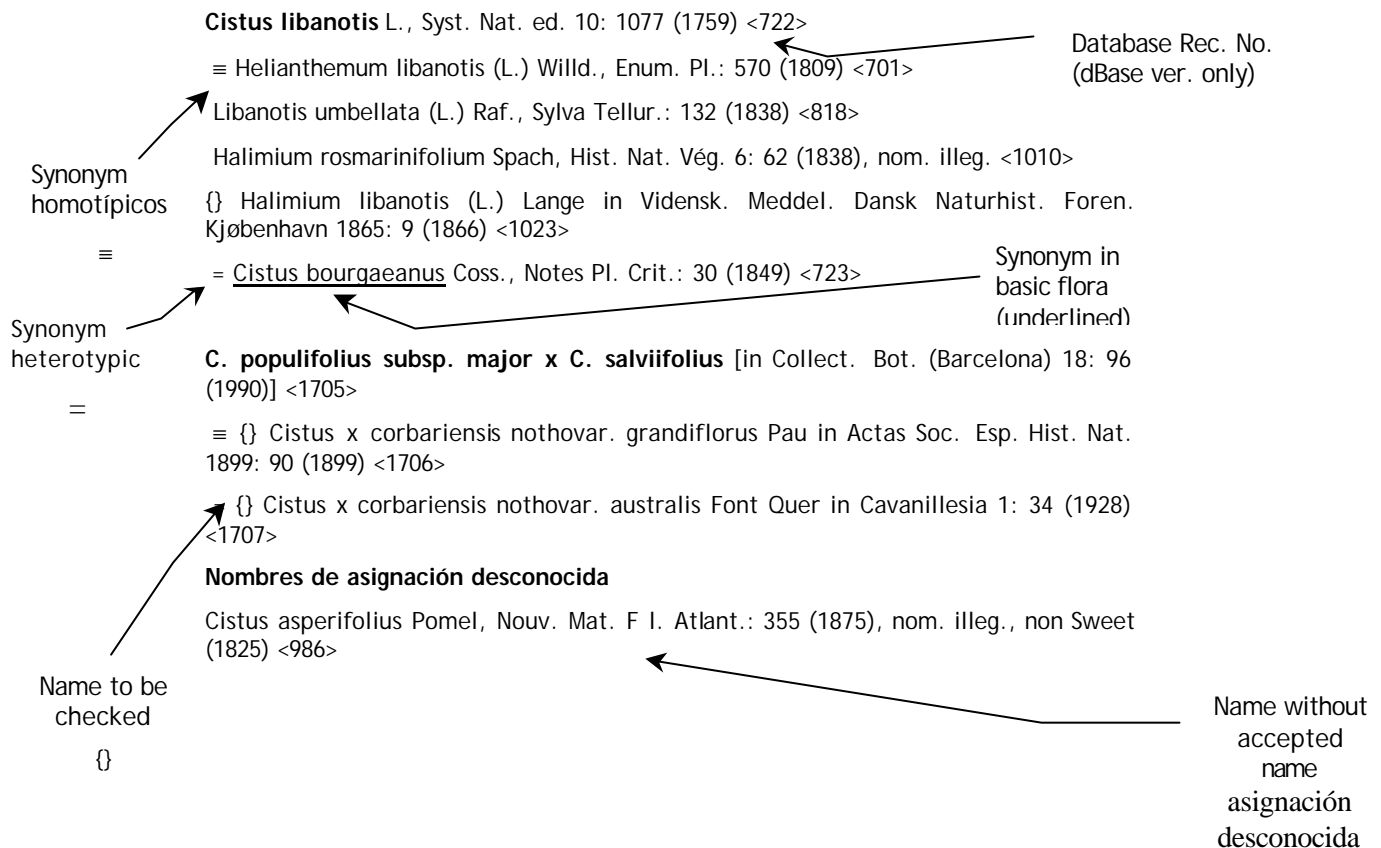
Appendix 2. Dataset standard relationships



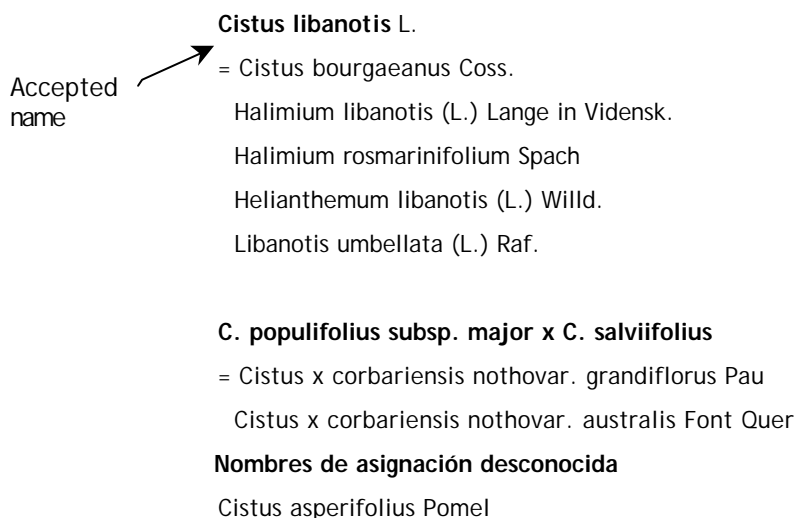
Appendix 3. Outputs

Outputs are mainly produced the "mail merge" of MS-Word. This allows for great flexibility when retouching or formatting lists and labels to the specific needs of the users.

Full nomenclature



Simplified nomenclature



Literature references

- ALCOBER BOSCH, J.A., SANCHIS DUATO, E., CRESPO VILLALBA, M.B. & LAGUNA LUMBRERAS, E. (1986). Fragmenta chorologica occidentalia, 302-305. *Anales Jard. Bot. Madrid* 42(2): 517.
- BURGAZ, E., MATEU, I. & CRESPO, M.B. (1990). Notas sobre algunas Papaveraceae valencianas. *Acta Bot. Malacitana* 15: 347-352.
- CRESPO VILLALBA, M.B. & MANSO MANSO, M.L. (1988). Notes floristiques i corològiques, 159-178. *Collect. Bot. (Barcelona)* 17(2): 289-290.
- CRESPO, M.B. & GÜEMES, J. (1991). Euphorbia maculata L. en la provincia de Valencia y otras consideraciones sobre las especies valencianas del subgen. Chamaesyce Rafin. (Euphorbiaceae). *Collect. Bot. (Barcelona)* 20: 253-254.
- CRESPO, M.B. & LAGUNA, E. (1993). Nuevas localidades de Limonium dufourii (Girard) O. Kuntze (Plumbaginaceae). *Anales Jard. Bot. Madrid* 51(1): 154-155.
- CRESPO, M.B. & MANSO, M.L. (1991). Notes floristiques i corològiques, 526-544. *Collect. Bot. (Barcelona)* 20: 242-244.

Field notebook

13-VII-1985

R. García

ESP. Sg: Torre Val de San Pedro, La Salceda, km 169, 200 de la ctra. Nal. 110, 30TVL2445, 1200 m <>

1380RG *Geum urbanum* L.; prados boscosos silíceos más o menos húmedos

(1) MA 559068 1

22-VIII-1985

R. García

ESP. Sg: Trescasas, de la Granja a Torrecaballeros km 6, 800, 30TVL1334, 1150 m <>

1052RG *Geum hispidum* Fr.; en prado fresco silíceo y acequia a la derecha de la ctra.

(1) MA 559084 1

23-VI-1986

R. García

ESP. Sg: Sotosalbos, km 173, 5 de la ctra. N 110, 30TVL2142, 1180 m <>

2585RG *Geum urbanum* L.; en jaral sobre sílice con robles, pastizales y pequeñas

(1) MA 559069 1

Labels

Hortus Regius Matritensis

***Geum hispidum* Fr.**

ESP. SEGOVIA: Trescasas, de la Granja a Torrecaballeros km 6,800, 30TVL1334, 1150 m 22-VI-1985, en prado fresco silíceo y acequia a la derecha de la ctra., R. García, 1052RG

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Appendix 4. How names of different ranks are treated in Bibmaster

All names are treated in a uniform way regardless of their rank. This allows for wide flexibility in designing queries and outputs, and easy handling

Name type	Fields						
	Name	Hybrid flag	epithed	infra rank.	infra epithed	author string	hybrid formula
<i>Fam.</i>	Rosaceae					Juss.	
<i>Infrafram.</i>	Rosaceae			sect.	Caryophyllata	Tausch	
<i>Genus</i>	Geum					L.	
<i>Species</i>	Geum		hispidum			Fr.	
<i>infrasp.</i>	Geum		hispidum	subsp.	albarracinense	(Pau) Mateo	
<i>Named hybrid</i>	Geum	x	cebennense			H.J. Coste & Soulié	G. sylvaticum x G. urbanum
<i>Unnamed hybrid</i>	Geum	x					G. hispidum x G. urbanum
Field names	genero*	hib	especie	infrank	infra	autabre	parentales

*The name was adopted at early stages of the development of Bibmaster, --before using it for suprageneric names— and still retained for backwards compatibility.

Appendix 5. Fact sheet

Bibmaster is a tool designed to aid the botanist in the task of preparing an account for a flora or a monograph. It serves to enter, store and handle information about taxon names, literature, authors and specimens in a user-friendly way and with a maximum of consistency. It is designed to be used in a range of circumstances, from a specialist working alone to an institution where mayor editing and co-ordination tasks are carried out.

Artificial database keys are deduced to the minimum so data can be exchange and merged easily.

Data can be accessed and queried in a variety of ways but Bibmaster is not an on-line Flora program. It does not take in as well descriptive information and identification keys, as DELTA and similar programs do.

Characteristics

Management

- Literature references management; including key-words and thesaurus
- B-P-H and TL-2 abbreviations
- Author standard forms
- Specimen-level data: distribution, ecology, collectors...

Outputs

- Several kinds of reference lists: alphabetical, by library codes, with keywords,... fully formatted and indexed
- Name lists: hierarchical, alphabetical, by publications
- Check-lists
- Specimen lists
- Herbarium labels

Technical details

- Relational design
- Data are stored in standard mdb MS-Access files
- Minimum use of artificial keys, which greatly facilitates database merging
- A single BIBMASTER installation can manage multiple data sets
- Flexible implementation. It is possible to manage several projects with a variable degree of data overlapping. Some examples here (in Spanish)
- Fully menu driven in a Windows environment
- Part of an comprehensive biodiversity information system
- Multi-lingual support. Currently available in English, French and Spanish. Other languages can be easily added Allows fast data entry with minimum errors
- Automatic detection of nomenclatural inconsistencies
- Automatic author standard form checking
- Hybrid management, even for those without binomials.
- Author and literature abbreviations and taxon names controlled with lookup tables
- Nomenclatural type and protologue information recorded
- Centralized name management. Names are available via drop-lists

More information at:

<http://www.rjb.csic.es/bibmaste/bibmastere.htm>