

EDIT

● ● ● European
● ● Distributed
● ● Institute of
● ● Taxonomy

EDIT and experience from the European checklist

**Biodiversity informatics support for a collaborative
taxonomic work process**

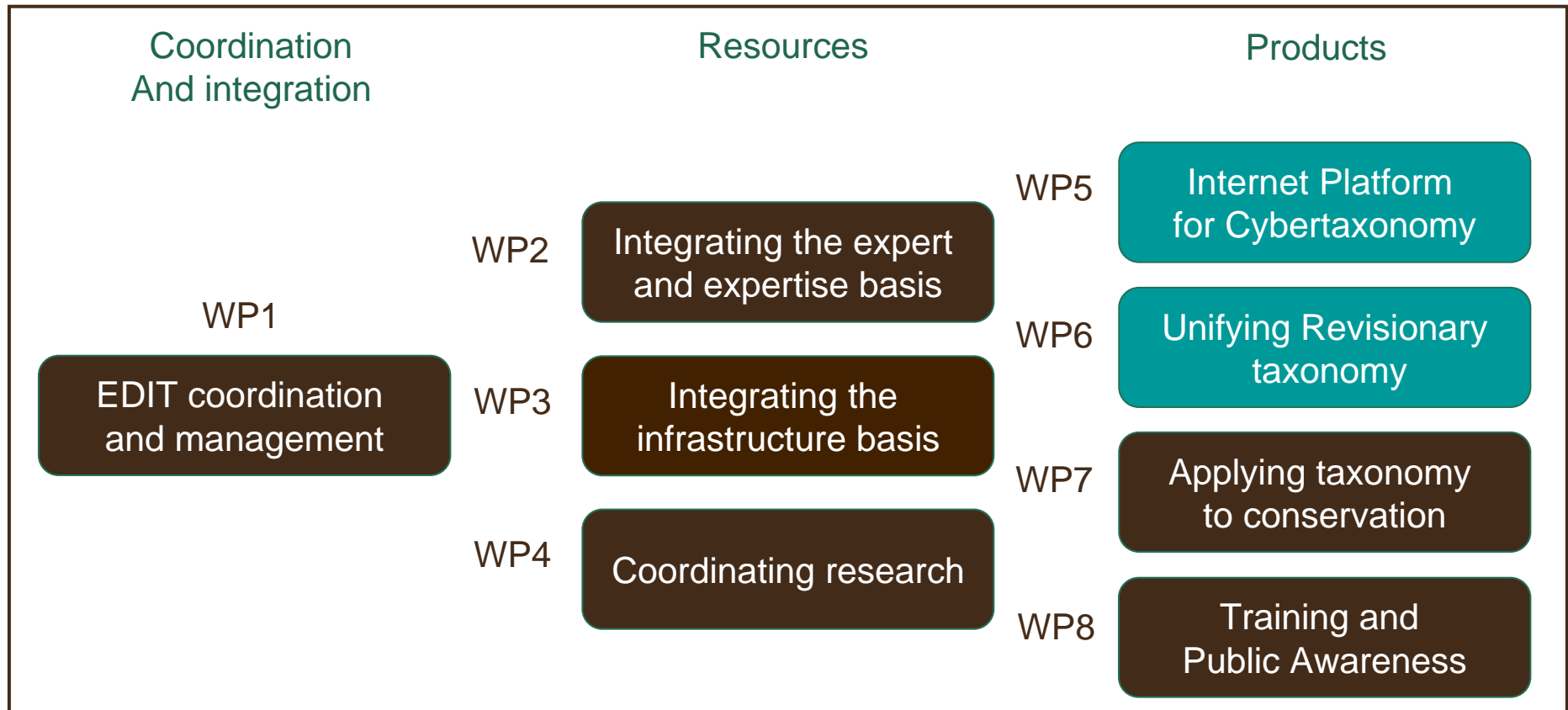
Agenda

- **EDIT: integrating taxonomic institutions in Europe and beyond**
- **Euro+Med Plantbase: lessons learned - the need for professional IT tools**
- **Case study: the “Berlin Model”**
- **The EDIT Internet Platform for Cybertaxonomy**

EDIT

- **Network of Excellence in the 6th Framework Programme of the European Commission**
- **Consortium of major natural history institutions**
Herbaria: AMD, B, BM, BP, BR, C, CBS, K, KRAM, L, MA, S, SAV, STU, U, WAG [+ LE, MO, US]
- **5 year project, 11.9 Mio Euro, start 1 March 2006**
- **Reduce fragmentation, encourage durable integration of institutions, promote collaborative research using biodiversity informatics**

EDIT Workpackages



WP 6 – Revisionary (Web-) Taxonomy

Inspired by Charles Godfray's (2002) article in Nature

“Taxonomy is made for the web: it is an information-rich subject, often requiring copious illustrations.”

“Web revisions” ..

.. “making
grassroots
taxonomy more
accessible and
useful”

commentary

Challenges for taxonomy

The discipline will have to reinvent itself if it is to survive and flourish.

H. Charles J. Godfray

Taxonomy, the classification of living things, has its origins in ancient Greece and in its modern form dates back nearly 250 years, to when Linnaeus introduced the binomial classification still used today. Linnaeus, of course, hugely underestimated the number of plants and animals on Earth. As subsequent workers began to describe more and more species, often in ignorance of each others' work, the resulting confusion and chaos threatened to destroy the whole enterprise while still in its infancy. In today's jargon, we might call this the first bioinformatics crisis. Using the tools then available, nineteenth-century taxonomists solved this crisis in a brilliant way that has served the subject well since then. They invented a complex set of rules that determine how a species should be named and associated

One reason is that taxonomists lack clearly achievable goals that are both realistic and relevant. Of course it would be great to describe every species of organism on Earth, but we are still monumentally uncertain as to how many species there are (probably somewhere between 4 million and 10 million); this goal is just not realistic at present. There are various projects aimed at listing, for example, all the valid described species of animal in Europe, or butterflies on Earth (see Box 1, overleaf). These aims are eminently achievable and very worthwhile, but the results are like raw, unannotated DNA sequences: unexciting and of relatively little value in themselves to non-specialists. Taxonomists need to agree on deliverable projects that will receive wide support across the biological and environmental sciences, and attract public interest.

A second problem is part of the legacy of more than 200 years of systematics. Many



WP 6 – Revisionary (Web-) Taxonomy

- Led by the Natural History Museum in London
- “Rapid prototyping” of Web Revisions
- First target groups from Monocots, Diptera, Compositae, Protista

WP 6 – Revisionary (Web-) Taxonomy

- **Start: EDIT-sponsored publication of taxonomic revisions on the web**
 - mark-up
 - credit, IPR & copyright, citability
- **Gradual shift of focus from rapid publication to organising collaborative production of revisions**
- **Gradual integration of the publication platform into the Platform for Cybertaxonomy (WP5)**

● GBIF

EDIT and GBIF

- **The Global Biodiversity Information Facility is the significant international development for taxonomy in the past years**
- **GBIF collaboratively tackles problems that are of interest to all taxonomic institutions**
- **EDIT and its members will build on – and contribute to – the global infrastructure wherever possible**

Euro+Med Plantbase



Lessons learned

Euro+Med PlantBase: the project

- Create a new taxonomic core database for the European (and Mediterranean) flora
- Base: Flora Europaea database and some datasets
- EU-funding for three years (2000-2003)
- Method:
 - 4 data input centres revise current “standard floras” (96) and add data (names, nom. references, geography) to the database in an incremental process
 - Central master database (Reading) merges results
- **IN PARALLEL:** Development of a remote editor for the Berlin-Model database system

Euro+Med Plantbase: results

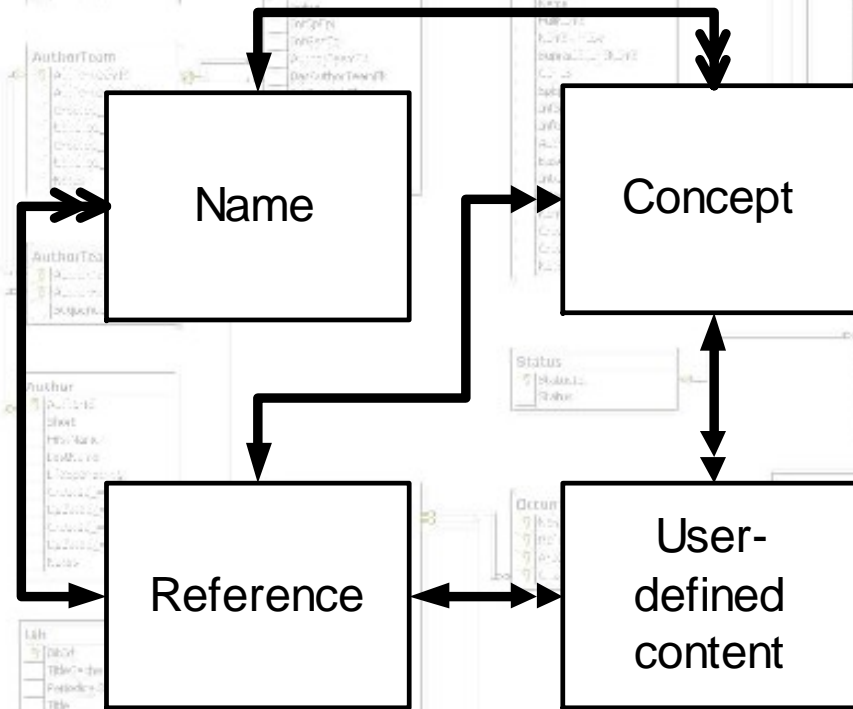
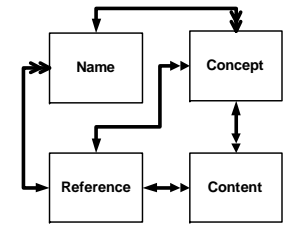
- Funds granted were insufficient
- Time requirements were under-estimated
- Synchronisation was deficient
- Over-all management was inadequate
- **Tools were inadequate**
- Results were disappointing

the objectives were attained only in part
the taxonomic core was not functional
the resulting publication should be ignored

A new attempt

- **2003: Transfer to the taxonomic core database developed in Berlin (“Berlin Model”)**
- **(3 years later:) Euro+Med treatments of Compositae and some smaller families released, Gramineae almost there, further families in preparation**
- **Complete high-quality checklist before 2010**

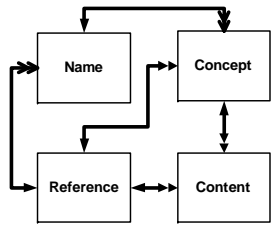
The “Berlin Model” database



Common concept-oriented database core

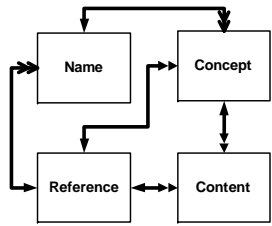
Can store parallel treatments, concepts and concept relationships, and user-defined content

Currently based on MS SQL Server, but everything else is Open Source



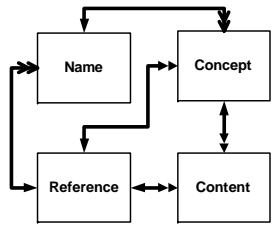
One model, many uses

- A scalable, portable system
- A taxonomic dataset repository
- A conventional checklist database
- An on-line collaborative development tool for checklists (and treatments)
- An experimental system to implement concept-mediated access (“transmission engine”)



System functions

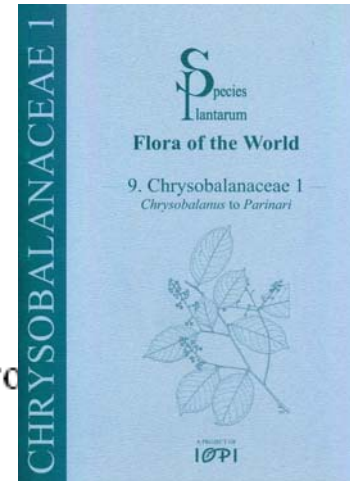
- Data import from monographs
- Data import from databases
- Data editing (local, remote; bulk, detail)
- Output (WWW and to static media)
- Services
 - Query expansion
 - Taxonomic analysis
 - Concept-mediated access and content linking



Importing a monograph

1. Formatted text -> XML
2. -> Intermediate Database
3. -> Berlin Model

203b. *Juncus tenageia* subsp. *perpusillus* Fern.-Carv. & Navarro
Farmac. Salamanca 1: 28 (1979)



Fac.

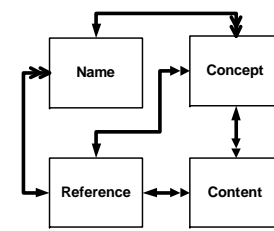
Juncus perpusillus (Fern.-Carv. & Navarro) Rivas Mart., Fern.Gonz. & Sánchez Mata, in J.E.Hernández Bermejo & al., *Conserv. Techn. Bot. Gard.* 183 (1990), *nom. illeg., non* Sam. (1936). T: Spain, Serra Bejar, El Trampal, 2100–2250 m, 27 Jul 1978, *F.Navarro, J.A.Sánchez & C.Valle*; holo: FCO.

Juncus tenageia f. *depauperatus* Cout., *Bol. Soc. Brot.* 8: 101 (1890). T: Portugal, Serra da Estrella, Fonte do Selim, Aug 1881, *J.Henriques*; syn: COI; Serra da Estrella, Lagoa Secca, Jul 1880, *A.Moller*; syn: COI; Serra da Estrella, Lagoa da Salzadeire, Aug 1881, *J.Daveau*; syn: COI. [doubtfully valid, perhaps not meant as a name].

Juncus tenageia f. *nanus* Cout., *Fl. Portug.*, 2nd edn, 140 (1939), *nom. inval.*

Juncus tenageia var. *minutus* Esteve & Prieto, in P.Prieto, *Veg. Sierra Nevada* 82, 185 (1971), *nom. inval.*

Confined to the mountains of Portugal, Spain and Morocco. 12: POR, SPA. 20: MOR.



International Organization For Plant Information - Provisional GPC - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://bgbm3.bgbm.fu-berlin.de/iopi/gpc/PTaxonDetail.asp?NameCache=Juncus%20

Kirschner, J. et al. 2002, Species Plantarum: Flora of the World Part 6-8. [IOPI preferred view]

About the checklist

Contacts

Firefox search plugin

Source: Kirschner, J. et al. 2002, Species Plantarum: Flora of the World Part 6-8. [IOPI preferred view]

Name: Juncus tenageia subsp. perpusillus Fern.-Carv. & Navarro

Nomencl. ref. Publ. Dep. Bot. Fac. Farmac. Salamanca 1 : 28 (1979)

Rank: Subspecies

Status: ACCEPTED

Taxonomy (this taxon is included in): Genus - Juncus L.
Sectio - Juncus sect. Tenageia Dumort.
Species - Juncus tenageia Ehrh. ex L.f.

Synonym(s): Juncus perpusillus (Fern.-Carv. & Navarro) Rivas Mart., Fern.Gonz. & Sánchez Mata
Juncus tenageia var. minutus Esteve & Prieto
Juncus tenageia f. depauperatus Cout.
Juncus tenageia f. Juncus Cout.

Facts:

Geography: Confined to the mountains of Portugal, Spain and Morocco.

SourceHigherTaxon from IOPI: Juncaceae

Taxon number in Juncaceae SP treatment : 203b.

TDWG Distribution Code: 12: POR, SPA. 20: MOR.

Type: T: Spain, Serra Bejar, El Trampal, 2100-2250 m, 27 Jul 1978, F.Navarro, J.A.Sánchez & C.Valle; holo: FCO.

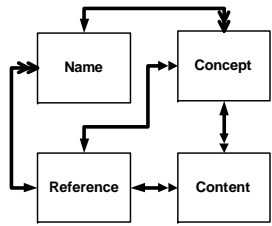
Distribution table:

Africa	Northern Africa	Morocco	
Europe	Southwestern Europe	Portugal	
		Spain	

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This page last updated: Wednesday, November 24, 2004

Done

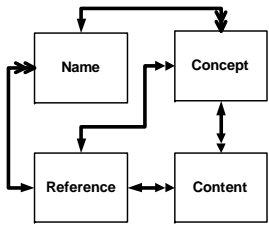
WWW repository output: IOPI Global Plant Checklist



Importing databases

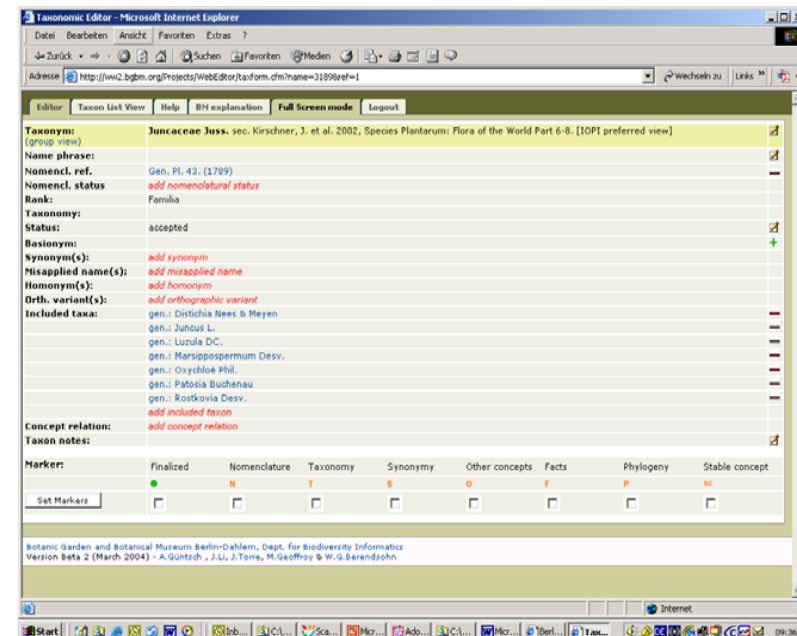
Depending on the structure provided

- export to XML file, import into intermediate database, -> Berlin Model
- or: direct conversion into Berlin Model
- Examples:
 - German lists
 - Med-Checklist
 - Euro+Med



Remote editing: the Internet Editor

- Developed within the Euro+Med PlantBase project
- Aims at editing existing comprehensive checklists
- User needs only web browser



Taxonomic Editor - Mozilla Firefox

File Edit View Go Bookmarks Tab Tools Help

Letter size: + | -

FloraWeb Editor_MT
BfN Taxonomic Editor

Editor Taxon List View Help BM explanation Full Screen mode Logout

Taxonomy: Quercus robur L. sec. BfN - FloraWeb DB, 2003. ⓘ

(group view)

Name phrase:

Nomencl. ref. Sp. Pl., 996. 1753.

Nomencl. status

Rank:

Taxonomy:

Status:

Basionym:

Synonym(s):

Misapplied name(s):

Homonym(s):

Orth. variant(s):

Included taxa:

Concept relation:

Taxon notes:

Distribution

Description

Ecology

Phenology

General distribution (Euro+Me)

General distribution (world)

Endemicity (Euro+Med)

Taxon number

Trivial *add trivial*

Flor *add flor*

FLOR_STATUS *add flor_status*

Editor_Brackets *add editor_brackets*

Editor_Parenthesis *add editor_parenthesis*

Inedited *add inedited*

Marker: Finalized Facts checked Nomenclature checked

Set Markers

Berlin Model Taxonomic Editor

Taxonym: (group view)	Quercus robur L. sec. BfN - FloraWeb DB, 2003.
Name phrase:	
Nomencl. ref.	Sp. Pl., 996. 1753.
Nomencl. status	
Rank:	Species
Taxonomy:	Subregnum: Cormobionta Phylum: Angiospermae A. Braun & Doell Classis: Dicotyledonae DC. Subclassis: Hamamelidae Takht. Ordo: Fagales Engl. Familia: Fagaceae Dumort. Genus: Quercus L.
Status:	ACCEPTED
Basionym:	
Synonym(s):	Quercus pedunculata Ehrh. <i>add synonym</i>

Taxonomic Editor - Mozilla Firefox

File Edit View Go Bookmarks Tab Tools Help

Letter size: + | -

FloraWeb Editor_MT
BfN Taxonomic Editor

Editor Taxon List View Help BM explanation Full Screen mode Logout

Taxonym: Quercus robur L. sec. BfN - FloraWeb DB, 2003. ⓘ

Name phrase:

Nomencl. ref. Sp. Pl., 996. 1753.

Nomencl. status

Rank: Species

Taxonomy: Subregnum: Cormobionta
Phylum: Angiospermae A. Braun & Doell
Classis: Dicotyledonae DC.
Subclassis: Hamamelidae Takht.
Ordo: Fagales Engl.
Familia: Fagaceae Dumort. MOVE

Status: ACCO

Basionym:

Synonym(s): Quercus robur L. sec. EHRENDORFER - Liste der Gefäßpflanzen Mitteleuropas, 1930. add s

Misapplied name(s): Quercus robur L. sec. GREUTER et. al. - Med-Checklist bisher Bde. 1, 3 und 4. add m

Homonym(s): Quercus robur L. sec. HEGI - Illustrierte Flora von Mitteleuropa, Ed. Aufl. 2 u. add h

Orth. variant(s): Quercus robur L. sec. OBERDORFER - Pflanzensoziologische Exkursionsflora, Ed. 11. add o

Included taxa: Quercus robur L. sec. R. Wisskirchen & H. Haeupler - Standardliste der Farn- u. add i

Concept relation: Quercus robur L. sec. ROTHMALER - Exkursionsflora von Deutschland, Ed. 8. A is congruent to

Quercus robur L. sec. SCHMEIL-FITSCHEN - Flora von Deutschland und angrenzende Länder... is congruent to

Taxon notes:

Distribution Quercus robur L. sec. TUTIN et al. - Flora Europaea, 1964-80;1993. add d

Description add d

Ecology add e

Phenology add p

General distribution (Euro+Med) add g

General distribution (world) add g

Endemicity (Euro+Med) add endemicity (euro+med)

Taxon number add taxon number

Trivial add trivial

Flor add flor

FLOR_STATUS add flor_status

Editor_Brackets add editor_brackets

Editor_Parenthesis add editor_parenthesis

Inedited add inedited

Marker: Finalized Facts checked Nomenclature checked

Set Markers

Berlin Model Taxonomic Editor

Concept mapping

is congruent to Quercus robur L. sec. EHRENDORFER - Liste der Gefäßpflanzen Mitteleuropas, 1930.

is congruent to Quercus robur L. sec. GREUTER et. al. - Med-Checklist bisher Bde. 1, 3 und 4.

is congruent to Quercus robur L. sec. HEGI - Illustrierte Flora von Mitteleuropa, Ed. Aufl. 2 u.

is congruent to Quercus robur L. sec. OBERDORFER - Pflanzensoziologische Exkursionsflora, Ed. 11.

is congruent to Quercus robur L. sec. R. Wisskirchen & H. Haeupler - Standardliste der Farn- u.

is congruent to Quercus robur L. sec. ROTHMALER - Exkursionsflora von Deutschland, Ed. 8. A

is congruent to Quercus robur L. sec. SCHMEIL-FITSCHEN - Flora von Deutschland und angrenzende Länder...

is congruent to Quercus robur L. sec. TUTIN et al. - Flora Europaea, 1964-80;1993.

add concept relation

Berlin Model Taxonomic Editor

Taxonomy: **Quercus robur** L. sec. Euro+Med preliminary checklist as merged from Flora Europaea and Flora Macaronesia.

Name phrase:

Included taxa:	subsp.: Quercus robur subsp. asterotricha (Borbás & Csato) Matyas
	subsp.: Quercus robur subsp. brutia (Ten.) O.Schwarz
	subsp.: Quercus robur subsp. pedunculiflora (K.Koch) Menitsky
	subsp.: Quercus robur subsp. pilosa (Schur) Jáv.
	subsp.: Quercus robur subsp. robur
	var.: Quercus robur var. araxina Trautv.
	<i>add included taxon</i>

add synonym

Misapplied name(s): *add misapplied name*

Homonym(s): *add homonym*

Orth. variant(s): *add orthographic variant*

Included taxa:

subsp.: Quercus robur subsp. asterotricha (Borbás & Csato) Matyas	
subsp.: Quercus robur subsp. brutia (Ten.) O.Schwarz	
subsp.: Quercus robur subsp. pedunculiflora (K.Koch) Menitsky	
subsp.: Quercus robur subsp. pilosa (Schur) Jáv.	
subsp.: Quercus robur subsp. robur	
var.: Quercus robur var. araxina Trautv.	
<i>add included taxon</i>	

add concept relation

Concept relation: *add concept relation*

Taxon notes:

Distribution

Description *add description*

Ecology *add ecology*

Phenology *add phenology*

General distribution (Euro+Med) *add general distribution (euro+med)*

General distribution (world) *add general distribution (world)*

Editor_Brackets *add editor_brackets*

Editor_Parenthesis *add editor_parenthesis*

Inedited *add inedited*

Included
taxa

Marker:	Finalized	Facts checked	Nomenclature checked
	<input checked="" type="checkbox"/>	F	N
<input type="checkbox"/> Set Markers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

nópolis, 28 July 2006



Taxonym: (group view)	Lafoensia punicifolia DC. sec. Linares & Berendsohn 2004	
Name phrase:		
Nomencl. ref.	in Mem. Soc. Phys. Genève 3(2): 86, t. 1. 1826.	
Nomencl. status	<i>add nomenclatural status</i>	
Rank:	Species	
Taxonomy:	Regnum: PLANTAE Subdivisio: ANGIOSPERMAE Classis: DICOTYLEDONEAE Familia: Lythraceae Genus: Lafoensia Vand. ●	MOVE
Status:	ACCEPTED	
Basionym:		
Synonym(s):	Lafoe <i>add s</i>	
Misapplied name(s):	<i>add n</i>	
Homonym(s):	<i>add n</i>	
Orth. variant(s):	<i>add o</i>	
Included taxa:	<i>add i</i>	
Concept relation:	<i>add c</i>	
Taxon notes:		
Uses	<i>add u</i>	Uses <i>add uses</i>
Global distribution	S de	Global distribution S de México, Guatemala, El Salvador, Costa Rica y Panamá y ha
Distribution in El Salvador	Ahua	Distribution in El Salvador Ahuachapán, Sonsonate, San Salvador, Cabañas
Habitat in El Salvador	<i>add h</i>	Habitat in El Salvador <i>add habitat in el salvador</i>
Common name	tromp cuyap granad mezc palo c <i>add c</i>	Common name trompillo cuyapo granadillo mezcal palo de culebra <i>add common name</i>
Vouchers	E. Sa R. A. R. Vil S. Ca <i>add v</i>	Vouchers E. Sandoval & O. Rivera D. 1497 [LAGU, MO] R. A. Carballo, H. Castaneda & E. Erazo [LAGU, MO] R. Villacorta 2671 [LAGU, MO] S. Calderon 1251 [MO] <i>add vouchers</i>
Report	Reyn	Report Reyna de A. 1993: 50. Standley & Williams 1962, Fl. Guat. 7: 25
Other refs.	Grah	Other refs. Graham 2001, Fl. Nic. 2: 1253. Nevling 1958, Fl. Pan. #136: 112
Illustration	Stand	Illustration Standley & Williams 1962, Fl. Guat. 7: 254, fig. 41. Nevling 1958
Specimen notes	<i>add s</i>	Specimen notes <i>add specimen notes</i>
Editorial notes	<i>add e</i>	
Marker:	fin ●	
<input type="checkbox"/> Set Markers	<input checked="" type="checkbox"/>	

Berlin Model Taxonomic Editor

User- defined content



Taxonym: (group view)	Lafoensia punicifolia DC. sec. Linares & Berendsohn 2004	
Name phrase:		
Nomencl. ref.	in Mem. Soc. Phys. Genève 3(2): 86, t. 1. 1826.	
Nomencl. status	<i>add nomenclatural status</i>	
Rank:	Species	
Taxonomy:	Regnum: PLANTAE Subdivisio: ANGIOSPERMAE Classis: DICOTYLEDONEAE Familia: Lythraceae Genus: Lafoensia Vand. ●	MOVE →
Status:	ACCEPTED	
Basionym:		+
Synonym(s):	Lafoensia mexicana Sessé & Moc. <i>add synonym</i>	

Berlin Model Taxonomic Editor

User- defined markers

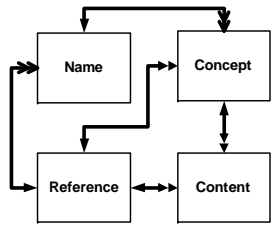
Marker:	fin	Ve	NG	Gu	stc	Aln	Ni	CR	C1	C2	P
Homonym(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orth. varian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Included tax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concept rela	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taxon notes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Uses	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Global distri	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Set Markers

Habitat in El Salvador	<i>add habitat in el salvador</i>	
Common name	trompillo cuyapo granadillo mezcal palo de culebra <i>add common name</i>	
Vouchers	E. Sandoval & O. Rivera D. 1497 [LAGU, MO] R. A. Carballo, H. Castaneda & E. Erazo [LAGU, MO] R. Villacorta 2671 [LAGU, MO] S. Calderon 1251 [MO] <i>add vouchers</i>	
Report	Reyna de A. 1993: 50. Standley & Williams 1962, Fl. Guat. 7: 254. Allen 1959. Standle...	
Other refs.	Graham 2001, Fl. Nic. 2: 1253. Nevling 1958, Fl. Pan. #136: 112.	
Illustration	Standley & Williams 1962, Fl. Guat. 7: 254, fig. 41. Nevling 1958, Fl. Pan. #136: 11...	
Specimen notes	<i>add specimen notes</i>	
Editorial notes	<i>add editorial notes</i>	

Marker:	fin	Ve	NG	Gu	stc	Aln	Ni	CR	C1	C2	P	Bel	Nrm	Sp	GD	SD
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set Markers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

ianópolis, 28 July 2006



Bulk data input via tables

- A highly structured Word document with well defined semantics
- Import to and export from Berlin Model

291-70-962-98 *Erigeron vichrenensis* Pawł. in Acta Bot. Croat. 28: 287. 1969

(provisional: *Erigeron uniflorus*)

0l *Erigeron uniflorus* subsp. *vichrenensis* (Pawł.) Kožuharov & N. Andreev in Andreev & al., Opred. Visš. Rast. Bălg.: 785. 1992

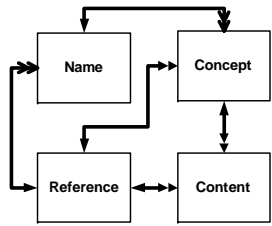
E+M Territory	Source		Native	Introduced	Cultivated	Endemic
291-70-962-98			N			C
Bu	23829	<i>Erigeron uniflorus</i> subsp. <i>vichrenensis</i>	N			
Bu	27133		N			

291-98 **Eurybia**

291-98-564 *Eurybia macrophylla* (L.) Cass. in Cuvier, Dict. Sci. Nat. 37: 487. 1825

0b *Aster macrophyllus* L., Sp. Pl., ed. 2: 1232. 1763

E+M Territory	Source		Native	Introduced	Cultivated	Endemic
291-98-564			A	I		I
Ge	27133 23913	<i>Aster macrophyllus</i>	A	I		
Ho	27133	<i>Aster macrophyllus</i>	A	I		
Po	27133	<i>Aster macrophyllus</i>	A	I		



Output: Printed checklist

Lythraceae

Lafoensia puniceifolia DC. in Mem. Soc. Phys. Genève 3(2): 86, t. 1. 1826.

Lafoensia mexicana Sessé & Moc. in Mem. Soc. Phys. Genève 3(2): 86, t. 1. 1826.

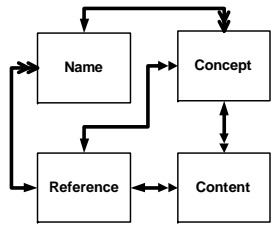
cuyapo, granadillo, mezcal, palo de culebra, trompillo

S de México, Guatemala, El Salvador, Costa Rica y Panamá y hasta Sudamérica
Ahuachapán, Sonsonate, San Salvador, Cabañas.

Rep. para El Salvador: Reyna de A. 1993: 50. Standley & Williams 1962, Fl. Guat. 7: 254. Allen 1959
1925: 158.

Otras Ref's: Graham 2001, Fl. Nic. 2: 1253. Nevling 1958, Fl. Pan. #136: 112.

Ilustración: Standley & Williams 1962, Fl. Guat. 7: 254, fig. 41. Nevling 1958, Fl. Pan. #136: 112, fig. 34.



Output: query interfaces

Extending the generic interface for Berlin Model databases, e.g.:

- **Med-Checklist (e.g. *Anthyllis** ; Area BI)**
<http://ww2.bgbm.org/mcl/query.asp>
- **Euro+Med Plantbase (see unicode)**
<http://ww2.bgbm.org/EuroPlusMed/PTaxonDetail.asp?NameCache=Tussilago%20ofarfara&PTRefFk=7000000>
- **IOPI / Species Plantarum: (description and key)**
<http://www.bgbm.org/IOPI/GPC/PTaxonDetail.asp?NameCache=Chrysobalanus%20icaco&PTRefFk=>
- **.. in Species 2000 (link to IOPI database)**
http://spice.sp2000.org/search_results.php?search_string=Chrysobalanus&hub=GlobalHub

Current state-of-the-art

- **Excellent knowledge of information structures and their representation in information models (relational, XML,)**
- **WWW allows decentralised data storage and decentralised data processing**
- **WWW allows adapted information access**
- **Common standards are being developed**

Congress promotion break



The international standardisation body for biodiversity data and biodiversity informatics

2006 TDWG Annual Meeting
October 15-22, 2006
Missouri Botanical Garden
www.tdwg.org

The Biodiversity Informatics Challenge

Techniques are available – challenges:

- **Adapting the techniques to users (taxonomists)**
- **Achieving true interoperability**
- **Coordination of institutional efforts**

EDIT

● ● ● European
● ● Distributed
● ● Institute of
● ● ● Taxonomy

Work Package 5

Internet Platform for Cybertaxonomy

Internet platform for Cybertaxonomy

What is a platform ?

- wikipedia:

The word **platform** is .. usually referring to some kind of standing surface used to support things, give them stability, or visibility

Internet platform for Cybertaxonomy

Cyber (in wikipedia)

- **Cyber** was a range of mainframe computers manufactured by Control Data Corporation.
- **Cyber** is used to refer to the cyber subculture ... to its people, music or fashion.
- **Cyber** is a Marvel comics supervillain.
- **Cyber** is a prefix .. loosely meaning *through the use of a computer*.

An Internet Platform for Cybertaxonomy

- Using biodiversity informatics techniques to support, give stability and provide visibility for taxonomy
- EDIT's aim: increase the efficiency of the taxonomic work process
- The EU's aim: integration of institutions
- Target user community: taxonomists

Will we tell taxonomists what they need?

No

But will taxonomists tell us?

Communications is the key!

We will establish an interactive communication
process between actual taxonomic practice
and the platform team

(We might tell taxonomists what other
taxonomists do)

The 4 pillars of the interactive process

- **Biodiversity informatics**
 - Was developed from inside our community
 - Teams of biologists and information scientists
- **Modelling**
 - Using standard informatics approaches to analyse work processes, data flows, etc. (human and machine)
- **Guinea pigs**
 - Within WP5, in WP 6 and 7
- **Drawing on the experience of our I&IT departments**

An Internet Platform for Cybertaxonomy

- **Medium-term development of a stable computing platform serving taxonomists**
- **Software and services for taxonomists**
 - WP5 to identify, test, document, adapt, stabilise, and certify existing products
 - Development of new software and services only where necessary
 - Integration and enabling of IT departments

An Internet Platform for Cybertaxonomy

- **Examples for software and services**
 - Tools for key generation and (illustrated) glossaries
 - Camera ready distribution maps
 - Bibliography access specifically for taxonomists
 - Lists of titles, digital access to original publications, etc.
 - Digital specimen access specifically for taxonomists
 - Downloads, Itineraries, Label-text search, handwritings
 - Group collaboration tools for taxonomists
- **Institutions taking responsibility [IPNI, IH, ING, ...]**
- **Priorities defined in the modelling process, continuously revised**

What is Cybertaxonomy?

- **Cyber (in wikipedia)**

- Cyber was a range of mainframe computers manufactured by Control Data Corporation.
- Cyber is used to refer to the cyber subculture as a whole, or specifically to its people, music or fashion.
- Cyber is a Marvel comics supervillain.
- **Cyber is a prefix stemming from cybernetics and loosely meaning through the use of a computer. See Cyberspace, Cyberitis and Cybersex.**



WP 5

Thank you