

Zoology www guide

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The Collection Management System SeSam of the Senckenberg Research Institute, Frankfurt a.M., Germany

Professional management of scientific museum collections is the most important prerequisite for the organisation of successful collection-based scientific projects. Collection management includes first of all indexing and capturing data associated to preserved objects at a high quality level. In consequence, standardisation of data capture is very important to facilitate the acquisition and to minimise errors and incomplete or false information. For two decades several natural history museums have started to develop PC-, client/server- or web-based databases with the aim of standardisation of data acquisition.

The object-oriented collection management system SeSam (<http://sesam.senckenberg.de>), developed by the Senckenberg Research Institute together with com2 in Bad Homburg (<http://www.com-com.com>) (Menner and Allspach, 2005), is a powerful tool for managing collections and making this valuable information visible and accessible through the internet. At present, access is possible to 150,000 objects in 25 collections.

SeSam provides the following features:

- It can be used to manage all kinds of natural history collections. Objects can come from aquatic, terrestrial, recent or fossil realms. Zoological, botanical, mineral, sedimentological and meteorite collection material can thus be managed with this system.
- All individual collections are stored in a single, central database and use a joint data-pool.
- Creation of new collections is quickly and easily achieved. Adding collection-specific fields and mod-

ulating the general templates is possible without advanced programming knowledge.

- Access covering all collections is possible, which facilitates general searches.
- A sophisticated “right of access” management system allows users to be assigned to one of the following categories for each collection: Curator and Technical Assistant (manager), typist (data entry and view) or user (view only). All anonymous visitors through the internet are assigned “guest” status (only published information visible).
- SeSam is designed as a web-application. It was written in ASP, VBS and Javascript. Desktop computers which have access to SeSam need only a normal web-browser. Data are managed in a SQL-database (Microsoft SQL-Server).

Maintenance

All collections of the central database use a common data-pool, in which information on biosystematics, geography, literature and persons is deposited. In each single collection the appropriate collection manager can add specific fields. This architecture has several advantages:

- Data capture is homogeneous.
- Fast capture of data is possible, because data already included can be accessed and used. At the same time typing errors are minimised through this method.
- The common data-pool grows continuously because all users contribute to it.

Systematic and geographic arrays were designed as efficient tools to manage object names. The taxonomic thesaurus (Fig. 1) is initially provided by specialists and

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The screenshot shows the 'Systematics-Assistant' web application. The top navigation bar includes tabs for 'Taxonomy & specimen data', 'Locality Data', 'Stratigraphy & suppl. fields', 'Publications', 'General Data', 'History', 'Loan', and 'Summary'. The main content area is divided into several sections:

- Collection:** Crustacea - SMF. Catalogue number: 22330. Collection number / Catalogue number 3: SMF. Label size: small.
- Species name:** [new/edit](#) Information. *Cambarellus montezumae lermensis* VILLALOBOS 1953.
- Taxonomic position:** Animalia: Arthropoda: Mandibulata: Crustacea: Malacostraca: Decapoda: Cambaridae.
- Identifier:** J. F. Fitzpatrick. **Date:** 1.1.1993. **Remarks on taxonomy:** (empty field).
- Specimen data:** Qty. (No): 6, Qty. (free text): 3. **Save object and continue:** (button).
- Search section:**
 - Start point:** Animalia: Arthropoda: Mandibulata: Crustacea
 - Search for:** patzcuarensis
 - Search category:** General, Genus, Species
 - Start search:** (button)
 - Search result:**

Search result	Record subset	Edit record	Transfer
Malacostraca: Decapoda: Cambaridae: Cambarellus: patzcuarensis [6]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 1. Systematics-Assistant. After choosing the systematic item “patzcuarensis” in the “Systematics-Assistant”, the remaining hierarchy as well as author and publication year and necessary brackets are automatically inserted as a new name. If the name does not already exist in the database, a new name with full hierarchy has to be created through the “assistant”, which will then enter the common name pool.

self-updating, when new taxon names are inserted. Each name is thus only saved once. The database also records the historical context of objects, which means that individual identifications of the same object are recorded with the name of the identifier and the date of identification. This can then be seen as a historical tree of names assigned to a certain object by different scientists and authors.

The geographical thesaurus includes continental data as well as oceans and seas. The specific locality is attached to one or more of these hierarchical items. A detailed marine geographic code for the area is available and can also be added to the locality, allowing more targeted search strategies. It is possible to have more than one view of the individual location. That means a place like “Naples” can be described at the same time from the marine side, i.e. “Oceans: Atlantic Ocean: Mediterranean Sea: Tirreno Sea” and from the continental side, i.e. “Europe: Italy: Campania”. Such a double classification facilitates the search for users with different backgrounds.

Different pieces of an object can be recorded in SeSam in a single table. Each single part can be described as to quantity, development stage, sex, body part, preservation, preparation-method and preparation-description.

For each collection, these values are definable and provided by dropdown lists. It is also possible to create specific fields for each collection.

Searching possibilities

The SeSam Collection Management System enables the retrieval of collection objects and their related data stored in the Senckenberg Research Institute and some other institutions, which collaborate with the system. For detailed searches, predefined templates are used to search one or more collections by one or more keywords.

SeSam is under constant development and existing functions are being optimised. Under certain conditions, SeSam can be transmitted to other interested natural history institutions. For further information, please contact the collection manager of the Research Institute Senckenberg (email: info_sesam@senckenberg.de).

Reference

- Menner, L., Allspach, A., 2005. SeSam – das webbasierte Senckenbergische Sammlungsmanagementsystem. Beitr. Ent. 55 (2), 471–475.