

# **Annex 9**

## **The Virtual collections Module**

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## 1. INTRODUCTION

The setup of DiSSCO defines new requirements for multimedia displays which need to be covered by the Natural Heritage project.

- DaRWIn can host multimedia files but is not designed for this.
- RBINS uses several Plone 4.3 sites since a decade (mars, collections, virtualcollections). The system is fast and versatile and can link to the DaRWIn illustrated specimens. Nevertheless, none of the Plone image viewers are compatible with IIIF which is now required by the setup of DiSSCO.
- A website presenting media of the collections of the Royal Museum for Central Africa (RMCA) was developed some years ago (<http://digit03.africamuseum.be/>) but the process to upload pictures to the website was long and not straightforward.

As RMCA got a new general website, it was decided to create a new website for media, easier to maintain and technically up to date, to be readable on various platforms (pc, tablet, smartphone).

Objectives of this new site called "Virtual Collections" (V.C.) are to present in a first step biological specimens and some anthropological objects. In the future, V.C. should be used to present other collections of the museum and will also be used at Royal Belgian Institute of Natural Sciences (RBINS) as media server and a new tool to present virtual exhibitions.

V.C. will also be used as a media server for the main search portal of the museum' collections, Natural Heritage.

## 2. METHODOLOGY

In order to save development time, a search has been done to find tools already existing. During the museum' renovation, a tool called "CollectiveAccess" (C.A.) was used to organize the content of the museum. Tests were done to see whether it could be used to create a new public website and it has been chosen to develop V.C.

Based on CollectiveAccess, it consists of a backend allowing management of the MySQL tables, security, lists, various objects and of a frontend which is a public interface.

Several hundreds of pictures have been imported as case study, in Biology and Anthropology.

### 3. INFRASTRUCTURE

The new multimedia server joins already existing websites.

NaturalHeritage portal will be the main gate to explore data of Royal Museum for Central Africa, Royal Belgian Institute of Natural Sciences and Meise Botanical Garden.

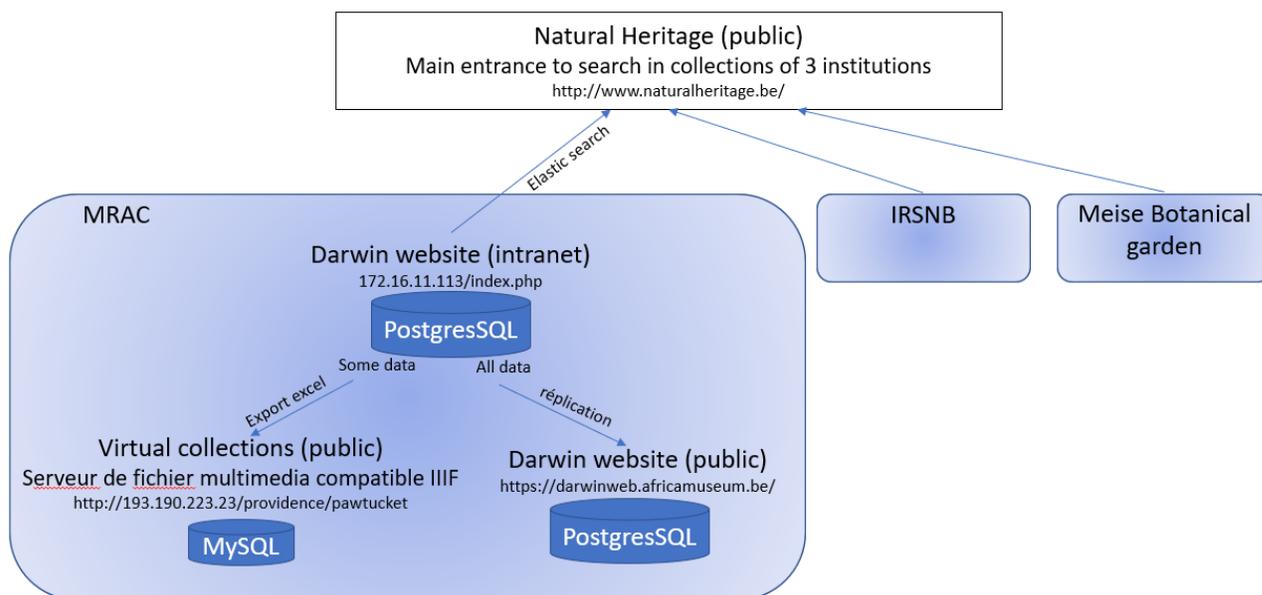


Figure 1. Infrastructure of the different websites under Natural Heritage

## 4. RESULTS AND RECOMMENDATIONS

Collective Access is a free open-source software for managing and publishing museum and archival collections (<https://www.collectiveaccess.org/>).

It consists of a MySQL database with 226 tables, of a backend web interface called “Providence” and a frontend called “Pawtucket”. The majority of the tables contains basic, system fields and metadata are mainly in tables “attributes”

C.A. has integrated viewers for pictures of various formats, videos, sounds, 3D objects. Other types of files may be imported but can not directly be viewed, as text files, excel, ...

Biological data come from the RMCA database DaRWIn where an UUID is given to every record. This allows a link between DaRWIn and Virtual Collections.

### 4.1 Providence

is used as management interface for various points:

- Management of the MySQL tables which are the basis of C.A.: creation, deletion, modification of the fields, of their types, and characteristics.
- Indices management
- Interface customization
- Creation of lists, simple or hierarchical.
- Management of the access rights by groups, roles.

- Creation of multiple objects allowing to organize data: objects, places, entities, lots, collections, exhibitions, storage locations,...
- Management of the multiple relations occurring between these objects.
- Mass editing with the help of sets allows to finely modify data in every field.
- Management of the various languages.
- Media and data import

The Providence interface of C.A. has not been deeply modified, regarding the original package. Only data and some fields have been added. There are 5 sections in Providence : New, Find, Manage, Import and History.

#### 4.1.1 New

In this section, we can create a lot of different elements : lots, objects, entities, places, collections,...

More info in section 2.3.2

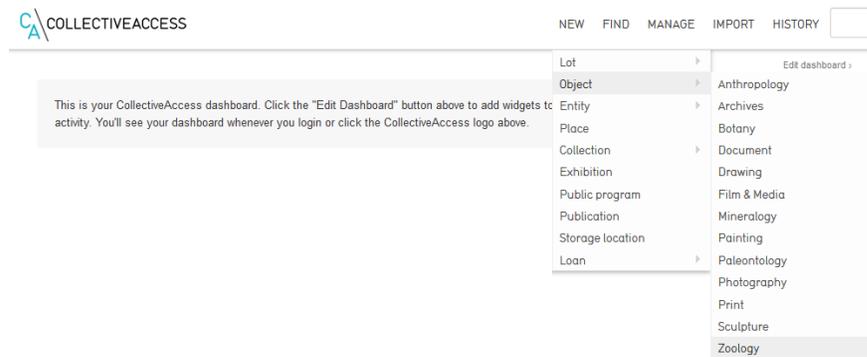


Figure 2 List of the New entries

### 4.1.2 Find

This section contains the same entries as New, to retrieve and edit elements. The main elements used for V.C. are objects, entities, collections, storage locations.

Each entry can be explored with a basic search, an advanced search or a browse

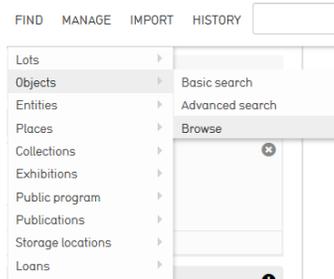


Figure 3 List of the Find entries

The Browse view contains some predefined facets to retrieve easily data.

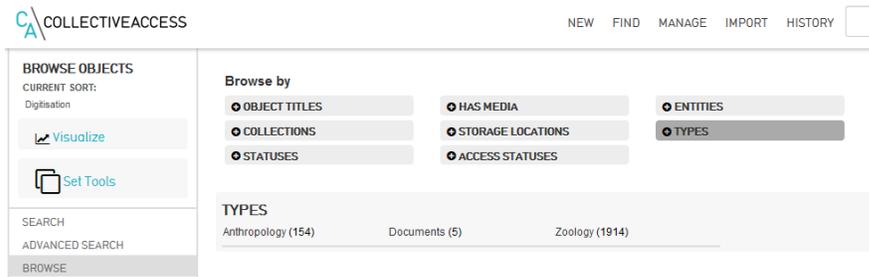


Figure 4 Submenu in Find objects by browsing

You browsed for: TYPE: ZOOLOGY X START OVER

Jump to page:  Next Previous Your browse found 1914 objects Page 1/40

Edit	Object identifier	Object titles	Digitisation	Description	Dates	Type	Date of collect	Related en
	RMCA_Mam_25421	Loxodonta africana - RMCA_Mam_25421	3D	Grand éléphant de la savane de la Bushimae, actuellement monté dans les salles publiques du musée. Hauteur au garrot : 3,40 m Hauteur de foreille : 1,80 m		Zoology	August 1956	<a href="#">M_Poll ()</a>
1								
	RMCA_MOLL_9976	Subulina paucispira - RMCA_MOLL_9976	3D			Zoology	1935	<a href="#">Aurore Math</a>
2								
	RMCA_MOLL_97774	Cerastus drymacoides minor - RMCA_MOLL_97774	3D			Zoology		<a href="#">Aurore Math</a>
3								
	RMCA_MOLL_97773	Limicolaria tapetis - RMCA_MOLL_97773	3D			Zoology		<a href="#">Aurore Math</a>
4								
	RMCA_MOLL_97772	Limicolaria candidissima loevenotata - RMCA_MOLL_97772	3D			Zoology	March 3 1913	<a href="#">Aurore Math</a>
5								
	RMCA_MOLL_97668	Ledoukia koenigi - RMCA_MOLL_97668	3D			Zoology	March 14 1913	<a href="#">Aurore Math</a>
6								
	RMCA_MOLL_97591	Trochozonites théeiei - RMCA_MOLL_97591	3D			Zoology		<a href="#">Aurore Math</a>
7								
	RMCA_MOLL_97590	Trochozonites pilosus - RMCA_MOLL_97590	3D			Zoology		<a href="#">Aurore Math</a>
8								
	RMCA_MOLL_97589	Trochozonites lindstromi - RMCA_MOLL_97589	3D			Zoology		<a href="#">Aurore Math</a>
9								
	RMCA_MOLL_97580	Cerastua fraterii - RMCA_MOLL_97580	3D			Zoology		<a href="#">Aurore Math</a>
10								
	RMCA_MOLL_97572	Dorcasia ponsobyi - RMCA_MOLL_97572	3D			Zoology		<a href="#">Aurore Math</a>

Figure 5 Result of a browse objects

A click on the edit icon of a line opens the detail form of the object. Form is divided in sections listed on the left.

Details of each section on the right give the possibility to enter metadata, translations, user access, codes, media, locations,...

Objects may be of different types and each type can get its specific fields. For Virtual Collections, 2 types have up to now been created, for zoology and anthropology.

The screenshot displays the 'Edit' form for a zoology object in the CollectiveAccess system. The interface is divided into a left sidebar and a main content area. The sidebar, titled 'RESULTS (5/85)', shows the object's name 'Spinachtigen > Ctenus anahitaeformis - RMCA\_ARA\_66567' and a thumbnail image of a specimen. Below the image are icons for viewing, refreshing, and deleting, along with metadata: 'In sets 2D, ara, ara2, zoo, zoo3, zzo', 'Created 2 months, 2 days ago by CollectiveAccess Administrator', and 'Last changed 1 day, 21 hours ago by CollectiveAccess Administrator'. The sidebar also lists various sections: BASIC INFO (selected), ADMINISTRATIVE INFO, MEDIA, STORAGE, SETS, RELATIONSHIPS, KEYWORDS, BIOLOGY, SUMMARY, ACCESS, and LOG. The main content area features a 'Save' button and a 'Delete' button. The form sections include: 'Title' (Ctenus anahitaeformis - RMCA\_ARA\_66567), 'Locale' (English), 'Object identifier' (RMCA\_ARA\_66567), 'Source' (External Collection), 'Status' (new), 'Access' (accessible to public), 'Alternate titles' (empty), and 'Description' (empty).

Figure 6 Details of an object – Basic info

The media section allows users to enter various media :

- pictures,
- videos,
- sounds.

Picture metadata are directly read from the file and access may be given for each media, as well as order of presentation and primary picture.

The screenshot displays the 'Media representations' section of a virtual collection object. It features a list of three image files, each with a thumbnail and associated metadata. The metadata includes the file name, format (JPEG), dimensions, type (front), access status (accessible to public), and status (new). Action buttons for 'Make primary', 'Edit full record', 'Download', and 'Set center' are provided for each item. A sidebar on the left shows navigation options like 'RESULTS (5/85)', 'Editing Zoology', and various metadata sections.

Figure 7 Details of an object – Media

In Relationships, links are done with other kinds of objects : entities, locations, storage,...

The screenshot displays the 'Relationships' section of a virtual collection object. It features several sections for linking related objects: 'Related entities' (with 'Arnaud Henard' as a contributor), 'Related places' (with a search bar), 'Related occurrences', 'Related collections' (with 'Arachnids (Arachnids)' as a collection), and 'Georeference'. A sidebar on the left shows navigation options like 'RESULTS (5/85)', 'Editing Zoology', and various metadata sections.

Figure 8 Details of an object – Relationships

A section called Biology has been added to gather all metadata specific to biology and especially taxonomy.

The screenshot shows a web interface for editing a zoology object. On the left, there is a sidebar with a navigation menu including: RESULTS (5/85), Editing Zoology, In sets (2D, ara, ara2, zoo, zoo3, zoo), Created (2 months, 2 days ago by CollectiveAccess Administrator), Last changed (1 day, 21 hours ago by CollectiveAccess Administrator), Export this zoology, BASIC INFO, ADMINISTRATIVE INFO, MEDIA, STORAGE, SETS, RELATIONSHIPS, KEYWORDS, BIOLOGY, SUMMARY, ACCESS, and LOG. The main area displays taxonomic information for 'Ctenus anahitaeformis' (RMCA\_ARA\_66567) with a small image of the specimen. The taxonomic hierarchy is as follows: Sex (Undefined), Life stage (undetermined lifestage, Locale: English), Phylum (Arthropoda, Locale: English), Class (Arachnida, Locale: English), Order (Araneae, Locale: English), Family (Ctenidae, Locale: English), Genus (Ctenus, Locale: English), and Species (Ctenus anahitaeformis). At the top right of the main area are 'Save', 'Cancel', and 'Delete' buttons.

Figure 9 Details of an object – Zoology

### 4.1.3 Management

The management menu contains a lot of important forms to manage directly from Providence interface various system operations.

It also allows users to manage user lists and preferences.

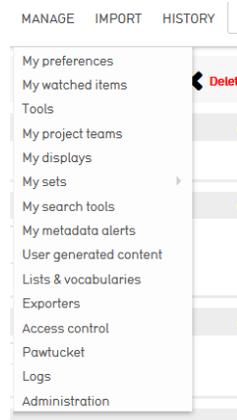


Figure 10 List of Manage entries

The My sets entry allows me to manage lists of objects created from the results of a search. These sets may be used to modify all the records in the set, in 1 operation. All the fields defining the record may be used to update the records in a mass action. Records may also be deleted and the type of document may be changed.

**SET STATISTICS:**  
 38 available to you  
 38 created by users  
 2 created by the public

**SHOW SETS:**  
 Available to you Show

Search:  Create new Public presentatic containing collections

Jump to page:  38 sets Previous Page 2/2

Name	Content type	Type	# Items	Owner	Access	Status
<input type="checkbox"/> 2D (2D)	objects	Public presentation	1585	CollectiveAccess Administrator (imherp@hotmail.com)	not accessible to public	new
<input type="checkbox"/> 3D (3D)	objects	Public presentation	481	CollectiveAccess Administrator (imherp@hotmail.com)	not accessible to public	new
<input type="checkbox"/> aa (aa)	objects	User set	0	CollectiveAccess Administrator (imherp@hotmail.com)	not accessible to public	new
<input type="checkbox"/> afaire (afaire)	objects	Public presentation	4	CollectiveAccess Administrator (imherp@hotmail.com)	not accessible to public	new
<input type="checkbox"/> afaire2 (afaire2)	objects	Public presentation	2	CollectiveAccess Administrator (imherp@hotmail.com)	not accessible to public	new
<input type="checkbox"/> afaire3 (afaire3)	objects	Public presentation	8	CollectiveAccess Administrator (imherp@hotmail.com)	not accessible to public	new

Figure 11 Manage My sets : list of entries

For each field, values can be modified, removed, added.

BACK TO SETS

Editing : Batch editing  
 1585 objects in set: 2D  
 Set contains Zoology, Anthropology  
 More options >

BASIC INFO  
 ADMINISTRATIVE INFO  
 MEDIA  
 STORAGE  
 SETS  
 RELATIONSHIPS  
 KEYWORDS  
 BIOLOGY

Execute batch edit  Cancel

Title	In batch	do not use
Object identifier	In batch	do not use add to each item replace value remove all values
Source	In batch	
Status	In batch	do not use
Access	In batch	do not use
Alternate titles	In batch	do not use
Description	In batch	do not use
Physical description	In batch	do not use

Figure 12 Set management : list of fields that can be used to modify all records in the set

In Lists & vocabularies, simple or hierarchical lists may be defined. For example, different levels of collections can be created. These levels are then used in the creation of a collection, in the relationships between collection levels.

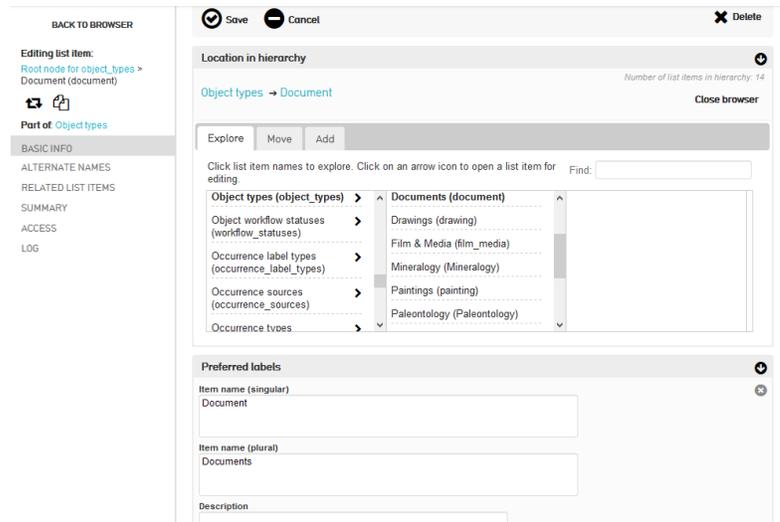


Figure 13 Lists management : hierarchy and parameters

In the Administration entry of Manage, basic elements of the databases and of the interface may be modified..

The metadata elements are all the fields used in the different elements of Providence (Objects, collections,...) Each field can be edited to change the type of field, size, access, translations, where it can be used, in which type of element, if it must be unique or not,...

COLLECTIVEACCESS NEW FIND MANAGE IMPORT HISTORY

METADATA ELEMENTS: 89 elements are defined

USER INTERFACES

METADATA ELEMENTS

RELATIONSHIP TYPES

LOCALES

CONFIGURATION CHECK

MAINTENANCE

Filter:

Label	Element code	Type	Applies to	Usage in UI	
Introduction	set_description	Text	Sets [*]	Sets (1)	
Item description	set_item_description	Text	Set Items [*]	Set Items (1)	
Presentation type	set_presentation_type	List	Sets [Public presentation]		
Is primary item for set?	set_item_is_primary	List	Set Items [Public presentation]	Set Items (1)	
Chronology element code	set_chron_date_element_code	Text	Sets [Public presentation]		
Authorization date	loan_authorization_date	DateRange	Loans [*]	Loans (1)	
Loan in date	loan_in_date	DateRange	Loans [loan in]	Loans (1)	
Loan out date	loan_out_date	DateRange	Loans [loan out]	Loans (1)	
Loan return date	loan_return_date	DateRange	Loans [*]	Loans (1)	
Loan renewal application date	loan_renewal_date	DateRange	Loans [*]	Loans (1)	
Loan conditions	loan_conditions	Text	Loans [*]	Loans (1)	
Loan note	loan_note	Text	Loans [*]	Loans (1)	
Loan purpose	loan_purpose	Text	Loans [*]	Loans (1)	
Movement method	movement_method	Text	Movements [*]	Movements (1)	

Figure 14 List of metadata elements

COLLECTIVEACCESS NEW FIN

BACK TO LIST (25/89)

Viewing metadata element: Phylum

Element code: taxon\_phylum  
Referenced by user interfaces: Standard object editor (objects)

USER INTERFACES

METADATA ELEMENTS

RELATIONSHIP TYPES

LOCALES

CONFIGURATION CHECK

MAINTENANCE -

Save Cancel Delete

**Labels**

Name: Phylum  
Description: Phylum  
Locale: English

Name: Émbranchement  
Description: Embranchement  
Locale: Français

Name: Phylum  
Description: Phylum  
Locale: Nederlands

Element code: taxon\_phylum  
⚠ Changing this value may break parts of the system configuration  
Documentation URL:

Datatype: Text  
⚠ Changing this value may delete existing data in this element  
Use list (for list elements only): Address type (address\_type)

Datatype-specific options

Minimum number of characters: 0

Maximum number of characters: 535

Regular expression to validate input with:

Width of data entry field in user interface: 90

Height of data entry field in user interface: 1

Use rich text editor:

Does not use locale setting:

Can be used for sorting:

Suggest existing values?

Figure 15 Edit form of metadata

In Administration – User interfaces, fields can be added and organized in subsections in the different forms of Providence. For example in Fig.16, subsections Basic info, Administrative info, Media in form Standard object editor.

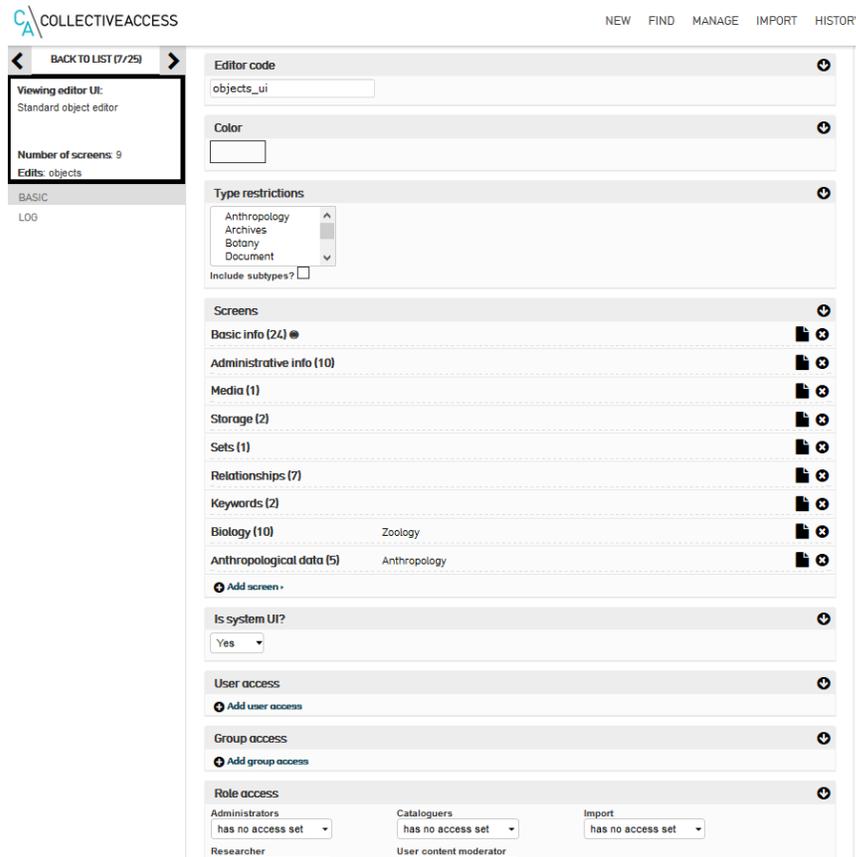


Figure 16 User interface management

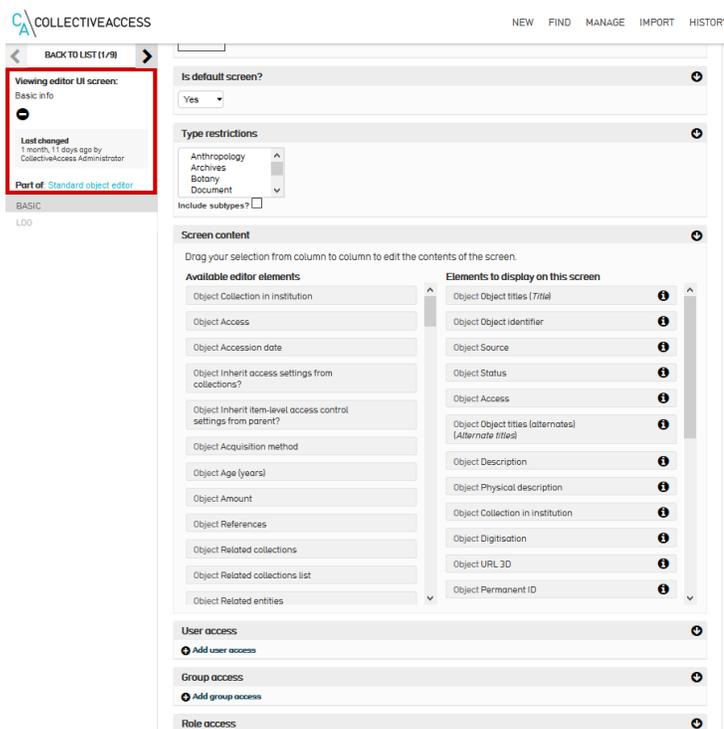


Figure 17 Elements in user interface of object editor



Title	Identifier	Description	Release	Lab	media info	View	dupla	dupl	order	class	order	family	genus		
1 Achalina evagrasa (peperi) - Achalina_evagrasa	RMCA_79478	Achalina_evagrasa	640351.jpg		640351.jpg			8	3	Mollusca		Gastropod	Solimanophora	Achalina	
2 Achalina manali - Achalina_manali	RMCA_79478	Achalina_manali	640381.jpg		640381.jpg			9	3	Mollusca		Gastropod	Solimanophora	Achalina	
3 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_D_25_PMax_Scaled.jpg			RMCA_79478_Conus_signatus_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Mollusca	Gastropod	Neogastropoda	Conidae	
4 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_V_25_PMax_Scaled.jpg			RMCA_79478_Conus_signatus_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Mollusca	Gastropod	Neogastropoda	Conidae	
5 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
6 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
7 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
8 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
9 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
10 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
11 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
12 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
13 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
14 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
15 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
16 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
17 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
18 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
19 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
20 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
21 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
22 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
23 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
24 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
25 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
26 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
27 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
28 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
29 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
30 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
31 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
32 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
33 Conus signatus - 79478	RMCA_79478	RMCA_79478_Conus_signatus_Lb.jpg			RMCA_79478_Conus_signatus_Lb.jpg		Label	Label	10	10	Mollusca	Gastropod	Neogastropoda	Conidae	
34 Pholiphaedusa penzance - RMCA_DP_000001	RMCA_DP_000001	Pholiphaedusa_penzance_RMCA_DP_000001_L_25_PMax_Scaled.jpg			Pholiphaedusa_penzance_RMCA_DP_000001_L_25_PMax_Scaled.jpg		Lateral	Lateral	1	1	Anthropoda	Insecta	Diptera	Tachinidae	Pholiphaedusa
35 Pholiphaedusa penzance - RMCA_DP_000001	RMCA_DP_000001	Pholiphaedusa_penzance_RMCA_DP_000001_D_25_PMax_Scaled.jpg			Pholiphaedusa_penzance_RMCA_DP_000001_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Anthropoda	Insecta	Diptera	Tachinidae	Pholiphaedusa
36 Pholiphaedusa penzance - RMCA_DP_000001	RMCA_DP_000001	Pholiphaedusa_penzance_RMCA_DP_000001_V_25_PMax_Scaled.jpg			Pholiphaedusa_penzance_RMCA_DP_000001_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Anthropoda	Insecta	Diptera	Tachinidae	Pholiphaedusa
37 Pholiphaedusa penzance - RMCA_DP_000001	RMCA_DP_000001	Pholiphaedusa_penzance_RMCA_DP_000001_Lb.jpg			Pholiphaedusa_penzance_RMCA_DP_000001_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Pholiphaedusa
38 Calamita mena - RMCA_DP_000002	RMCA_DP_000002	Calamita_mena_RMCA_DP_000002_L_25_PMax_Scaled.jpg			Calamita_mena_RMCA_DP_000002_L_25_PMax_Scaled.jpg		Lateral	Lateral	1	1	Anthropoda	Insecta	Diptera	Tachinidae	Calamita
39 Calamita mena - RMCA_DP_000002	RMCA_DP_000002	Calamita_mena_RMCA_DP_000002_D_25_PMax_Scaled.jpg			Calamita_mena_RMCA_DP_000002_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Anthropoda	Insecta	Diptera	Tachinidae	Calamita
40 Calamita mena - RMCA_DP_000002	RMCA_DP_000002	Calamita_mena_RMCA_DP_000002_V_25_PMax_Scaled.jpg			Calamita_mena_RMCA_DP_000002_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Anthropoda	Insecta	Diptera	Tachinidae	Calamita
41 Calamita mena - RMCA_DP_000002	RMCA_DP_000002	Calamita_mena_RMCA_DP_000002_Lb.jpg			Calamita_mena_RMCA_DP_000002_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Calamita
42 Hemia dibolus - RMCA_DP_000003	RMCA_DP_000003	Hemia_dibolus_RMCA_DP_000003_L_25_PMax_Scaled.jpg			Hemia_dibolus_RMCA_DP_000003_L_25_PMax_Scaled.jpg		Lateral	Lateral	1	1	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
43 Hemia dibolus - RMCA_DP_000003	RMCA_DP_000003	Hemia_dibolus_RMCA_DP_000003_D_25_PMax_Scaled.jpg			Hemia_dibolus_RMCA_DP_000003_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
44 Hemia dibolus - RMCA_DP_000003	RMCA_DP_000003	Hemia_dibolus_RMCA_DP_000003_V_25_PMax_Scaled.jpg			Hemia_dibolus_RMCA_DP_000003_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
45 Hemia dibolus - RMCA_DP_000003	RMCA_DP_000003	Hemia_dibolus_RMCA_DP_000003_Lb.jpg			Hemia_dibolus_RMCA_DP_000003_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
46 Hemia dibolus - RMCA_DP_000003	RMCA_DP_000003	Hemia_dibolus_RMCA_DP_000003_Lb.jpg			Hemia_dibolus_RMCA_DP_000003_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
47 Hemia dibolus - RMCA_DP_000004	RMCA_DP_000004	Hemia_dibolus_RMCA_DP_000004_L_25_PMax_Scaled.jpg			Hemia_dibolus_RMCA_DP_000004_L_25_PMax_Scaled.jpg		Lateral	Lateral	1	1	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
48 Hemia dibolus - RMCA_DP_000004	RMCA_DP_000004	Hemia_dibolus_RMCA_DP_000004_D_25_PMax_Scaled.jpg			Hemia_dibolus_RMCA_DP_000004_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
49 Hemia dibolus - RMCA_DP_000004	RMCA_DP_000004	Hemia_dibolus_RMCA_DP_000004_V_25_PMax_Scaled.jpg			Hemia_dibolus_RMCA_DP_000004_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
50 Hemia dibolus - RMCA_DP_000004	RMCA_DP_000004	Hemia_dibolus_RMCA_DP_000004_Lb.jpg			Hemia_dibolus_RMCA_DP_000004_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
51 Hemia nida - RMCA_DP_000005	RMCA_DP_000005	Hemia_nida_RMCA_DP_000005_L_25_PMax_Scaled.jpg			Hemia_nida_RMCA_DP_000005_L_25_PMax_Scaled.jpg		Lateral	Lateral	1	1	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
52 Hemia nida - RMCA_DP_000005	RMCA_DP_000005	Hemia_nida_RMCA_DP_000005_D_25_PMax_Scaled.jpg			Hemia_nida_RMCA_DP_000005_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
53 Hemia nida - RMCA_DP_000005	RMCA_DP_000005	Hemia_nida_RMCA_DP_000005_V_25_PMax_Scaled.jpg			Hemia_nida_RMCA_DP_000005_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
54 Hemia nida - RMCA_DP_000005	RMCA_DP_000005	Hemia_nida_RMCA_DP_000005_Lb.jpg			Hemia_nida_RMCA_DP_000005_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
55 Hemia nida - RMCA_DP_000005	RMCA_DP_000005	Hemia_nida_RMCA_DP_000005_Lb.jpg			Hemia_nida_RMCA_DP_000005_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Hemia
56 Biogsetia pomonae - RMCA_DP_000006	RMCA_DP_000006	Biogsetia_pomonae_RMCA_DP_000006_L_25_PMax_Scaled.jpg			Biogsetia_pomonae_RMCA_DP_000006_L_25_PMax_Scaled.jpg		Lateral	Lateral	1	1	Anthropoda	Insecta	Diptera	Tachinidae	Biogsetia
57 Biogsetia pomonae - RMCA_DP_000006	RMCA_DP_000006	Biogsetia_pomonae_RMCA_DP_000006_D_25_PMax_Scaled.jpg			Biogsetia_pomonae_RMCA_DP_000006_D_25_PMax_Scaled.jpg		Dorsal	Dorsal	2	2	Anthropoda	Insecta	Diptera	Tachinidae	Biogsetia
58 Biogsetia pomonae - RMCA_DP_000006	RMCA_DP_000006	Biogsetia_pomonae_RMCA_DP_000006_V_25_PMax_Scaled.jpg			Biogsetia_pomonae_RMCA_DP_000006_V_25_PMax_Scaled.jpg		Ventral	Ventral	3	3	Anthropoda	Insecta	Diptera	Tachinidae	Biogsetia
59 Biogsetia pomonae - RMCA_DP_000006	RMCA_DP_000006	Biogsetia_pomonae_RMCA_DP_000006_Lb.jpg			Biogsetia_pomonae_RMCA_DP_000006_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Biogsetia
60 Biogsetia pomonae - RMCA_DP_000006	RMCA_DP_000006	Biogsetia_pomonae_RMCA_DP_000006_Lb.jpg			Biogsetia_pomonae_RMCA_DP_000006_Lb.jpg		Label	Label	10	10	Anthropoda	Insecta	Diptera	Tachinidae	Biogsetia

Figure 19 Example of excel with data

- Send media files to the server by FTP, in a directory called Import.
- Add the mapping file to the import list

COLLECTIVEACCESS

NEW FIND MANAGE IMPORT HISTO

IMPORTERS:

2 importers are defined

Filter:

+ Add importers

Name	Code	Type	Mapping	Last modified
mapping_Anthropology_photos	mapping_Anthropology_photos	objects		08/10/2020 at 16:18:54
mapping_Biology_photos	mapping_Biology_photos	objects		08/31/2020 at 8:55:42

RUN IMPORT

Figure 20 Screen for template choice of data import

- Import data by running import Data

Figure 21 Run import screen

To import media, a mapping file is not necessary : choose Import – Media. A form will open presenting a list of files present in directory Import and you have to finetune the parameters to your needs.

Figure 22 Import medias form

To import data from DaRWIn, more details about the preparation of the excel being imported in CA are given in paragraph 4.5.2.

## 4.2 Pawtucket

Pawtucket use the media imported via Providence to present them in various ways:

1. Browse facets
2. Advanced search, through customized form
3. Navigation in collections, galleries.
4. Possibility to register to save searches
5. Contact form

### 4.2.1 Interface Pawtucket

Virtual Collections has been developed to present data easily, clearly and quickly.

CollectiveAccess comes with a default theme. This theme has been copied to a new one and adapted for V.C..

There are 4 main pages and a browse section. Main pages are : Welcome page, Advanced search, Collections and Contact, with a common header and footer.

#### 4.2.1.1 Header

Header contains the menu, a multi search field, an icon to register/login and 3 flags to change language (English, French, Dutch)

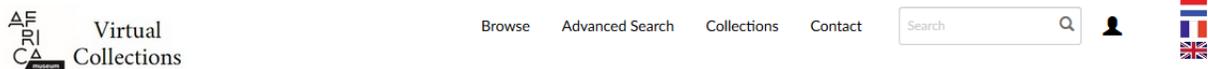


Figure 23 Header of Virtual Collections pages

#### 4.2.1.2 Footer

Footer contains a copyright notice and links to social networks.

Copyright (c) - Royal Museum for Central Africa - 2020  
All rights reserved. None of the materials provided on this web site (whether they are images or text) may be used, reproduced or transmitted, in whole or in part, in any form, without permission in writing from the Royal Museum for Central Africa (publisher).



Figure 24 Footer of Virtual Collections pages

### 4.2.2 Welcome page

Welcome page contains 3 sections : a welcome word, news with links for more details and a banner presenting some specimens at random. A click on the specimens opens the detail form.

Welcome to Virtual collections!

You can browse through our digital collections and find detailed pictures, 3D models, sounds and videos of our collection items.



#### LATEST NEWS!



23/07/2020

#### How to digitize natural science collections?

Researchers from the Royal Belgian Institute of Natural Sciences and the Royal Museum for Central Africa have created a manual for the digitization of natural science collections. And it can be done literally in fifty different ways, with fifty more nuances. A guide.

By digitizing museum pieces in 2D and / or 3D and publishing them online, they are made accessible to researchers around the world. Thanks to the high-resolution images, specimens no longer have to leave the museum's deposit with its ideal conservation conditions. In addition, they are not likely to be damaged by handling and transport.

[More...](#)



Figure 25. Welcome screen

### 4.2.3 Advanced search

Advanced search form allows to find objects according to their main metadata. Displayed fields depend on the chosen collection. If no collection is chosen, all fields are displayed.

An explanation to use the form is given on the right.

Types of media can also be chosen and a check in the Boxes field limits search to boxes.



Parcourir
Recherche avancée
Collections
Contact

Q

---

### RECHERCHE AVANCÉE SUR LES OBJETS

Entrez vos termes de recherche dans les champs suivants.

THÈME

IDENTIFIANT

MOI-CLE

TITRE

EMBRANCHEMENT

CLASSE

ORDRE

FAMILLE

GENRE

ESPÈCE

TYPE

SEX

STADE DE DÉVELOPPEMENT

UID

TYPE DE MÉDIA

Boîtes

INTERVALLE DE LA DATE DE COLLECTE (PAR EX. 1970-1979)

PAYS DE LA COLLECTE

Réinitialiser
Recherche

#### AIDE

Ce formulaire vous permet d'effectuer une recherche avancée au sein de nos collections déjà inventoriées.

Vous pouvez effectuer une recherche sur plusieurs champs simultanément. Par ailleurs, pour le titre, les mots-clés, les champs de taxonomie et les dates, il est possible de réaliser une recherche sur base de termes incomplets en utilisant un astérisque (\*).

Exemple : 'charbon\*' vous permettra de récupérer les entrées contenant le terme 'charbon', 'charbonnage', etc.

Sur la page des résultats, vous pourrez affiner votre recherche dans un second temps grâce à différents filtres.

Les champs apparaissent en fonction de la collection choisie. Si vous voulez voir tous les champs, ne choisissez pas de collection.

#### Descriptif des différents champs

**Thème**: recherche basée sur le niveau supérieur de la collection.

**Code**: si vous connaissez le code de l'objet.

**Mot-clé**: champ général où vous pouvez saisir un terme à rechercher partout.

**Titre**: rechercher dans les mots du titre du document. Vous pouvez écrire plusieurs termes de titre dans n'importe quel ordre; cependant, le moteur de recherche ne considère que les mots entiers (pas d'astérisque (\*)). Mais vous pouvez également utiliser le début d'un seul mot avec un astérisque.

**Champs taxonomiques**: Entrez le nom du taxon (astérisque (\*) autorisé)

**Type**: Choisissez l'un des types taxonomiques dans la liste

**Sexe**: Choisissez une valeur dans la liste.

**Stade de développement**: Entrez une valeur.

**Type d'objet, Age, Matériaux, Groupe ethnique, Famille d'instrument**: Entrez une valeur (un chiffre entier pour l'âge).

**UID**: si vous connaissez l'UID.

**Type de média**: Choisissez l'une des options pour sélectionner des objets avec une représentation 2D ou 3D, du son ou de la vidéo.

**Boîtes**: Cochez la case si vous souhaitez limiter votre recherche aux boîtes complètes

**Date de collecte**: recherche basée sur une année ou une plage d'années. Exemples: '1974' (tous les documents datant de 1974), '1974-1979' (tous les documents de cette période), '197\*' (tous les documents entre 1970 et 1979), '19\*\*' (tous les documents entre 1900 et 1999).

**Pays de collecte**: entrez le nom du pays (le nom peut dépendre de la langue).

Figure 26 Advanced search screen

Results of a search are presented in various displays:

- thumbnails,
- lists,
- tables,
- maps,
- timeline.

The choice of the display is done by clicking on the icons on the right, above the facets.

Content of each element can be adapted, as well as content of the tables.

On the right, results can be filtered by facets.

85 RESULTS

SEARCH: Type: Zoology; Keywords: arachn\*

RMCA\_ARA\_127050  
Gymnobilium quadropinosum -  
RMCA\_ARA\_127050

RMCA\_ARA\_127051  
Gymnobilium quadropinosum -  
RMCA\_ARA\_127051

RMCA\_ARA\_127052  
Gymnobilium quadropinosum -  
RMCA\_ARA\_127052

RMCA\_ARA\_134817  
Ricinoides karschi - RMCA\_ARA\_134817

RMCA\_ACA\_187042  
Lepus bicristatus -  
RMCA\_ACA\_187042

RMCA\_ACA\_187050  
Lepus maringensis -  
RMCA\_ACA\_187050

RMCA\_ACA\_187054  
Lepus similis -  
RMCA\_ACA\_187054

RMCA\_ARA\_114767  
Solpuga upembana -  
RMCA\_ARA\_114767

RMCA\_ARA\_131806F  
Cicynethus decoratus -  
RMCA\_ARA\_131806F

RMCA\_ARA\_131806M  
Cicynethus decoratus -  
RMCA\_ARA\_131806M

RMCA\_ARA\_131816  
Cicynethus acer -  
RMCA\_ARA\_131816

RMCA\_ARA\_132618  
Hemadida speculiger -  
RMCA\_ARA\_132618

FILTER BY

THEME  
Zoology (85)

PERSON  
Jonathan Brecko (4)  
J. Fourmy (1)  
Arnaud Henard (80)  
Aurore Mathys (1)  
A. Van Harten (3)  
Lourenço W.R. (1)  
Wesolowska & Van Harten (3)

MEDIA  
2D (85)

COLLECTION  
Arachnids (85)

TYPE  
Holotype (15)  
Paratype (16)

PHYLUM  
Arthropoda (85)

CLASS  
Arachnida (85)

ORDER  
Araneae (69)  
Ixodida (1)  
Opiliones (1)  
Prostigmata (3)  
Pseudoscorpiones (4)  
Ricinulei (1)  
Schizomida (1)  
[and 3 more](#)

Figure 27 Results of a search in view "Thumbnails"

85 RESULTS

SEARCH: Type: Zoology; Keywords: arachn\*

RMCA\_ARA\_54259  
Titanatemnus ugandanus - RMCA\_ARA\_54259

RMCA\_ARA\_209260  
Thoriola spadicea - RMCA\_ARA\_209260

RMCA\_ARA\_239916  
Thomisus unidentatus - RMCA\_ARA\_239916

RMCA\_ARA\_239914  
Thomisus unidentatus - RMCA\_ARA\_239914

RMCA\_ARA\_215886  
Thaumastochilus termitominus -  
RMCA\_ARA\_215886

RMCA\_ARA\_174690  
Thaumastochilus termitominus -  
RMCA\_ARA\_174690

RMCA\_ARA\_171953  
Thaumastochilus martini - RMCA\_ARA\_171953

RMCA\_ARA\_143319  
Tetragnatha infusata - RMCA\_ARA\_143319

RMCA\_ARA\_245726M  
Tarne dives - RMCA\_ARA\_245726M

RMCA\_ARA\_245726F  
Tarne dives - RMCA\_ARA\_245726F

RMCA\_ARA\_245858  
Synema viridisternum - RMCA\_ARA\_245858

RMCA\_ARA\_114787  
Solpuga upembana - RMCA\_ARA\_114787

FILTER BY

THEME  
Zoology (85)

PERSON  
Jonathan Brecko (4)  
J. Fourmy (1)  
Arnaud Henard (80)  
Aurore Mathys (1)  
A. Van Harten (3)  
Lourenço W.R. (1)  
Wesolowska & Van Harten (3)

MEDIA  
2D (85)

COLLECTION  
Arachnids (85)

TYPE  
Holotype (15)  
Paratype (16)

PHYLUM  
Arthropoda (85)

CLASS  
Arachnida (85)

ORDER  
Araneae (69)  
Ixodida (1)  
Opiliones (1)  
[and 3 more](#)

Figure 28 Results of a search in view "List"

85 RESULTS

SEARCH: Type: Zoology; Keywords: arachn\*

ID	Title	Collection	Phylum	Class
RMCA_ARA_54259	Titanatemnus ugandanus - RMCA_ARA_54259	Arthropoda	Arthropoda	Arachn
RMCA_ARA_209260	Thoriosia spadicea - RMCA_ARA_209260	Arthropoda	Arthropoda	Arachn
RMCA_ARA_239916	Thomisus unidentatus - RMCA_ARA_239916	Arthropoda	Arthropoda	Arachn
RMCA_ARA_239914	Thomisus unidentatus - RMCA_ARA_239914	Arthropoda	Arthropoda	Arachn
RMCA_ARA_215886	Thaumastochilus termitomimus - RMCA_ARA_215886	Arthropoda	Arthropoda	Arachn
RMCA_ARA_174690	Thaumastochilus termitomimus - RMCA_ARA_174690	Arthropoda	Arthropoda	Arachn
RMCA_ARA_171953	Thaumastochilus martini - RMCA_ARA_171953	Arthropoda	Arthropoda	Arachn
RMCA_ARA_143319	Tetragnatha infuscata - RMCA_ARA_143319	Arthropoda	Arthropoda	Arachn
RMCA_ARA_245726M	Tarne dives - RMCA_ARA_245726M	Arthropoda	Arthropoda	Arachn
RMCA_ARA_245726F	Tarne dives - RMCA_ARA_245726F	Arthropoda	Arthropoda	Arachn
RMCA_ARA_245858	Synema viridisternum - RMCA_ARA_245858	Arthropoda	Arthropoda	Arachn
RMCA_ARA_114787	Solpuga upembana - RMCA_ARA_114787	Arthropoda	Arthropoda	Arachn
RMCA_ARA_245365	Selenops radiatus - RMCA_ARA_245365	Arthropoda	Arthropoda	Arachn
RMCA_ARA_233843	- RMCA_ARA_233843	Arthropoda	Arthropoda	Arachn
RMCA_ARA_134817	Ricinoides karschi - RMCA_ARA_134817	Arthropoda	Arthropoda	Arachn
RMCA_ARA_133729M	Psammoduon deserticola - RMCA_ARA_133729M	Arthropoda	Arthropoda	Arachn
RMCA_ARA_133729F	Psammoduon deserticola - RMCA_ARA_133729F	Arthropoda	Arthropoda	Arachn
BE_RMCA_INV_ARA.Ara.228612	Plexippus_minor_BE_RMCA_INV_ARA.Ara.228612	Arthropoda	Arthropoda	Arachn
BE_RMCA_INV_ARA.Ara.228611	Plexippus_minor_BE_RMCA_INV_ARA.Ara.228611	Arthropoda	Arthropoda	Arachn
BE_RMCA_INV_ARA.Ara.228610	Plexippus_minor_BE_RMCA_INV_ARA.Ara.228610	Arthropoda	Arthropoda	Arachn

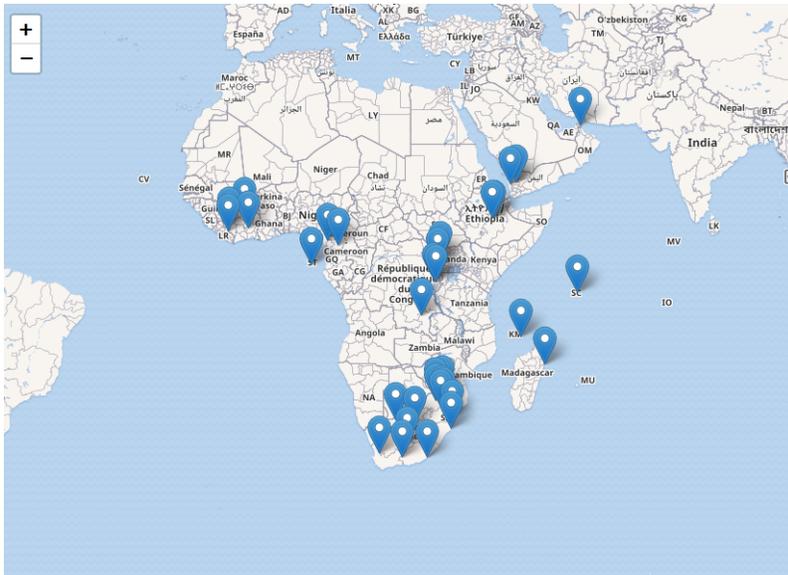
FILTER BY

- THEME
  - Zoology (85)
- PERSON
  - Jonathan Brecko (4)
  - J. Fourmy (1)
  - Arnaud Henrard (80)
  - Aurore Mathys (1)
  - A. Van Harten (3)
  - Lourenço W.R. (1)
  - Wesolowska & Van Harten (3)
- MEDIA
  - 2D (85)
- COLLECTION
  - Arachnids (85)
- TYPE
  - Holotype (15)
  - Paratype (16)
- PHYLUM
  - Arthropoda (85)
- CLASS
  - Arachnida (85)
- ORDER
  - Araneae (69)
  - Xodida (1)
  - Opliones (1)
  - Prostigmata (3)

Figure 29 Results of a search in view "Table"

85 RESULTS

SEARCH: Type: Zoology; Keywords: arachn\*



FILTER BY

- THEME
  - Zoology (85)
- PERSON
  - Jonathan Brecko (4)
  - J. Fourmy (1)
  - Arnaud Henrard (80)
  - Aurore Mathys (1)
  - A. Van Harten (3)
  - Lourenço W.R. (1)
  - Wesolowska & Van Harten (3)
- MEDIA
  - 2D (85)
- COLLECTION
  - Arachnids (85)
- TYPE
  - Holotype (15)
  - Paratype (16)
- PHYLUM
  - Arthropoda (85)
- CLASS
  - Arachnida (85)
- ORDER

Figure 30 Results of a search in view "Map"



Figure 31 Results of a search in view "Timeline"

Presentation of the results can be adapted by the reader by clicking on the cogwheel on the right of the number of results.

In the menu that appears, you will see that results can be saved in a “lightbox” (if user is registered), sorted by title or identifier, or exported to a pdf or an excel.

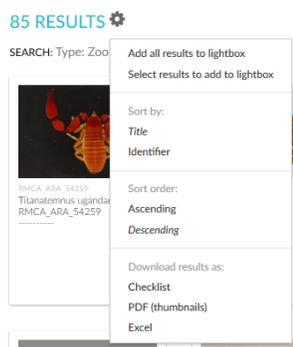


Figure 32 Menu in search results

Image	Object	Description	Phylum	Class	Order	Family	Genus	Species	Subspecies	Type	Sex	Life stage	Amount	Country of collect	Coordinates	Date	
	Trissurus egypticus - FMCA_ARA_5459 (FMCA_ARA_5459)		Arthropoda	Arachnida	Pseudoscorpionida	Aloniidae	Trissurus	Trissurus egypticus		Undescribed	undetermined	Immature	3	Congo, D.R.	[14,30.43333]	August 19	
	Thomisus spidicus - FMCA_ARA_20260 (FMCA_ARA_20260)		Arthropoda	Arachnida	Araneae	Cheridae	Thomisus	Thomisus spidicus		Undescribed	undetermined	Immature	1	Sao Tomé	[0.33333, 7.33333]	November	
	Thomisus ardensis - FMCA_ARA_20896 (FMCA_ARA_20896)		Arthropoda	Arachnida	Araneae	Thomisidae	Thomisus	Thomisus ardensis		Paratype	Undescribed	undetermined	Immature	3	Yemen	[8,4,2]	December
	Thomisus ardensis - FMCA_ARA_20894 (FMCA_ARA_20894)		Arthropoda	Arachnida	Araneae	Thomisidae	Thomisus	Thomisus ardensis		Paratype	Undescribed	undetermined	Immature	1	Yemen		August 22
																	

Figure 33 Excel file generated from search results

#### 4.2.4 Collections

A second way to find media after advanced search is “Collections”.

A first screen presents the main themes according to which media are organized in V.C. A small presentation of the collection is given when the mouse passes over the photos.

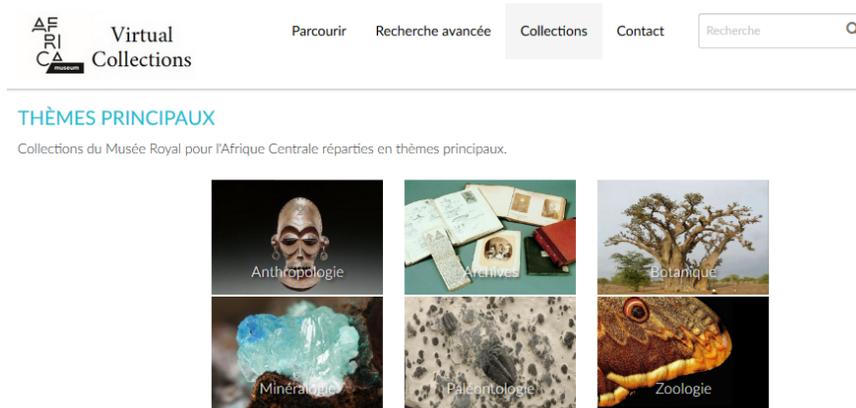


Figure 34 Screen Collections

When we click on a theme, a hierarchical view of subcollections is given and a click on a subcollection goes further in the tree or opens the collection.

A pdf can be generated with a listing of all specimens of that level of collection.

Figure 35 Hierarchical view of the collections

When a collection is opened, you see the results in thumbnails. Path with upper collection levels is given and the pdf download is still present.

Figure 36 Content of a collection

## Arachnids

COLL\_NIV2, ARACHNIDS

PART OF: ZOOLOGY &gt; INVERTEBRATES &gt; ARACHNIDS

## Collection Contents

Arachnids (85 records)

Arachnomorpha (non-Acari): 380,000 specimens, 4,000 identified species, the majority in alcohol. Acari: 3,200 species preserved as: - 28,400 microscopic preparations (Acaridida, Actinedida, Mesostigmata, Ixodida) - 4,000 tubes (Onibatida, Ixodida)

Leptus bieristatus - RMCA\_ACA\_187042  
 Leptus maringensis - RMCA\_ACA\_187050  
 Leptus similis - RMCA\_ACA\_187054  
 Solpuga upembana - RMCA\_ARA\_114787  
 Gymnobisium quadrosinosum - RMCA\_ARA\_127850  
 Gymnobisium quadrosinosum - RMCA\_ARA\_127851  
 Gymnobisium quadrosinosum - RMCA\_ARA\_127852  
 Cicynethus decoratus - RMCA\_ARA\_131800F  
 Cicynethus decoratus - RMCA\_ARA\_131800M  
 Cicynethus acer - RMCA\_ARA\_131816  
 Heradida speculigera - RMCA\_ARA\_132618  
 Ballomma haddadi - RMCA\_ARA\_132641  
 Ballomma haddadi - RMCA\_ARA\_132646  
 Cithaeron praedonius - RMCA\_ARA\_133728F  
 Cithaeron praedonius - RMCA\_ARA\_133728M  
 Psammodon deserticola - RMCA\_ARA\_133729F  
 Psammodon deserticola - RMCA\_ARA\_133729M  
 Ricinoides karschi - RMCA\_ARA\_134817  
 Chariobas cylindraceus - RMCA\_ARA\_137653F  
 Chariobas cylindraceus - RMCA\_ARA\_137653M  
 Tetragnatha infuscata - RMCA\_ARA\_143319  
 Cithaeron jooqueorum - RMCA\_ARA\_152823  
 Mallinella bosmansii - RMCA\_ARA\_164183  
 Mallinella bosmansii - RMCA\_ARA\_164184F  
 Mallinella bosmansii - RMCA\_ARA\_164184M  
 Omucukia madrele - RMCA\_ARA\_169098F  
 Omucukia madrele - RMCA\_ARA\_169098M  
 Thaumastochilius martini - RMCA\_ARA\_171953  
 Cithaeron jooqueorum - RMCA\_ARA\_172852  
 Cithaeron jooqueorum - RMCA\_ARA\_172853  
 Thaumastochilius termitomimus - RMCA\_ARA\_174800  
 Biskratrombium coineau - RMCA\_ARA\_180034  
 Biskratrombium coineau - RMCA\_ARA\_180035  
 Omucukia madrele - RMCA\_ARA\_200297  
 Omucukia madrele - RMCA\_ARA\_200403  
 Mogrus canescens - RMCA\_ARA\_201328  
 Mogrus canescens - RMCA\_ARA\_201339  
 Acumontia sp. - RMCA\_ARA\_207158  
 Nilus majungensis - RMCA\_ARA\_208875  
 Thoriosa spadicea - RMCA\_ARA\_209260  
 Cithaeron contentum - RMCA\_ARA\_210072  
 Cicynethus subtropicalis - RMCA\_ARA\_2111745  
 Thaumastochilius termitomimus - RMCA\_ARA\_215888  
 Cithaeron delimbatus - RMCA\_ARA\_224739  
 Capheris abrupta - RMCA\_ARA\_225691  
 Hyllus treleaveni - RMCA\_ARA\_228392  
 Ctenus anahitaeformis - RMCA\_ARA\_229938F  
 Ctenus anahitaeformis - RMCA\_ARA\_229938M  
 Ctenus anahitaeformis - RMCA\_ARA\_229968

Figure 37 Export listing of a collection

#### 4.2.5 Contact

Contact page presents the institution (e.g. Royal Museum for Central Africa), a notice to know how to get high resolution pictures, contact information and maps.

A form allows also to send an email to the contact person defined in the parameters.

CONTACT

ABOUT THE ROYAL MUSEUM FOR CENTRAL AFRICA

The Royal Museum for Central Africa must aspire to be a world centre of research and knowledge dissemination on past and present societies and natural environments of Africa, and in particular Central Africa, to foster - among the public at large and the scientific community - understanding of and interest in this area and, through partnerships, to contribute substantially to its sustainable development. Thus the core endeavours of this Africa-oriented institution consist of acquiring and managing collections, conducting scientific research, implementing the results of this research, disseminating knowledge, and mounting selected exhibitions of its collections.

The AfricaMuseum is a centre for knowledge and resources on Africa, in particular Central Africa, in an historical, contemporary, and global context. The museum exhibits unique collections. It is a place of memory on the colonial past and strives to be a dynamic platform for exchanges and dialogues between cultures and generations.

REQUEST FOR MEDIAS

For any request for a high resolution photo or other media, please use the contact form below or contact the curator concerned directly (Collections).

**Address:**  
Leuvensesteenweg 13  
3080 Tervuren  
Belgium

**Phone:**  
+32 2 769 52 11

**Email:**  
info@africamuseum.be

**Belgian company registration number:**  
BE 0306.562.560

**Map Legend:**

- A - Welcome Pavilion
- B - Museum Building
- C - Director's Pavilion
- D - Stanley Pavilion
- E - CAPA Building
- F - Finances Building
- G - Africa Palace (former Colonial Palace)
- H - Villa

Figure 38 Screen Contact

4.2.6 Browse

A third way to search media is Browse. Browse appears as an overlay above the opened screen. There are currently 3 tabs : all themes, zoology and anthropology. All themes show all the facets while the others show only the facets linked to the theme. With this interface, you can quickly reach the media you want without doing a search. You can also browse all media by clicking on the “Browse all”.

Virtual Collections

Browse | Advanced Search | Collections | Contact

ALL THEMES | ZOOLOGY | ANTHROPOLOGY

Browse by	Amphibians and Reptiles (7)	Anthropology (154)	Arachnids (85)	Birds (1)
Themes	Bivalves (50)	Cnidaria (3)	Colcoptera (348)	Dermaptera (1)
People	Diplopoda (4)	Diptera (429)	Ephemeroptera (1)	Fishes (3)
Media	Gastropoda (696)	Vertebrates (13)	Hemiptera (35)	Hymenoptera (95)
Collections	Insects (1060)	Invertebrates (1900)	Lepidoptera (135)	Malacostraca (2)
Types	Mammals (2)	Mollusks (746)	Neuroptera (16)	Zoology (1913)
Phyla				
Classes				
Orders				
Families				
Genus				
Object types				

Filter facet

BROWSE ALL

Figure 39 Browse overlay screen

### 4.2.7 Details form

The details form presents all media linked to the specimen/object, with some info about it.

Media are shown below the left column with a thumbnail or an icon (for sound). When you click on one of these, it is displayed in a bigger format on top of the left column.

You can again click on that bigger picture to open it as full screen and zoom into it. Close that full screen by clicking on the cross at bottom right.

If there are other files than pictures, sounds, videos, they are displayed under "Related objects". A click on the link opens a window where you can download the file.

On the right are displayed information about the specimen/object : code, link to more details in the original database (click on [🔗](#)), related people and other info such as taxonomy, storage, amount, sampling.

Comments can be added if the user is logged in.



Virtual  
Collections

[Browse](#) [Advanced Search](#) [Collections](#) [Contact](#)

---

Hippopotamyrus.jpg  
lateral view



VER\_P2019.032.MC1112\_pA.csv  
VER\_P2019.032.MC1112\_pA.bt

COMMENTS AND TAGS (0)

GENERAL INFORMATION

Fishes

Paramormyrops tavernei -  
BE\_RMCA\_Vert\_2018.032.P0047-0057\_MC1112

CODE:  
BE\_RMCA\_Ver\_2018.032.P0047-0057\_MC1112

PERMANENT ID:  
14c86dd2-9b82-4a93-94a0-2b8ee7190e99 [🔗](#)

RELATED PEOPLE

Christian Mukweze Mulelenu (contributor)  
Christian Mukweze Mulelenu (collector)  
Christian Mukweze Mulelenu (identifier)

STORAGE	AMOUNT
box01	1

TAXONOMY

<p style="font-size: x-small; margin: 0;">PHYLUM Chordata</p> <p style="font-size: x-small; margin: 0;">CLASS Actinopterygii</p> <p style="font-size: x-small; margin: 0;">ORDER Osteoglossiformes</p> <p style="font-size: x-small; margin: 0;">FAMILY Mormyridae</p>	<p style="font-size: x-small; margin: 0;">GENUS Paramormyrops</p> <p style="font-size: x-small; margin: 0;">SPECIES tavernei</p>
--	--

SAMPLING

<p style="font-size: x-small; margin: 0;">COUNTRY Congo</p>	<p style="font-size: x-small; margin: 0;">COORDINATES [-5.216,46.133]</p>
---	---

DATE  
April 1 - 9 2019



Figure 40 Form with details of an object



Figure 41 Zoom on a picture

### 4.3 Security

Several levels of security can be defined in Providence, with an impact on data displayed in Pawtucket. This protects data by creating groups and roles that are allowed to work on and see specific data.

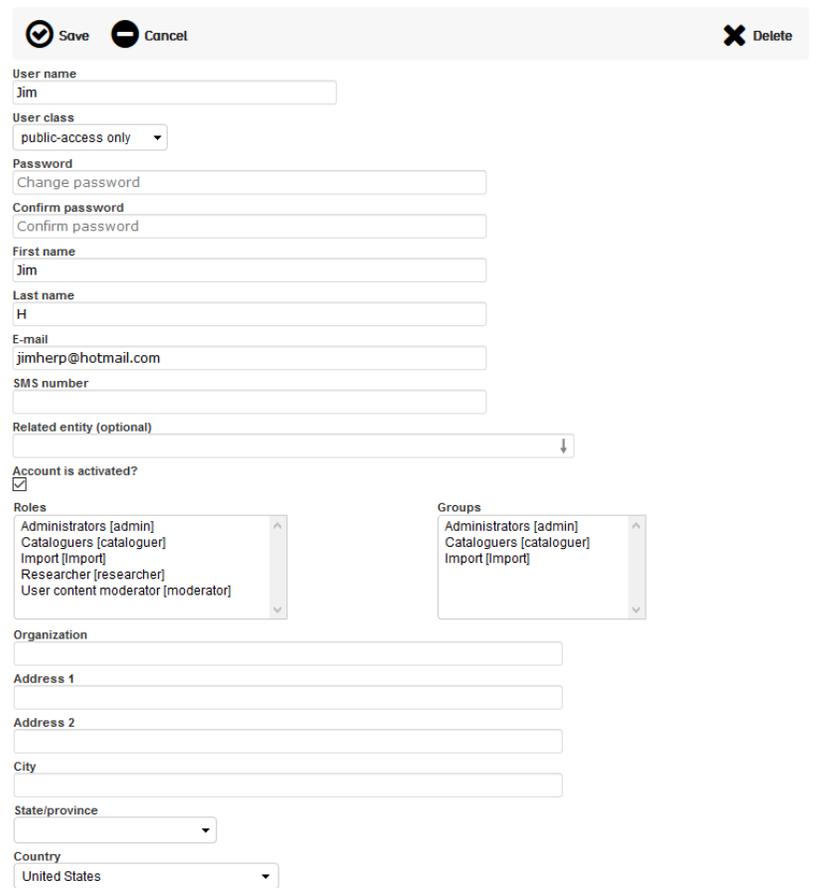
Users, groups, roles are created and managed in Providence, under the menu Manage – Access control.

#### 4.3.1 Users

First entry in the left menu of Access control is User logins. You have there a list of users, with info about email, last login and if it is active or not

Figure 42 User management : List of users

When you create or edit a user, you get this form where you can enter all info about the user and his permissions



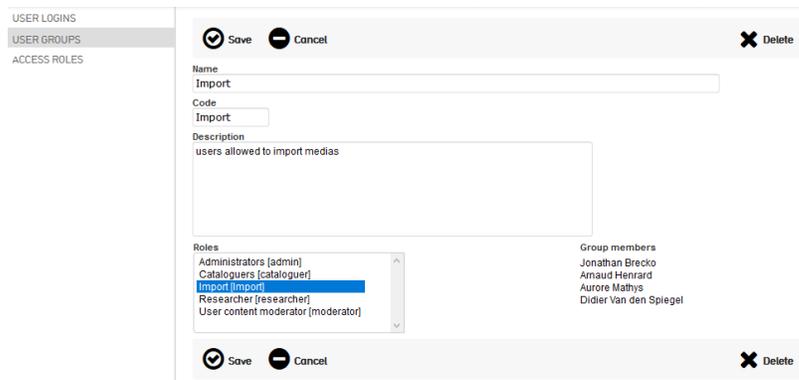
The form includes the following fields and options:

- Buttons:** Save (checkmark), Cancel (minus), Delete (X).
- User name:** Text input with value "Jim".
- User class:** Dropdown menu with value "public-access only".
- Password:** Text input with placeholder "Change password".
- Confirm password:** Text input with placeholder "Confirm password".
- First name:** Text input with value "Jim".
- Last name:** Text input with value "H".
- E-mail:** Text input with value "jimherp@hotmail.com".
- SMS number:** Text input.
- Related entity (optional):** Dropdown menu.
- Account is activated?:** Checked checkbox.
- Roles:** List box containing: Administrators [admin], Cataloguers [cataloguer], Import [Import], Researcher [researcher], User content moderator [moderator].
- Groups:** List box containing: Administrators [admin], Cataloguers [cataloguer], Import [Import].
- Organization:** Text input.
- Address 1:** Text input.
- Address 2:** Text input.
- City:** Text input.
- State/province:** Dropdown menu.
- Country:** Dropdown menu with value "United States".

Figure 43 Management form for a user

### 4.3.2 Groups

Second entry is User groups. Groups are only there to gather users and give them common roles.



The form includes the following fields and options:

- Navigation:** USER LOGINS, USER GROUPS (selected), ACCESS ROLES.
- Buttons:** Save (checkmark), Cancel (minus), Delete (X).
- Name:** Text input with value "Import".
- Code:** Text input with value "Import".
- Description:** Text area with value "users allowed to import medias".
- Roles:** List box containing: Administrators [admin], Cataloguers [cataloguer], Import [Import] (highlighted), Researcher [researcher], User content moderator [moderator].
- Group members:** List containing: Jonathan Brecko, Arnaud Henrard, Aurore Malthys, Didier Van den Spiegel.
- Bottom Buttons:** Save (checkmark), Cancel (minus), Delete (X).

Figure 44 Management form of user groups

### 4.3.3 Roles

Access roles form contains tens of entries allowing to define very accurately the rights of users on objects and actions. These rights can be defined at different levels: actions, metadata, types of objects, sources, and users in Pawtucket can get different rights than in Providence.

Figure 45 Management form of access roles

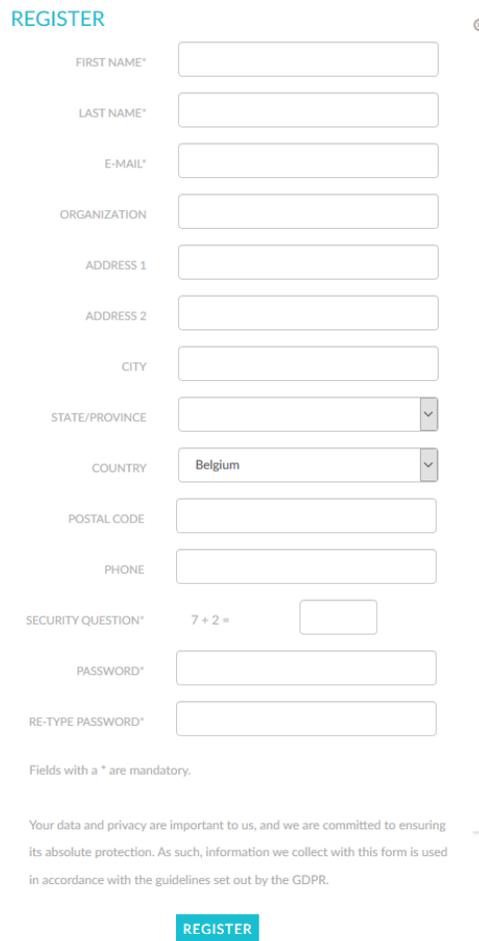
These roles can be added to each element of Providence, objects, collections, fields,...

Figure 46 Rights management on an object

### 4.3.4 Registration

In Pawtucket, visitors can register to create a permanent account. By default a role “public user” gives him only the right to write comments and save searches in the lightbox but the administrator can change that role to give him for example a role which will allow him to see hidden objects or files.

To register, visitors have to click on icon of a person at left of the flags in the main menu.



**REGISTER**

FIRST NAME\*

LAST NAME\*

E-MAIL\*

ORGANIZATION

ADDRESS 1

ADDRESS 2

CITY

STATE/PROVINCE

COUNTRY

POSTAL CODE

PHONE

SECURITY QUESTION\* 7 + 2 =

PASSWORD\*

RE-TYPE PASSWORD\*

Fields with a \* are mandatory.

Your data and privacy are important to us, and we are committed to ensuring its absolute protection. As such, information we collect with this form is used in accordance with the guidelines set out by the GDPR.

**REGISTER**

Figure 47 Popup window for registration

## 4.4 The IIIF Image viewer

Pictures can be saved on CA in different formats and resolution high resolution pictures can be displayed C.A.. This can be done because CA is IIIF compatible. IIIF is an international standard to share high resolution pictures (<https://iiif.io/>). Pictures are tiled to avoid time consuming download and also to protect them from unwanted download at high resolution. CA uses 2 of the main important viewers to display them : UniversalViewer and Mirador. UniversalViewer has been developed for the British Library while Mirador has been developed by Stanford University and is maintained by many contributors, with among them Harvard University.

Photos stored on the IIIF server can be accessed through a manifest request, a json document containing metadata about the characteristics of the image and other information. This manifest was partially present in CollectiveAccess (integrated in an html page) and a development had to be done to complete it. This development consists of a PHP / cURL script correcting the syntax problems of the original manifest, and functioning as a proxy. The script generates a correct manifest, having the MIME type Json. This development made it possible to use Virtual Collections as a fully functional IIIF server, allowing in particular to display photos in DaRWIN. On the DaRWIN server, the Mirador viewer was chosen because the DaRWIN interface can be seen through an iframe and UniversalViewer already working with iframe, this caused viewing problems. Mirador did not present these problems. Mirador has also a more important community of developers. A test was also carried out to create an annotation server for the photos.

## 4.5 Establishing the links between CMS DaRWIN / Plone and CA

### 4.5.1 Collective Access as a stand alone picture server

Development has been done in C.A. to complete the compatibility by adding a IIIF service to retrieve pictures of an object with its UUID from a foreign website.

In RMCA, Collective Access is used with the front end part, Pawtucket but Providence can be installed alone to be a picture server for other applications.

RBINS will use CA only to store and display images with IIIF viewer but it will not be directly accessible by the public with an independant search interface.

### 4.5.2 DaRWIN

In CA, the link with DaRWIN is established using the CETAF stable identifier used by DaRWIN for each specimen or part of specimen. The UUID must be entered as metadata to enable the link with DaRWIN. If it's there, a link can be found on the detail page in the form of a chain icon. By clicking on it, public DaRWIN opens:

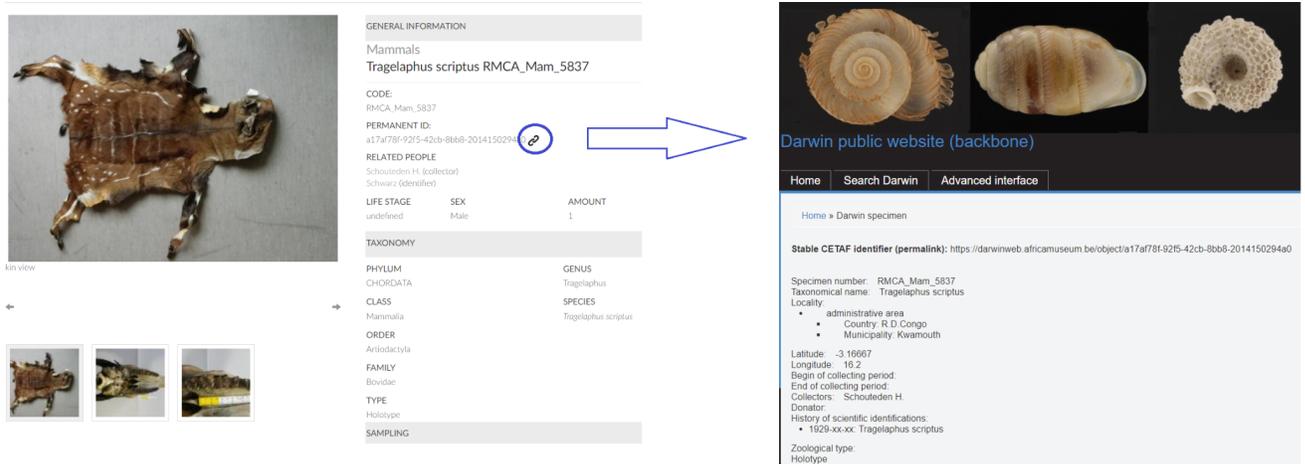


Figure 48 DaRWIN External link edition widget

In the opposite direction, DaRWIN also has links toward CA.

It is now possible to define external links in DaRWIN redirecting to specific multimedia servers. The Picture (IIIF) option can link to the Collective Access image url and displays it directly in DaRWIN. All zooming options are activated in the DaRWIN widget. A link allows you to open the image in a separate window.

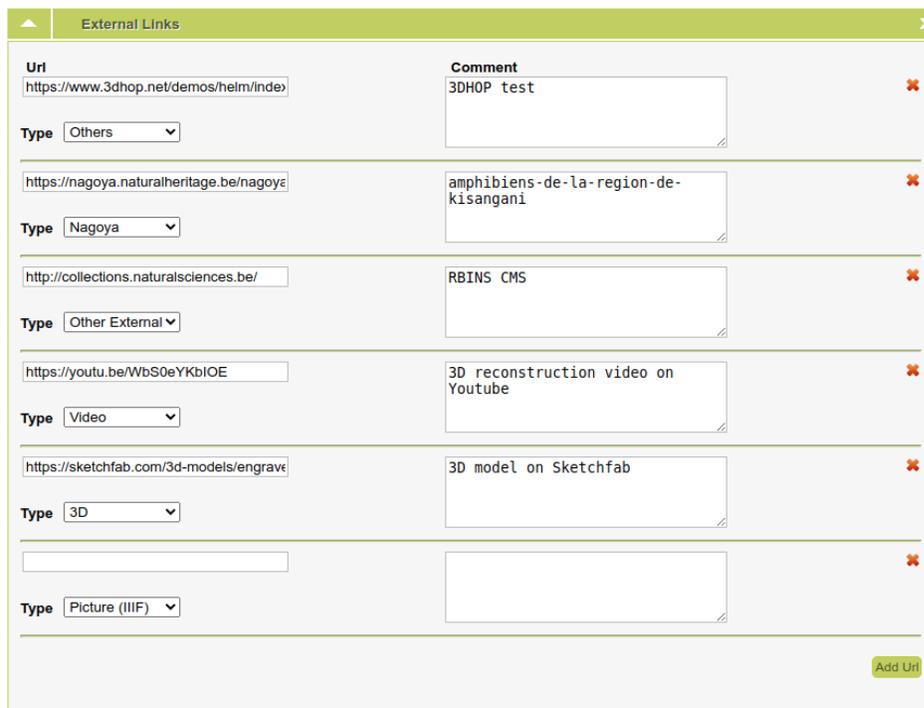


Figure 49 DaRWIN External link edition widget



Figure 50 Embedded view of the CA image in DaRWIN widget

From DaRWIN, data can also be exported, to populate CA or to update it.

A special report has been created to easily export the specimens that have to be imported in CA. This report is similar to the other reports and generates a CSV file. Choose “Tab-delimited (Virtual Collections)” to get that report:

### My saved searches

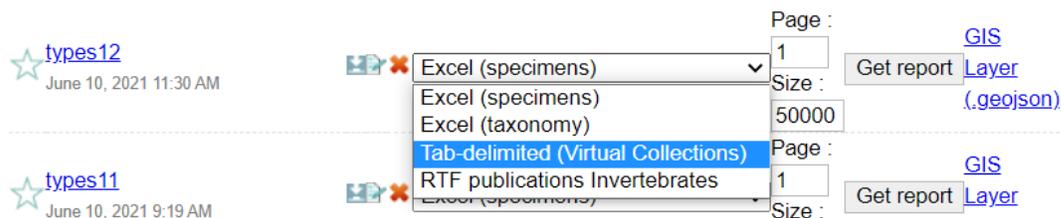


Figure 51 Report choice in DaRWIN

This CSV file can then be imported in an excel, to add media. This excel is simple and automatizes the filling of media filenames and infos for each specimen. It contains 3 tabs: a first one (“ImportDarwin”) with only buttons, a second one (“temp”) empty and a third one (“Generate photo filename”) to help to compose complex filenames:

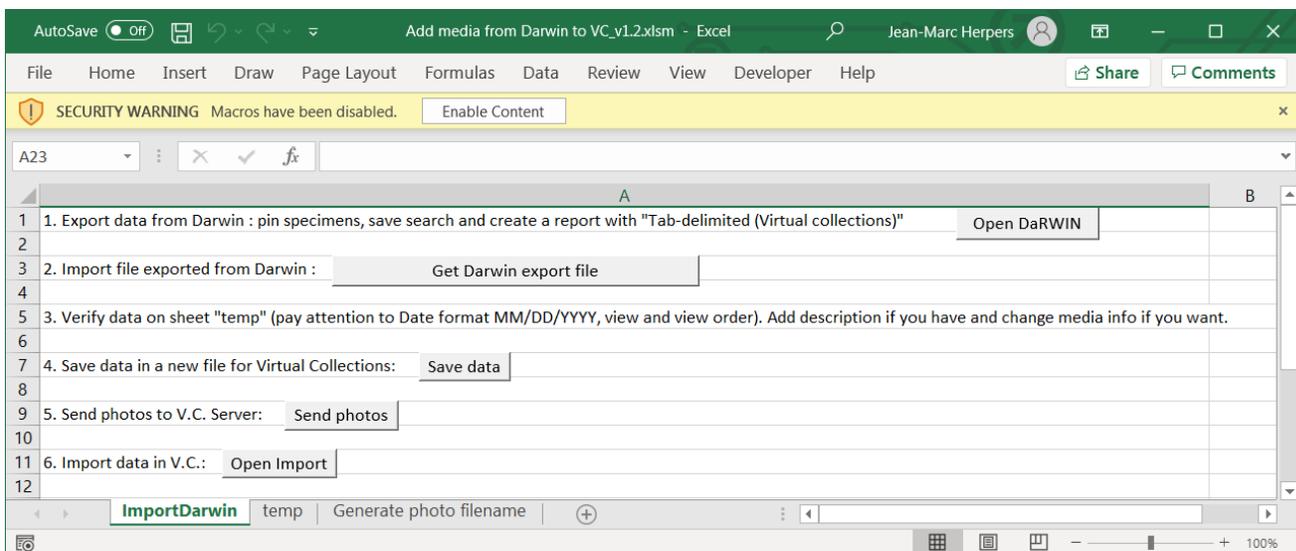


Figure 52 Excel template to import data from DaRWIn to Collective Access

The first tab contains actions to try to minimize the work of the user:

- 1. Open DaRWIn : to avoid searching for the link to DaRWIn, this button opens DaRWIn where the user can pin the specimens he wants, create the list and export the report as a CSV.
- 2. Get Darwin export file : Opens a window to get the CSV file and then opens a second window to enter the root path to the photos and the name of the collection in CA :

Figure 53 Screen to enter path to photos and collection name.

The photos files must be in directories of which name must be exactly the code in DaRWIn. This code is indeed used by CA as the main code.

When OK is clicked, data from CSV are inserted in the excel, on tab "temp", and photo filenames are automatically also filled, with one filename by row. So, we get the same format as the template described in 4.1.4.

This is done without intervention of the user to fill any data, and therefore speeds the process and also avoids errors that can occur by typing again filenames in the excel.

No need also to copy manually data from DaRWIn: all is inserted automatically.

- 3. This step is there to verify data of tab "temp"
- 4. Save data : Tab "temp" is saved as a new excel file, ready to be imported in CA.
- 5. Send photos : opens filezilla to send the photos to the CA server. To avoid losing time, connection is automatically done. User has to drag and drop files to the server.
- 6. Open Import. This step is described in 4.1.4 to import the excel.

This excel template greatly speeds up the process of creation of the import file to CA, by minimizing the risk of errors.

The last tab is there to help to create the filenames of the photos, which can be complex. It's used independently of the rest of the excel template. It contains formulas to automatically create the name. If tab "temp" is already filled in, this tool can be used to generate the photo description by copying automatically the data with button "copy data from sheet "temp"":

1	Original file	Taxon (genus)	Darwin code	Sex	Life stage	Type	Body part	Medium	Method	View	Generated filename	Generated description
2	DSC_125.jpg	felis catus	BE_RMCA_2012.12.M.123	Herma	subadult	Topotype	thorax	lactophéno	no	anterodorsal	felis_catus_BE_RMCA_2012.12.M.123_H_sub_Tt_tho_LPh_no_ad.jpg	Sex: Hermaphrodite; Life stage: subadult; Type: Topotype; Part: thorax; Medium: lactophéno; Material: no; View: anterodorsal
3	DSC_175.jpg	felis sylvestris	BE_RMCA_2016.05.M.12	male	adult	Lectotype		alcohol	Nikon D710	Dorsal	felis_sylvestris_BE_RMCA_2016.05.M.12_M_ad_Lt_Alc_Nikon-D7100_d.jpg	Sex: male; Life stage: adult; Type: Lectotype; Medium: alcohol; Material: Nikon D7100; View: Dorsal
4	IMG_4967.JPG	Acanthodactylus	RMCA_Vert_1973.009.R.0148			Specimen	habitus	alcohol		posterior	Acanthodactylus_boueti_RMCA_Vert_1973.009.R.0148_NT_hab_Alc_p.JPG	Type: Specimen non type; Part: habitus; Medium: alcohol; View: posterior

Figure 54 Tool to generate filename and description of the photos.

Since the installation of the new media server at RMCA, 4102 specimens/objects (3946 in zoology and 156 in anthropology) and 9561 photos have been imported. In the last months of the project were imported:

- 144 mammals,
- 26 amphibians and reptiles,
- 25 birds,
- 1895 boxes of Lepidoptera.

#### 4.5.3 Plone

Plone can display the CA images in an iframe with zooming and annotations.

Testing demonstrated that the default IIIF viewer Universal Viewer of CA doesn't support the Iframe because it uses it already. The Mirador IIIF viewer is working fine both in Iframe and direct link. Mirador was therefore chosen for next development.

## 5. CONCLUSION

During the test of Collective Access, more than 4000 objects and 9000 pictures from the RMCA zoology and anthropology collections were imported with success.

The evaluation of the CA solution is very positive:

- The new public website Virtual collections presents media from Africa Museum in a clear and easy design.
- Various gates exist to explore the data, save them or export them.
- Registration allows us to protect some more sensible data from a general public view by restricting access to some registered people.

- The backend interface is an easy-to-use solution to manage the MySQL database, import data and media, edit metadata and interfaces.

The use of Collective Access will be extended in 2021-2022 to the RBINS Virtualcollections allowing a better common policy and a common management of the infrastructures.

Authors : Jean-Marc Herpers, Franck Theeten & Patrick Semal