

iDigBio Collection Management System (CMS) Information Gathering

Thank you for taking the time to consider and respond to the following questions. iDigBio will make your responses available to the natural history collections community, both as an online resource available to anyone, and as a reference specifically for participants in our “Introduction to Biodiversity Specimen Digitization” course. This resource will serve as an update to a similar survey we did in 2012: <https://www.idigbio.org/content/biological-collections-databases>.

Please return your completed survey to Erica Krimmel (ekrimmel@fsu.edu).

BASIC QUESTIONS

1. **Name and email of person responding to this survey:** Denis Filer
2. **Name of Collection Management System (CMS):** BRAHMS
3. **Website:** [BRAHMS: Software for Natural History Management \(ox.ac.uk\)](#)
4. **Company or group responsible for maintaining CMS:** Oxford University Innovation (OUI) <https://innovation.ox.ac.uk>
5. **Long-term funding structure for maintaining CMS (e.g., grants, membership, private):** supported commercially through licensing by OUI and University of Oxford.
6. **Brief summary highlighting the market niche for this CMS:** BRAHMS is database software for managing natural history collections, botanic gardens, seed banks, field surveys, taxonomic research and biogeographic study.

USABILITY QUESTIONS

7. **Restrictions on types of collection objects and/or disciplines (e.g., cannot handle anthropology):** We focus on natural history collections, both living and preserved.
8. **Capacity for handling complex information related to taxonomic names (e.g. taxon concept mapping, recording annotations):** BRAHMS manages taxonomic data from Kingdom to all infra-specific ranks, both for Botany (including horticulture), Zoology, Mycology, *etc.* The system manages all types of nomenclature and can be used to publish monographs. Annotations are recorded at the specimen level.
9. **Capacity for handling complex information related to geographic places and for facilitating tasks such as georeferencing:** We provide comprehensive georeferencing tools including dynamic links to the ArcGIS API, and other GIS systems such as ArcMAP, QGIS, DIVA, GeoCAT and Google Earth. Places names are stored from Continent level down through country specific admin areas to smallest place names in a gazetteer structure. Location notes and precise map coordinates are held at the collection level.

10. **Capacity for handling complex information related to people (e.g. collectors, identifiers, loan agents):** Formats for collector, determinator, reference author, etc. names are managed with tools for formatting. Taxon authors are managed with addition rules with set-up options for how to present names.
11. **Capacity for handling complex information related to extended data facets such as traits of (e.g. morphometrics) and interactions between (e.g. parent-child) collection objects:** If a table of field is missing for a highly specialized data type, the user or project can add custom fields to all tables to store these data.
12. **Capacity for facilitating linkages between collection objects and extended data stored elsewhere, such as a genetic data repository:** BRAHMS includes dynamic links to online data sets. Further links can be added using URL data fields.
13. **Capacity for facilitating collection management transactions, such as loans, accessions, and transfers:** BRAHMS includes comprehensive transactions management module for preserved and living collections.
14. **Capacity for facilitating physical collections care including tracking storage locations and condition reporting:** There are no restrictions on storing such data. Specific fields are provided to comment on specimen condition.
15. **Capacity to manage media (e.g., 2D images, 3D images, audio, video), and/or to work in sync with a dedicated Digital Asset Management System:** BRAHMS includes modules for image and document management. These may refer to physical files or URL links to items in media libraries/DAMs. Linked items may be sensitive material such as Material Transfer Agreements stored in e.g. SharePoint. Drag and Drop tools are provided to link/unlink items and search features are provided to list all links by data item (e.g. a place, a species, a genus or a specific collection) within the system.
16. **Capacity for mobilizing collection object data (e.g., publish directly to an IPT, or export custom text files):** There are no restrictions to use IPT against any BRAHMS data store. BRAHMS also has functions to export to DwC.
17. **Capacity for mobilizing collection object media (e.g., serve publicly online via a stable URI):** Data from BRAHMS can be exported in a wide range of ways to feed to websites and can automatically be published to BRAHMS Online websites which can be created and designed from with the client.
18. **Ability for users to customize the CMS:** BRAHMS provides a numerous setup features for taxa and collection management as well as the UI experience; All aspects of data lookup can be configured; and the system allows users to add non-standard fields to any table. These custom fields are fully integrated within the database.

IMPLEMENTATION QUESTIONS

19. **Computer infrastructure (hardware, software) required:** For individual researchers running their own show, the software and the database will be installed on a personal computer running Windows or on a Mac with Windows emulation. Aside from having sufficient disk space and as much RAM as possible (16GB or ideally more), there are no special requirements other than that the .NET version is sufficiently up to date. For larger systems, performance is broadly related to how well resourced your infrastructure is. An under-resourced server and/or client workstation leads to poorer performance. For institutions with large collections, perhaps many millions, and many simultaneous users, the database will be stored on a server and it is important that this is well resourced. The server will need sufficient disk space, adequate RAM and a good processor. Data can be stored in MSSQL Server, PostgreSQL or SQLite.
20. **In-house IT expertise required:** Minimal. The BRAHMS client provides tools to create and set up databases and database connections.
21. **Estimated costs for initial set up:** There are no set up fees except if a project wishes to pay for data migration.
22. **Estimated costs for ongoing expenses such as membership or upgrades:**
BRAHMS is licensed by Oxford University Innovation. Costs are related to the number of simultaneous users. A licensed user has access to all updates within the license period. Costs are provided on the OUI website
<https://process.innovation.ox.ac.uk/software/p/14165/brahms/1>
23. **Migration or other new user services offered:** We offer free trial migrations and paid for full migration services – see
<https://herbaria.plants.ox.ac.uk/bol/brahms/support/datamigration>
24. **Example institutions/collections using your CMS:** BRAHMS is used in about 60 countries. Clients include Kew Gardens, Royal Horticultural Society (RHS), Morton Arboretum, National Herbarium of the Netherlands (= largest project with > 6 million specimens). Further examples:
<https://herbaria.plants.ox.ac.uk/bol/brahms/software/aboutbrahms>
25. **Representative for potential users to contact:** For licensing enquiries, contact brahms@innovation.ox.ac.uk For technical enquiries, contact brahms@plants.ox.ac.uk
26. **Best resources to point potential users to (e.g., presentations, brochures, recorded webinars):**
Manual: https://herbaria.plants.ox.ac.uk/bol/content/software/v8/BRAHMS_Manual.pdf
Video links: <https://herbaria.plants.ox.ac.uk/bol/brahms/software/v8videos>