BRAHMS 7 UPGRADE NOTES

July 2012

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A powerful and flexible online service

BRAHMS online (BOL) has been heavily upgraded to a new system with flexible analysis and reporting features for family, genus, species, botanical record, specimen, seed, living collection, map and image data.

BRAHMS online is programmed using the latest Microsoft .net framework in C#. The web components use the MVC framework.

As well as using the BOL service on the secure BRAHMS server, BRAHMS online can be installed on your own server or indeed, any computer running windows. The largest online system (June 2012) is the National Herbarium Netherlands database with some 2 million specimens. Amongst its many features, the new BOL version includes:

- Stats overview of data linked to a website.
- <u>Zoomify</u> for online image viewing.
- Image based <u>online loans management</u> and determination returns.
- Support for e-floras and online monographs.
- Map clustering and a map data browser with Zoom tools.
- Support to publish <u>seed banks</u> and <u>botanic gardens</u> online.
- Substantial search speed increase for large (> 1m specimens) databases.
- BOL now operates on 32 and 64 bit servers.

Many of the new features are described in the Millennium Seed Bank Data Warehouse guide on http://herbaria.plants.ox.ac.uk/bol/content/documentation/MSBP_Data_Warehouse_help_document.p df . Most of the examples in this document refer to seed data but apply equally to other BOL data categories.





Some sample screens grabbed from various BRAHMS online sites.

BRAHMS WebConnect

An updated WebConnect system in BRAHMS provides a seamless link to BRAHMS online for website design and data uploading. Some features of the revised WebConnect component:

- A new PublishOnline menu in BRAHMS.
- Improved web page design HTML controls for HTML dummies (i.e. most of us...).
- Taxonomic data uploading implemented, for example descriptions and synonymy.
- Botanical records, specimens and determinations uploaded together.
- All data are now transferred using XML files.
- A great number of upload restrictions may be applied.
- A system of batch queuing data to the server, ideal for larger data uploads.
- Monitor your uploads history.
- A new flexible system for implementing image slide shows <u>http://nivo.dev7studios.com/</u>.

For full details, refer to the revised WebConnect guide on http://herbaria.plants.ox.ac.uk/bol/content/documentation/BRAHMSWebConnect.pdf

RAHMS online data upload service: connected to server he	rbaria.plants.ox.ac.uk	X
Database ID: TEMPLATE		Logged in as: dlf
Upload data Delete data Upload history		
Data category to process and/or upload Taxa Total taxa in species file: 1 Gazetteer Botanical records, specimens and determinations DST - Species distribution summaries Seed passport, processing and germination tests Living collections Images Herbarium transaction Images	Restrictions	When you process botanical record or seed data, you can select the batch upload option. This creates xml files in batches and generates XML files (optionally uploading to server) one by one. This is strongly recommended when uploading more than 1000 records. Batch size is set using the relevant option on PublishOnline > Batch upload and queue control files. Use the Tools option to records per batch. You must then tag the
Non standard data		entries in that the to process. If botanical records are are re-uploaded to a server, details for the relevant records will be updated/overwritten. Further information is provided in the WebConnect guide.
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The WebConnect data uploads screen

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A sample WebConnect uploads history screen

Online herbarium transactions: image based loans

BRAHMS and BRAHMS online (BOL) provide facilities to generate and manage online, image based loans. For full details, refer to:

http://herbaria.plants.ox.ac.uk/bol/content/documentation/onlineloans.pdf

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Website style and css file editing

Amongst the changes with WebConnect, more control over website layout is provided through editing access to your css (Cascading Style Sheet) file. Those interested can create/upload a custom css to help standardise fonts, colors, background, borders, text formatting and link effects on your BOL websites.

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Herbarium options - a new menu

A reorganisation of herbarium related functions under a new principal 'Herbaria' menu as shown below. If needed, ensure the menu option is enabled from **Utilities > My setup > Active modules**.



Herbarium boxes and folders

Curation features have been added to manage herbarium boxes and specimen folders. Items are identified by barcodes. Herbarium specimens can now be linked to individual boxes and folders and the number of herbarium sheets per folder and folders per box auto-calculated. Folders are linked into boxes and can be assigned a taxa group (down to species level) and a geographic text, often a 'region'. These features have been added in part to support high volume, high resolution herbarium scanning initiatives such as that currently being implemented by Naturalis in the Netherlands.

Rapid specimen scanning

High volume, high resolution rapid specimen imaging tools developed in collaboration with Naturalis,



Netherlands. For each herbarium box, images are scanned for the box (barcode), each folder cover within a box and each sheet within each folder. Barcodes (matrix) are included in the data returned from the scanner and all data are saved to a .csv file using post scan software developed by Naturalis.

The CSV file is imported to RDE using a new **Tools** import option. Data and image file names are added, based on the correctly sorted, scanned images for each box, folder (taxa + region) and auto-propagated to all sheets within the folder, these having the same taxa and geo-region coding. Data from specimen images can then be added on a limited basis depending on resources (*e.g.* collector name, number, date, country). This process is currently being further developed and tested at the Naturalis herbaria in Wageningen and Leiden. The image shows the new scanning process underway at Wageningen.

Botanic Gardens

The Living Collections module for botanic gardens has been extended and refined after a year of use at the Oxford Botanic Garden.

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												-		7.1		

See short 2012 Oxford Plant Systematics article on:

http://herbaria.plants.ox.ac.uk/bol/content/documentation/OPS2012_OBG.pdf

Further details are provided in:

http://herbaria.plants.ox.ac.uk/bol/content/documentation/BRAHMSLivingCollections.pdf

A number of new fields provided to record propagation details. These now include propagation type, date, done by who, propagation result, seed treatment, parent/crossing details where relevant and general notes.

Seed management

The BRAHMS Seed Management module has been developed collaboratively with the Millennium Seed Bank (MSB) Partnership at RBG Kew. Our focus has been on the development of the RDE template for seed collections allowing users to compile field, processing, germination, seed weight and tetrazolium test data in one simple data entry form. Partners duplicating material to the MSB for conservation storage are able to generate xml files directly from RDE, the resulting files being importable into the data management system at MSB. This transfer can also work in the reverse direction enabling data repatriation to Partners across the global MSB Partnership. The template also maps across to the online MSB Data Warehouse (http://herbaria.plants.ox.ac.uk/bol/msbp). Plans are being developed to extend functionality of the BOL online seed bank pages to facilitate seed exchange and purchase direct from the website; a service required by the many Tree Seed Centres within the MSBP.



The Seed Manager data capture form in use for germination tests in an RDE file.



Generating an XML transfer file from the seed RDE file.

Plot sample module

A heavily revised sample plot module with a new menu interface has been implemented, in collaboration with William Hawthorne and very much geared towards Rapid Botanical Survey work as described in the Hawthorne guide now linked on the BRAHMS home page.



Aside from re-structuring the plot-sample menus, new tools have been added for plot header and data files. A new system to store plot vouchers added and integrated with the plot data file. Plot vouchering is a vital part of botanical survey.



Vouchers from a plot survey in Liberia, often sterile, are identified and the data added to the plot voucher file. Each voucher is assigned a voucher code and this is also added to the plot sample record. Photo credits William Hawthorne.

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Plot and voucher data can be viewed together to facilitate det updates. Data can be copied from voucher to plot file, vice versa. Further tools are provided on the form when browsing a sample data file.

TurboVeg data importer

Plot data stored in standard TurboVeg files (habitat + abundance + species + various popup lists) can be imported to the BRAHMS plot sample module using the Tools option provided in an opened plot header file.

🖪 Import data from TurboVeg	folders	23
Import header and plot data from a including the plot description (meta these files are not located, the pro	selected TurboVeg folder. The system checks the location of the neccesary files adata file), the data file itself, related popups (small lists) and the species file. If any of cess cannot proceed.	*
One record is added to the BRAHI added to the file designated the he plot. Thus data from may plots car	IIS header file for each plot and given a unique SCODE (sample code). The data are eader field DATAFILE. Each data file is stampted with the SCPDE relating to the correc be stored in the same data file.	t
Data imported to		
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		Ĩ.
TurboVeg data source		
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SAMPNAME:	MARENICA	
TurboVeg popups folder:	c:\namibiaapril2012\plotdata\popup\	
TurboVeg species file:	c:\namibiaapril2012\plotdata\species\southafr\species.dbf	1
	Limport	(<u>c</u> ancel)

This option asks the user to locate the various folders where the TV habitat and abundance file are stored; some smaller dictionaries (popups) and the species reference list. Data for each plot is added to a BRAHMS plot header file and the data are added to a data file. Species names are added to the data file. The species names can subsequently be coded against an existing BRAHMS species list, and this process exposes new and potentially incorrect species names.

Saved File Manager

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The 'Copy/Save as' function has been upgraded together with a new saved file manager.

- All saved files are named with date and time, thus not overwriting earlier saved files.
- Saved files can be registered in the manager which is now accessed from the main File menu.
- Any file category (DBF,CSV, XML, XLS, MDB, etc.) can be opened directly from the file manager using the relevant software by dbl-clicking on the file name.
- The saved files manager is more easily accessible on the main **File** menu.

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The Saved File Manager provides a central mechanism to open files of different types. Here shown open a saved .csv file.

XML exporting

The XML exporter (Admin > XML/Darwin export options) uses the same function as WebConnect. XML provides the most comprehensive way to export data from BRAHMS.



All XML files generated are saved to and can be opened from the saved file manager.

Data category to process and/or upload	C:\BRAHMSDATA-conifers\Savedfiles\botanic P + C X C:\BRAHMSDATA
 Taxa Total taxa in species file: 4639 Gazetteer Botanical records, specimens and determinations DST - Species distribution summaries Seed passport, processing and germination tests Living collections Images Herbarium transaction 	 <BRAHMSdatabase xmlns:xsi="http://www.w3.org/2001/XMLSchemz
<l added="" be="" comments="" here="" may=""></l> <databaseid> CONIFERS </databaseid> <databaseid> CONIFERS </databaseid> <databrovidedby>Administration </databrovidedby> <botanicalrecorddata></botanicalrecorddata> <botanicalrecorddata></botanicalrecorddata> <botanicalrecorddata></botanicalrecorddata> <botanicalrecorddata></botanicalrecorddata> <botanicalrecordpreservedspecimen <="" basisofrecord=""></botanicalrecordpreservedspecimen> <basisofrecord> PreservedSpecimen </basisofrecord> <entrydate> 2011-03-12 </entrydate> <collectionday>3 </collectionday> <collectionday>3 </collectionday> <collectionday>3 </collectionday> <collectionday>3 </collectionday> <collectionday>3 </collectionday> <collectionmonth>7 </collectionmonth> <collectionmonth>7 </collectionmonth> <collectionyame></collectionyame> <collectionyame></collectionyame> <collectionyame></collectionyame> <collectionyame></collectionyame> <collectionyame></collectionyame> <collectionapay></collectionapay> <collectionyame></collectionyame> <collectionyame></collectionyame> <collectionapay></collectionapay> <collectionyame></collectionyame> <collectionyame></collectionyame> <collectionapay></collectionapay> <collectionyame></collectionyame> <collectionapay></collectionapay> <c< td=""></c<>
XML files can be created for the following data categories	<pre><altitude>1753</altitude> <currentfamilyname>Pinaceae</currentfamilyname> <currentgenusname>Pinus</currentgenusname> <currentspeciesepithet>lambertiana<currentspeciesauthor>Douglas</currentspeciesauthor> - <specimendata> - <specimenid>39391</specimenid> <locationherbariumduplicate>HSC<specimencategory>Sheet</specimencategory> <accessionnumber>70588</accessionnumber></locationherbariumduplicate></specimendata></currentspeciesepithet></pre>

An example XML output

Data correction files

This function helps to clean up data in a selected field which includes misspellings and other errors. The contents of any non-read only field (*e.g.* any RDE field) can be uniquely copied to a 'correction file', edited, and then returned to the relevant data field in the donor file to update the data. Correction files can usefully be shared between projects.

Advi	anced BRAHMS Administration in Conifer database [(C:\BRAHMSDATA-CONIFERS\CONIFERSB6_single-user]
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🚮 F	Open form	act_28-06-2012_at_08-16-34.dbf (alias= RDE)]
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	Remove <u>e</u> mpty records Character/memo field processing	s, D.J. de
	Numeric field processing	•
	Data correction and parsing options	Create 'corrections file' for the selected field
	FoxPro commands Mystring commands	Restore data from 'corrections file'

Step 1: Choose a field that contains data to be edited. Typical examples are the fields such as COLLECTOR, ADDCOLL and DETBY in RDE files. But it could be any non-read only field in any BRAHMS file.

Step 2: Select **Edit > Data correction and parsing options > Create a corrections file for the selected field**. This will create a data file with one record for each different entry on the selected field. The file will be auto-registered in your saved file manager. It includes the fields INPUT (the list of names from the donor file) and CORRECTED (the field you can edit). By default INOUT fields are copied to CORRECTED as a) many entries will be correct and b) wrong entries are usually quite similar to the input field. may be similar.

Step 3: Edit the data in the field CORRECTED. After editing, entries that were already correct will have the same value as the original INPUT field.

88	Advance	ed BRAHM	S Administration in Conifer database [C:\BRAHMSDATA-CONIF	ERS\CONIFERSB6_single-user]
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*		1(0 K"tting, B.	Kötting, B.
*		4(0 R?gheimer, S.; Hoffman, L.	Rügheimer, S.; Hoffman, L.
*			1 Maggs-K"lling, G.L.; Loots, S.	Maggs-Kölling, G.L.; Loots, S.
*		20) Walter, H.; Walter, E.; Mrs.	Walter, H.; Walter, E.
*		20) Wendt	Wendt, W.E.
*			1 Wiss, H-J.; Merxmüller, H.; Giess	Wiss, HJ.; Merxmüller, H.; Giess, J.W.H.
*			1 Müller; Hübsch; Giess, J.W.H.	Müller, M.A.N.; Hübsch, H.; Giess, J.W.H.
*			1 Walter, H.; Schwerdtfeger	Walter, H.; Schwerdtfeger, H.
*			5 Oliver; Steenkamp; Vorster	Oliver; Steenkamp, P.; Vorster, B.
*		(6 Uiras, M.M.; Maggs, G.	Uiras, M.M.; Maggs, G.L.
*		53	3 Strohbach, M.M.; Swart, T.	Strohbach, M.M.; Swart, T.
*		38	3 Strohbach, M.; Swart, T.	Strohbach, M.M.; Swart, T.
*		1() Strohbach, B.J.; Swart, T.	Strohbach, B.J.; Swart, T.
*		1() Strohbach, B.; Swart, T.	Strohbach, B.J.; Swart, T.

The above correct file was created from a large RDE file with plenty of problem spellings with collector names (mostly missing initials and accent problems). The INPUT field contains a unique list of entries generated from the RDE file and these have been edited and corrected where necessary. The COUNT field indicates the number of records with the entry.

Step 4: Once the file has been edited, it can be fed back into the relevant file using Select **Edit > Data correction and parsing options > Restore data from corrections file.** In the above example, any field with the entry W. Giess would be corrected to Giess, J.W.H.

Species form

The main species file has an entirely new form providing improved editing controls, access to botanical record data and various useful stats. The form can be used together with the data grid and can be dragged over to a separate monitor.

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Here showing botanical records for the current species and the stats screen with a summary of the botanical records including a summary of the herbaria the specimen data are derived from.



The species form Text page includes an assembled summary of all HABITATTXT and PLANTDESC memos for all botanical records of the current species. Dbl-clicking on any memo text area opens the text in a larger editing area on the right pane. The summaries are useful when preparing species descriptions.

Conservation Assessment Module (CAM) beta

A new module (currently beta) to store data for conservation assessments has been added in collaboration with the Red Listing and conservation assessment projects at RBG Kew. Data are entered via Taxa RDE files using the CAM form, opened in taxa RDE files. Lookup values for all options can be pre-loaded into your custom lookup dictionary using Admin > Custom lookups > Tools. The custom look file is currently in development but a first draft is in the setupdata/cam folder.

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D2	02	B1c(i) B1c(ii) B1c(iii) B1c(iii) B2a B2b(ii) B2b(iii) B2b(iii) B2b(iii) B2b(iii) B2c(iii) B2c(iii) B2c(iii) B2b(iii) B2b(iii) B2c(iii) B2c(iii) B2c(iii) B2c(iii) B2b(iii) Criteria C: C1 C2a(ii) C2a(ii) C2b
Criteria E: 🥅 E	Criteria E: 🥅 E	B1c(i) B1c(ii) B1c(iii) B1c(iv) B2b(i) B2b(ii) B2b(iii) B2b(iv) B2b(v) B2b(i) B2b(ii) B2b(iii) B2b(v) B2b(v) B2c(i) B2c(ii) B2c(iii) B2c(iv) Criteria C: C1 C22a(i) C22a(i) Criteria D: D D1

Assessment data are stored in a single RDE file. Botanical records stored in your database are used to help calculate country occurrence, altitude range and AOO /EOO, the latter through a direct link to GeoCAT. Selected botanical records (*e.g.* cultivated or inaccurate records) can be excluded from calculations. The CAM module is currently being extended to generate XML that can be uploaded to IUCN.

G Form always on top Exit

X • • **X**

Taxonomic Name Resolution Service

Links to the Taxonomic Name Resolution online service

(<u>http://tnrs.iplantcollaborative.org/TNRSapp.html</u>) have been implemented with a new internet toolbar option. The toolbar option assembled tagged taxa names in the current file onto a clipboard – allowing to copy/paste the names to the TNRS 'submit' text area.



) iPla Coll	aborative"	Taxonom	ic Name R	lesoluti	on Serv	vice v3.0	
Er	ter List Upload and S	Submit List Retrieve Results		Name processi	na settinas		
	Enter scientific names to check						
Fit Pit Pit Pit Pit Pit Pit Pit Pit Pit P	us arizonica var. arizoni us attenuata us ayacahulte var. ayac us caribaea var. hondur us catarinae us lambertinan us latolla us laiophylla var. leiophylla us leiophylla var. leiophylla us lawsonii us leiophylla var. leiophylla us lambertina ck here for support settings • Downlos	ca ahuite ensis ylia ad settings	Clear SubmitList	Selected mo Match Accuracy: Allow partial Sources: Edit [GCC, TRO Family Classifical Selected cla	de: Perform Name Edit matches, Selected <i>t</i> PICOS, USDA] tion: Edit setification source: 1	Resolution minimum threshold: 0	.05
Name		Name Matched		Name Source	Overall	Taxonomic Status	Accepted Nan
Submitte	i 🔺				Score		
Pinus aria	tonica var. arizonica	Pinus arizonica var. arizonica	(+1 more)	TROPICOS	1.00	Accepted	Pinus arizonio
Pinus atte	enuata	Pinus attenuata Lemmon		TROPICOS U	JSDA 1.00	Accepted	Pinus attenua
Pinus aya	icahuite var. ayacahuite	Pinus ayacahuite var. ayacahuite		TROPICOS	1.00	Accepted	Pinus ayacah 🚱
Pinus car	nus caribaea var. hondurensis Pinus caribaea var. hondurensis (Sénécl.) W.H.G. Barrett & G			I TROPICOS	1.00	Accepted	Pinus caribae 🚱
Pinus cat	arinae	Pinus catarinae RobPass.	(+1 more)	TROPICOS	1.00	Synonym	Pinus remota
Pinus lan	nbertiana	Pinus lambertiana Douglas		TROPICOS U	JSDA 1.00	Accepted	Pinus lamber
Pinus lati	folia	Pinus latifolia Sarg.		TROPICOS U	JSDA 1.00	Synonym	Pinus engelm

Up to 5000 names can be submitted at once. Each name is checked against the sources you select on the TNRS setup option.

A new form for RDE and botanical records

	Collections: entry/edit	×
	BOTANICAL RECORDS	
Advanced BRAHMS Administration in Conifer database [C:\BRAHMSDATA-CC		1 X
File Edit View Goto Tag FastSort Calculate Datalinks Tools		
🖌 X + 🕢 🗖 🖉 african podos 🗸 🕫 🎒 🖲 🛃 ++ At 😽 Z	Pinus durangensis	
	Collection Gen Curston Cursent det Specimens	
RDE (Collections) [c:\brahmsdata-conifers\savedfiles\collextract_29-06-2012_at		Taxa Stats Find Memos
prefix number suffix addcoll dups	DEL FIRSTDUP CATEGORY HERBARIUM HERBLOCATE BARCODE ACCESSION PHENOLOGY SEEN SEENWHERE NOTE TYPE TFAMILY TG	Click and expand to locate taxa
647 GOET, US, MO	* Herbarium sheet MEXU Pinaceae Pir	E Pinaceae
s.n. F. A	Herbarium sheet FHO memo holotype Pinaceae Pin	E Pinus
77571 BAB	Herbarium sheet ENCB memo isotype Pinaceae Pin	Pinus arizonica var. cooperi
11600 DDE	Herbarium sheet A memo isotype Pinaceae Pin	Pinus ayacanute var. ayacanute
12004 Horroro & HAIR JE	Herbanum sneet MS memo isotype Hinaceae Hin	Pinus caribaea var. bahamensis
13904 Hellela, S. HADB, JC		Pinus caribaea var. caribaea
- 232 CO		- Pinus caribaea var. hondurensis
233 CU		Pinus cembroides ssp. lagunae
77582 BAB		- Pinus cubensis
10280 PRF		Pinus devoniana
3442 MEXU, A		Pinus durangensis
2433 F	Edit specimens Reduced field view Auto-add/copy det. details Unify det. records Type ->Det Clear type	- Pinus jaliscana
65 Larsen, E. MEXU, FHO, ENCB, A, MS		- Pinus lawsonii
402 MO, GH		Pinus leiophylla var. leiophylla G
10021 P, ENCB, INIF	DEL CURDET DETERMINATION DETBY DETDAY DETMONTH DETYEAR DETSTATUS DETCONREV DETNOTES FAMILY GENUS SP1 -	
10017 P, K, NY, US, S, E, MO, MICH, M, GOET, F, BM,	Pinus durangensis 0 0 0 memo Pinaceae Pinus dur	Pinus nelsonii bio
10141 NY, S, E, US, MEXU, MO, M, K, GOET, F, BM, A		Pinus patula var. patula GH
4031 CREG		- Pinus praetermissa
620 BM. MO. P. W. K. CGE. NY. B. FI		Pinus pseudostrobus var. pseud
3411 Luce M.C. CREG	k m	Pinus rzedowskii
	Det->Type K MO The Link ref Edit det. note:	Pinus strobitormis
- 1100 Dappa E INIE HAI	Dbl-click curdet field to switch current determination	sid
- O Deppe, F. IIVIF, HAL		мо
GH GH		NY NY
1755 K, US, A	🔺 🔺 🗶 Locate a collection record 📋 Track changes is disabled ?	p Ext 💽
475 Styles, B.T. MEXU, FHO, ENCB		
4588 MICH, CREG	24 10 1983 memo Pinaceae memo Styles, B.T. 0 0 1992 m	emo memo I

The data capture form for RDE and the main botanical records file has been heavily revised. The form can be used at the same time as the data grid on the same or a separate monitor.

Taxa Stats	Find	lemos	
Find records	that inclu	de:	
	FAMILY:		
	GENUS		
	SP1:		_
A	UTHOR1		
	RANK1		
	SP2		
COL	LECTOR	pringle	
	NUMBER		
COLLECT	ION DAY:		
COLLECTION	MONTH:		
COLLECTIO	ON YEAR	1896	
С	OUNTRY:		
	MAJOR		
LC	CNOTES		
Not case sens selections are	itive, mult possible.	iple	7 🗙

1	Taxa Stats Find M	emos	Styles, B.T.
	General file	stats	Farjon, A.
	Types:	30	
	Families:	1	Farjon, A.
	Genera:	1	Farjon, A.
	Species:	20	Farjon, A.
	Infra taxa:	20	Styles, B.T.
	Countries:	-	
	Countries.	5	McVaugh, R.
	majors.	18	Farjon, A.
	Cultivated:	<u> </u>	Forion A
	Entries with images:	0	Faljoli, A.
	COLLDD range:	0 - 31	Earion A
	COLLMM range:	0 - 12	Styles, B.T.
	COLLYY range:	1828 - 1984	
	LAT degree range:	0 - 25	Styles, B.T.
	LONG degree range:	0 - 109	
	Altitude range:	0 - 3500	Farjon, A.
			Farjon, A.
			Styles, B.T.
			Styles, B.T.

The Find tab provides handy search options for RDE records. The Stats pane provides a general summary about the data in an open RDE file. Erroneous ranges are highlighted in bold.

RDE botanical records species name checker

This handy new tool helps you check through any botanical records RDE file – looking for names that are not already registered in your main species list. This is not always an easy task as determinations and names used for types are often 'hidden' in the RDESPEC memo. Problems in larger and older RDE files build up especially when the main species list has been extensively edited - leaving redundant names in the RDE file. And these names can be difficult to locate. When such RDE files are transferred to BRAHMS, this may result in many new names being inappropriately added to your taxa files. The function is found in botanical record RDE files using **Tools > Data checks >Taxa > Check all dets including names in RDESPEC memo.**

Optionally, any new names encountered can be used to create a Taxa RDE file. Also, any many new names are often due to simple family name re-designations, you can auto-update the family names in the RDE file based on your database family – genus arrangements.

For a full description: http://herbaria.plants.ox.ac.uk/bol/content/documentation/RDEdetchecking.pdf

-	NUMBER: 42803							
5	Check RDE dets]						
F	Check all dets in this RDE file (including dets and typeof names in the RDESPEC memo) against your main species file. If a det is not found in your species file, RDE records are tagged and details added to the field XXDETMEMO as follows:							
ji o	a) MAIN (new det in a main RDE field such as GENUS and SP1); b) DETLIST (new det in the RDESPEC memo determination list); c c) TYPEOF (new det cited as a type name).							
ii J	These entries are also prefixed F:, G:, S: to indicate if the family, genus or species respectively are not located. Thus, the sample "G: DETLIST=Adiantaceae, Notholaena lanuginosa Desv." indicates that the genus Notholaena was not located in the genus list. Were Adiantaceae not located in the family list, the entry would have been prefixed "F:".							
-	The option starts by clearing the RDE file TAG field and any existing data in the fields XXDETCHECK and XXDETMEMO. NB: filters are not respected by this option - filters are cleared before the function runs.							
1	Further options with this function: a) Optionally, create a new taxa RDE file listing all new names in the opened RDE file; b) check genus/family links and update these following the entries in your main genus file. The latter option is used to correct or problems, where genera are linked to the wrong family.							
Update family names for genera linked to wrong family based on your internal genus list Create taxa RDE file with all new names encountered Folder for RDE file: c:\brahmsdata-conifers\savedfiles\ RDE file name: newnames								
-4 1, .,	D.B. LAE 52204 CANB, L, BRI, K 2 ALTMAX: 0 32322 CANB, L, US, NY, K 30 TREETAXA: Araucaria cunninghamii var	Ir.	papuan;					

RDE name checking form

Phenology and phenophase analysis

Results from the PPI tool allow you to analyse and estimate phenophases for selected taxa based on a minimum set of phenology data recorded by month. PPI produces three taxon-specific results:

- Maximum probability period (currently month) for the phenophase;
- A predictability index, varying between ~0 (= 0.02) and 1;
- Chart of the predictability indexes for the periods (currently 12 months of the year).

Phenological Predictability Index in BRAHMS: a tool for herbarium-based phenological studies. Ecography Volume 35, Issue 4, pages 289-293, April 2012. (http://onlinelibrary.wiley.com/doi/10.1111/j.1600-0587.2011.07329.x/abstract).

For implementation within BRAHMS, see

http://herbaria.plants.ox.ac.uk/bol/content/documentation/BRAHMS-PPI.pdf



The Phenological Predictability Index (PPI) processing screen in a taxa extract.

Improved error checking on re-indexing

Re-indexing now checks for obvious errors in altitude, collection date, detby date and lat/long fields.



Short cut menus extended

New shortcut menus on data grid header right-clicks include find/replace, split data, an alltrim function for character/memo fields and a field duplication option for column duplication to a '_b' field.

e/o	database single-user] Licen	sed to WIN	D herbarium, Namibia							
nk	s Tools									
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lia	lias= CO)]									
	region	country	snanish nortuquese french othe	r r						
са	Caribbean	Martiniqu	Sort <u>A</u> scending	Г						
	West Tropical Africa	Mauritani	Sort character field numerically							
	Western Indian Ocean	Mauritius	Sort <u>D</u> escending							
		Mayotte	Sort UNI <u>O</u> UE (one of each type)							
a	North and Central Mexico	Mexico	Remove Sort (order of entry)							
		Micronesi	Filter by selection							
		Moldova,	Filter on selected text							
		Monaco	Filter excluding selection							
	Mongolia	Mongolia	Filter includes selection							
		Montserra	Filters off							
	Northern Africa	Morocco	Copy a field to a B field in the same file							
	South Tropical Africa	Mozambi	ALLTRIM current character/memo field							
		Myanmar	Find and replace text							
	Southern Africa	Namibia	Split data in a field to a separate field							
	Southwestern Pacific	Nauru								

Advanced sort and saved FastSort

New Advanced Sort module with improved control over sort commands. A favourite command can be marked for addition to the FastSort menu.

	Sort	comman	ds		
Та	ig Del	Fastsort	Sort command		•
			country+majorarea+minorarea		
*			Major+Minor+Locality		
*			genus + sp1 + sp2		
			substr(fa.faname,1,10) + substr(ge.gename,1,15) + substr(sp.sp1,1,20) + sp.rank1 + substr(sp.sp2,1,20)		
			substr(family,1,15) + substr(genus1,15) + substr(sp1,1,20)		
Þ		±	substr(detby,1,15) + str(detyy,4) + substr(family,1,15) + substr(genus,1,15) + substr(sp1,1,15)		
					E
					T
Add	d/edit :	sort comm	and Restrict to module linked con	mmands	
su su	bstr(d bstr(s	letby,1,15) p1,1,15)	+ str(detyy,4) + substr(family,1,15) + substr(genus,1,15) + Ascending Ascending S	lake sort p Suppress i	ermanent dentical
			Add Delete Sort	0	E <u>x</u> it

Advanced sort commands are easier to add, edit and select. You can add a common used advanced sort to your FastSort menu.

Tag for commands

New 'Tag for' commands module with improved control over commands. Commands are saved in a project file and thus can be reused.

Advanced BRAHMS A	dministration in Conifer database [C:\BRAHM	SDATA-CONIFERS\CO
File Edit View Goto	Tag FastSort Calculate Datalinks Tool	s
🗸 🗙 🕂 🔲 🗾 🖉	Tag toggle	Σ 📘 🛛 🋍
Species main list [c:\b	Tag <u>a</u> ll with * Clear all * tags)]
tag del mergeto <u>spr</u>	Clear all tags	yntot <u>famil</u>
* 0	Invert tags	Pina
0	Linkinkterned	Pina
0	<u>Highlight tagged</u>	Pina
0	Tag a selected % of records	Pina
0	Tag identical entries	Pina
0	Tag for / Untag for	Pina
0		Pino

The Tag for menu option

1	Tag	for/Untag for commands				ο δ	3
	Tag	Tag for / Untag for command		Command sequence	Category	Auto	*
		year > 1890		memo	SPECIES		
Þ	±	taxstat = "syn" AND year < 1850		memo	SPECIES		
Ц				memo	SPECIES		
Ц							
Ц							
Н							
Н							
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					Clear tags before	comman	d
		Show all commands	Add Delete	Tag for Outag fo	r <u>Execute</u>	Exit	
							_

The Tag for command screen

Zoom window enhancements

The Zoom window has a new option to open Zoom content as a Word document. Handy for spell checking.



Taxa extract collection analysis

Some additional calculations added to the taxa extract under Tools > Collection data analysis

_											
Advanced BRAH	HMS Adm	inistration in conifers [C:\BRAHMSDATA-CONIFERS\CONIFE	RSB6 single-user]							And States	
File Edit View Goto Tag FastSort Calculate Datalinks Tools											
🗸 🗙 🕂 🔳	9	🖞 collection sta 👻 🖭 🎒 🔍 🧲 💀 👌 🍸 Σ 📘 🗦	/ 📖 🛱 📃 🍯	1 🔮 🛙	3 🔒 🔲	🤛 🕐 🗌	fmt gen	usranalz cit	list Index PPI		
J 1940 - T. J. J. J.	T .) .										
I I avon extraction [C:\templites-branms-1(cdb/extracts\taxextract.db) (anas= 1001)]											
tag del family	species		altrange	minalt	maxalt coll	ection total ma	appable he	erbaria cotota	al degsqtot earlies	t collection late	est collection
Pinacea	ie Pinus ar	izonica Engelm. var. arizonica	198 - 3025	198	3025	57	47	20	28	1874	2004
Pinacea	e Pinus at	tenuata Lemmon	240 - 1980	240	1980	63	59	21	26	1852	2007
Pinacea	e Pinus ay	acahuite Ehrenb. ex Schltdl. var. ayacahuite	260 - 3260	260	3260	122	108	40	25	1837	1993
Pinacea	e Pinus ca	ribaea Morelet var. hondurensis (Sénécl.) W. H. Barrett 8	Golf: 8 - 915	8	915	108	102	35	28	1876	1994
Pinacea	e Pinus ce	Collection data summarized by species					XX 3	26	26	1881	1995
Pinacea	ie Pinus ce	Summaries assembled from collection data are stored for each species in your current taxon extract file. The analysis may be based on all collections per species or restricted to those in your current collection extract file. Where relevant, collection totals per geo-area can be added as in Thalland [134], Vietnam [10]. Results are stored in fields in your taxon extract file. The results may also optionally be saved to your species link file.					ybe 7	14	2	1890	1987
Pinacea	e Pinus ce						totals 5	19	2	1900	1986
Pinacea	e Pinus co						p	21	17	1832	2008
Pinacea	e Pinus cu						3	14	6	1856	1985
Pinacea	e Pinus cu						þ	26	2	1900	1991
Pinacea	e Pinus de							31	32	1800	1994
Pinacea	e Pinus do	Restrict analysis to collections in current extract file					4	24	19	1897	1994
Pinacea	e Pinus du	du Combine data for inclusive names (taxstat = inc)					4	31	20	1897	1991
Pinacea	e Pinus en	Collection totals Mappable totals (with lat/long and not cultivated) Number of herbaria for specimens Collection date range					6	23	28	1846	1991
Pinacea	e Pinus ha						5	33	28	1800	1994
Pinacea	e Pinus he						4	30	19	1900	1994
Pinacea	e Pinus jal						4	15	3	1900	1994
Pinacea	e Pinus jet	✓ Altitude min/max and range					3	25	31	1850	2009
Pinacea	e Pinus la	Country distribution to CODISTRIB O Full country name ISO code					3	30	34	1825	2010
Pinacea	e Pinus la	Major area distribution to MAJDISTRIB					3	22	18	1894	1994

New calculations per taxa include total number of mappable records and the total number of different herbaria for specimens.