

Collections annual report 2017

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This annual report is a summary of the reports produced by the curators of each of the Museum's departments: **Jordi Agulló** (Scientific management of collections), **Dacha Atienza** (Curator of scientific area), **Berta Caballero** (Arthropods), **Marc Campeny** (Mineralogy), **Yael Diaz** (Petrology), **Jaume Gallemí** (Palaeontology), **Eulàlia Garcia Franquesa** (Curator of collections), **Neus Ibáñez** (Herbarium and Salvador Collection), **Glòria Masó** (Arthropods), **Neus Nualart** (Herbarium and Salvador Collection), **Javier Quesada** (Vertebrates), **Francesc Uribe** (Non-arthropod invertebrates), **Vicent Vicedo** (Palaeontology) and **Maria Vila** (Preventative Conservation and Restoration Laboratory).

Eulàlia Garcia Franquesa
Curator of collections
October 2018

0. Introduction

The Barcelona Natural History Museum (MCNB) is the repository of the most voluminous collection of objects belonging to Barcelona City Council.

This cultural and scientific heritage is stored and managed in buildings belonging to the City Council and to the CSIC (Spanish National Research Council).

- The Herbarium and Salvador Collection is housed in buildings on the mountain of Montjuïc in the installations of the Barcelona Botanical Institute-CSIC.
- The geology and palaeontology (Martorell Museum) and the zoology (Nature Laboratory) collections are housed in the buildings situated in the Parc de la Ciutadella.
- The display collections are on show in the Forum building.

The Museum's heritage is conserved, documented, studied and made public by means of annual projects that involve preparation, documentation, conservation-restoration and research. These projects are run by the curators of the respective collections, of which many require specialised external support; on other projects students and volunteers collaborate and provide expert knowledge. All share their knowledge with us and helped us achieve the goals that we set for 2017.

Each year we publish reports detailing the annual activities of each collection and gather objective data that help grasp the vast heritage that the Museum has at its disposal and the scope of the projects that it undertakes.

This heritage is public property and it is the task of those of us who work in the MCNB to make it more accessible to both the scientific community and the general public. We believe we have to set an example in terms of both our responsibility and the need for transparency, and are fully aware of that the results of our work represent a return for the public funds used to support our Museum.

The following are the results of the collection projects carried out by the Museum in 2017.

1. Summary

In 2017 all on-going projects involving acquisitions, preparation, conservation, documentation, scientific studies and education continued as in previous years.

The results of these projects can be summarised as follows:

Over 9,600 specimens were added to the Museum's collections and around 9,200 specimens were prepared. As part of the annual preventative conservation protocols over 3,000 display specimens were examined, over 7,000 specimens were put into quarantine, the permanent packaging of over 11,000 specimens was changed, and careful monitoring was made of all the Museum's spaces. In all, over 20 restoration activities were carried out to improve the state of conservation of over 5,000 specimens.

A total of 35,500 specimens were registered and 39,000 datasheets and digitalised. Around 34,000 specimens were verified by specialists and, as of the end of 2017, data corresponding to 217,000 specimens are now available on-line.

The MCNB has almost 4,000 specimens on permanent display in the Forum building, and in 2017 12 temporary exhibitions were organised (both internal and external) in which 179 specimens were exhibited.

In all, we answered 225 petitions for information that led to almost 11,000 specimens and their associated information being consulted. Around 4,000 specimens were loaned as part of 55 agreements with external researchers and institutions.

The collection staff organised 48 public activities that were attended by 720 people. As well, 30 teaching activities including tutorials, study guidance and courses were organised and run.

The Museum was mentioned in the media on six occasions. The Museum's collections and the activities that it carries out were publicised on social networks: 10 news events in the blog and 89 tweets on Twitter.

In 2017, 13 lines of research and 10 internal and external research projects were underway using the Museum's collections; the Museum also participated in six well-established research groups.

The study of the Museum's heritage and the research carried out by the curators of the collections led to the publication in 2017 of 11 articles in indexed publications, as well as 12 articles in other publications. In total, over 3,143 of the Museum's specimens were mentioned in 75 different scientific articles. Museum staff participated in 17 congresses/workshops/seminars and presented a total of 27 communications and eight posters. The Museum organised three seminars attended by 109 people.

The Museum participated directly in the publication of five volumes of articles.

The following is a brief description of a number of newsworthy events concerning the Museum that took place in 2017.

The vacant post of Curator of Mineralogy was filled and a number of new staff members for the

Herbarium were contracted via projects run by the CSIC and the Spanish Ministry of Economy, Industry and Competitiveness.

Work continued on the digitalisation of the collections, with emphasis on the Type Collection and the Museum's own Sound Library; a guide to the latter was published.

A vast volume of data and thousands of collection sites were verified and georeferenced.

A special effort was made to set up FileMaker, the new management tool for the geological collection, and the first trials were carried out with Specify, a management tool for zoological collections.

The project *Coleccions Obertes* (Open Collections) was consolidated and now allows us to gather vast amounts of data and transfer them to sites that can be consulted freely. The public availability of data from museum collections via Bioexplora has increased considerably thanks to the data from our collections and from other natural history collections.

The Geological and Palaeontological Preparation Laboratory (LPGiP) has strengthened its infrastructure and organisation and now provides an internal service that will be externalised in the near future.

The Restoration and Conservation Laboratory (LCPR) has taken charge of the complete restoration of the glass case displaying the salts from the Cardona salt mines. It also monitored the work being carried out in the basement of the Castell dels Tres Dragons building that is seriously affecting the projects of the vertebrate collection.

The Museum's expertise enabled it to set up and run a number of specialist courses devoted to the preparation and conservation of collections.

In collaboration with the Gavà Mines Museum and the University of Barcelona, a new geo-archaeological research project was set up.

A DNA Barcode Library focused on Catalonia was created with an initial emphasis on terrestrial molluscs.

The results and activities from 2017 show that:

- the Museum has maintained the high standard of its annual projects that ensure its ability to conserve and manage its heritage.
- improvements have been made that broaden the Museum's cultural and scientific dimension as an institution.
- the sum of the efforts of over 100 people who worked hard all year long and afforded the Museum their experience and meticulousness are the key to the excellent results obtained by the Museum in 2017.

2. Museum staff and collaborators in the collection projects run by the MCNB and IBB

Herbarium and Salvador Collection

- ✓ Curators: Neus Ibáñez, Neus Nualart
- ✓ Auxiliaries: Jordi Pallás, Anna Prats
- ✓ Documentation: Diana Muñiz, Noemí Montes, Laura Gavioli, Juan Carlos Pérez, Beatriz Díaz, David Pérez.
- ✓ Collaborators: Jordi López-Pujol, Carlos Gómez

Mineralogy

- ✓ Curator: Marc Campeny
- ✓ Documentation: Susana Duque
- ✓ Student: Joana Lluch Cabré

Petrology

- ✓ Curator: Yael Díaz
- ✓ Documentation: Iria Díaz, Laura Gutiérrez, Lisard Torró
- ✓ Verification: Guillem Gisbert
- ✓ Volunteers: Pere Domènech, David Fernández, Guillem Gisbert, Laura Moré, Laia Ramón, Salvador Rodà, Ángeles Zamora
- ✓ Student: Laura Gutiérrez

Palaeontology

- ✓ Curators: Jaume Gallemí, Vicent Vicedo
- ✓ Documentation: Raquel Robles, Luis Troya, Ángeles Zamora

Geological and palaeontological collections

- ✓ Auxiliary: David Fernández, Gregoria Fernández, Eva Ruíz

Geological and Palaeontological Preparation Laboratory (LPGiP)

- ✓ Curators: Marc Campeny, Yael Díaz, Jaume Gallemí, Vicent Vicedo
- ✓ Preparation: Gerard Lucena

Sound Library

- ✓ Head: Dacha Atienza
- ✓ Documentation: Eloïsa Matheu

Arthropods

- ✓ Curators: Berta Caballero, Glòria Masó
- ✓ Fieldwork: BIOSP
- ✓ Preparation: Pepe Carrillo, Jorge Mederos
- ✓ Documentation: Neus Brañas, Sergi Gago, Marc Anton Recasens
- ✓ Georeferencing: Anna Díaz
- ✓ Collection verification: Arcadi Cervelló Roles, Diego Fernández Ruiz, Ramon Macià, Miguel Prieto, Juli Pujade Villar, Jaume Vila Nadal, Amador Viñolas, Juan Antonio Zaragoza

Non-arthropod invertebrates

- ✓ Curator: Francesc Uribe
- ✓ Documentation: Miguel Prieto
- ✓ Georeferencing: Anna Díaz
- ✓ Verification: Vicenç Bros, Jordi Cadevall, Miquel Capdevila, Carles Gili, Elisabeth Hernández, Jordi Nebot, Albert Orozco.

Vertebrates

- ✓ Curator: Javier Quesada.
- ✓ Preparation: Pepe Carrillo, Jessica Martínez-Vargas, Alba Ruíz
- ✓ Documentation: Olga Boet, Alba Ortega, Cecília Corbella
- ✓ Verification: Albert Burgas

Scientific management

- ✓ Head: Jordi Agulló
- ✓ Planning: Sirley Ríos
- ✓ IT: Miguel Martínez

Collections

- ✓ Head: Eulàlia Garcia Franquesa.
- ✓ Register: Jordi Cadevall (Arthropods), David Pérez (Herbarium), Ángeles Zamora (Palaeontology)
- ✓ Project 3D: Jordi Cadevall
- ✓ Planning: Sirley Ríos
- ✓ Student trainee: Joan Ramon Maria Mauri

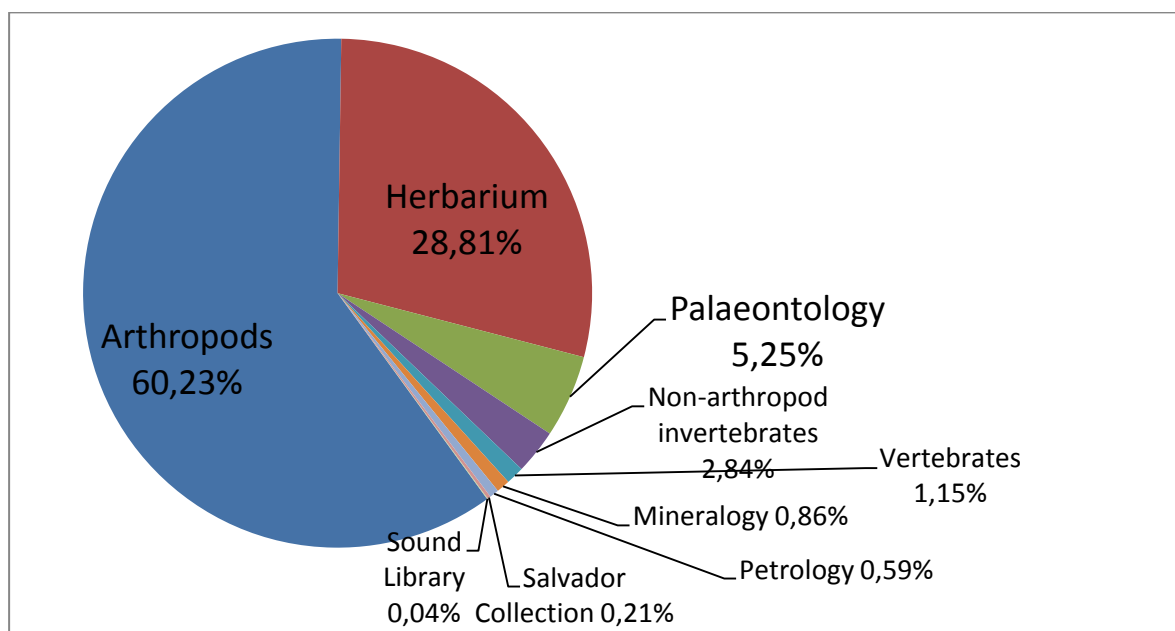
Preventative Conservation and Restoration Laboratory (LCPR):

- ✓ Heads: Eulàlia Garcia Franquesa, Maria Vila
- ✓ Curators-restorers: Olga Muñoz, Marta Pérez, Joan Girbal, Maria Vila
- ✓ Auxiliary: Eva Ruíz
- ✓ Students: Eloy Fernández Castillo, Sara Tarazona Nolasco, Julia Xaubet Piferrer, Damaris Gómez Molina
- ✓ Volunteers: Maria Cira Hervella, Eloy Fernández Castillo, Damaris Gómez Molina, Sara Tarazona Nolasco, Julia Xaubet Piferrer

Business associates: Nubilum, Myrmex, Itinerart, Agilogy, Auupa.

3. The collections

Collection	Number of registers ¹	Number of specimens ²
Herbarium	894,039	894,039
Salvador Collection ³	6,473	6,473
Mineralogy	26,554	26,733
Petrology	18,419	28,666
Palaeontology	163,015	294,975
Sound Library	1,350	1,350
Non-arthropod invertebrates	88,193	88,193
Arthropods	1,868,899	1,985,849
Vertebrates	35,797	48,311
TOTAL	3,102,739	3,374,589



Percentage of number of registers in each collection

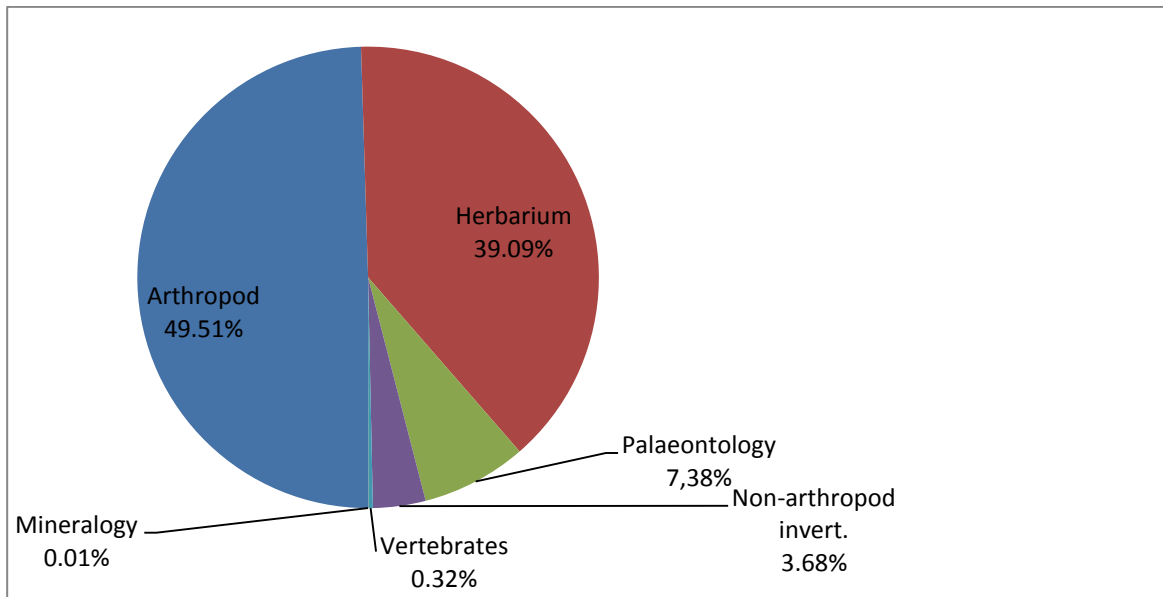
1 Corresponds to the both inventoried and not inventoried registers, and consist of documental units of specimens or lots. A lot is a group of animals, plants, minerals, rocks or fossils of the same species collected by the same person on the same day at the same site.

2 Number of specimens corresponds all samples conserved.

3 Herbarium of Salvador collection are counted inside Herbarium collection. Salvador collection includes books and archive.

The Type Collection

The Museum possesses 10,157 type specimens, that is, specimens that researchers use to define the characteristics of a new species.



Percentage of registers according to group in the Type Collection

4. Collections: projects and services

A museum's collections grow through *acquisitions*. Practically everything that the Museum acquires has to be **prepared** (herbarium sheets, insects, skeletons, skins, whole animals in liquid, consolidations, thin specimen sheets, and so forth). Stored and display specimens need to be **conserved and restored** to ensure their long-term survival. In terms of the effort involved, the most important part of this work is **documentation**, whereby specimens are registered, verified, digitalised and catalogued.

Throughout the year the collection can be visited and data can be **consulted on-line**. The material used in the collections is consulted by and loaned to scientific and cultural projects.

During the year as part of the Museum's projects, **activities** including meetings, workshops, teaching and information sessions, as well as visits by technical staff from other institutions, are organised.

Annual projects

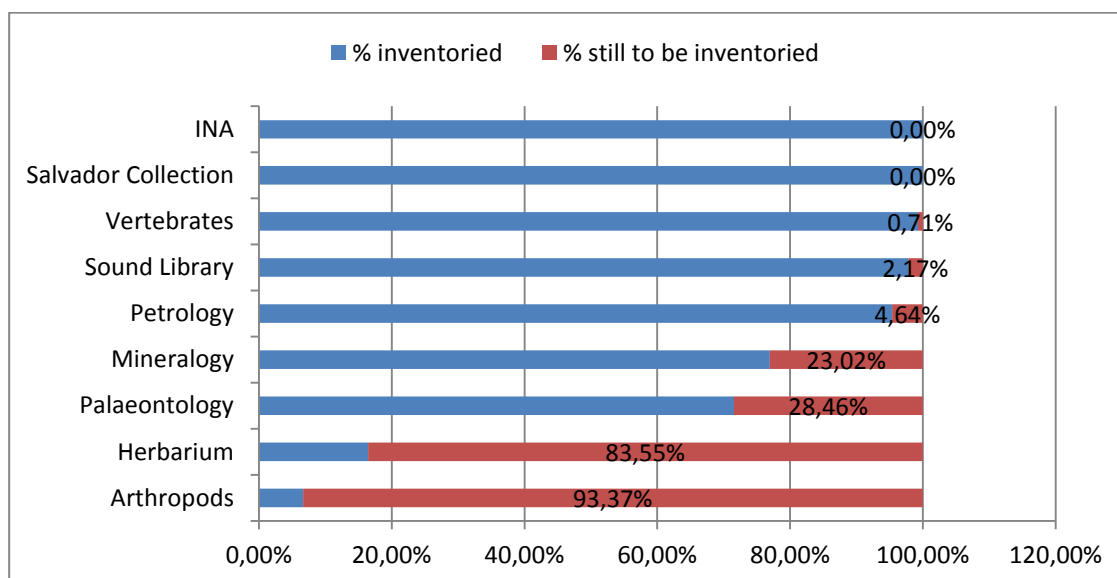
Acquisitions	9,658 examples
Preparation	9,270 specimens
Preventative conservation and restoration	
- Preventative conservation	>24,000
- Restoration	>5,000
Documentation	
- Registration	35,501 accessions
- Verification	33,900 accessions
- Digitalisation	39,092 accessions
- Uploading to Internet	
Cultural and scientific use	
- Nº. of consultations	225
- Nº. of specimens consulted	10,809
- Nº. of loans (temporary and permanent)	55
- Nº. of loaned specimens	3,995
Other activities	
- Nº. of meetings and workshops attended	15
- Guided visits to MCNB-IBB	3
- Training	16
- Collaborators	41
- Visits from other collections	14

Documentation: registration and inventory, digitalisation and verification

In all, 17.79% of the MCNB's collections (552,107 registers) have been inventoried.

Collection	Registers inventoried in 2017	Registers inventoried by 31/12/2017	Registers still to be inventoried	Total registers in collections
Herbarium	13,475	147,030	747,009	894,039
Salvador Collection		6,473		6,473
Mineralogy	1,115	20,440	6,114	26,554
Petrology	101	17,564	855	18,419
Palaeontology	7,013	116,615	46,400	163,015
Sound Library		1,350	30	1,380
INA	1,488	88,193		88,193
Arthropods	11,868	118,899	1,750,000	1,868,899
Vertebrates	441	35,543	254	35,797
TOTAL	35,501	552,107	2,550,662	3,102,769

Percentage of each collection inventoried



Verification

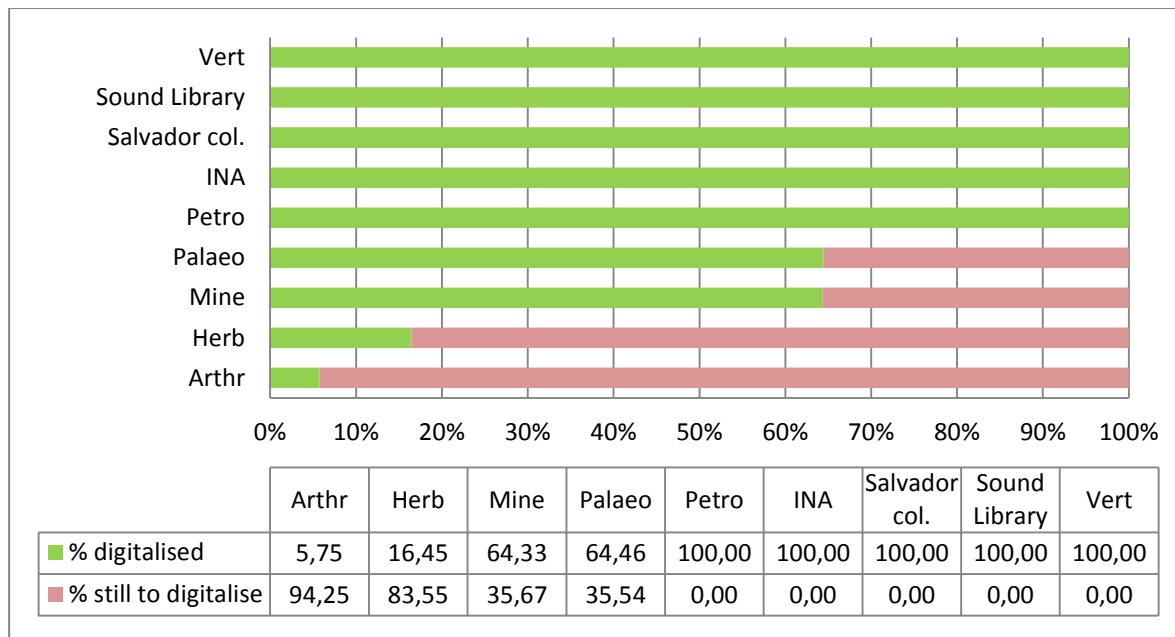
In 2017 over 33,900 catalogue records (specimens, registrations, datasheets) were verified.

Digitalisation

In 2017 39,092 new records were entered into the Museum's database. As of 31 December 2017, 16.88% of its collections had been digitalised.

Collection	Digitalised in 2017	Total digitalised	Total still to digitalise
Herbarium	13,475	147,030	894,039
Salvador Collection		6,473	6,473
Mineralogy	1,115	17,083	26,554
Petrology	101	17,564	18,419
Palaeontology	7,969	105,078	163,015
Sound Library		1,350	1,350
Non-arthropod invertebrates	3,984	88,193	88,193
Arthropods	11,871	107,424	1,868,899
Vertebrates	577	35,802	35,797
TOTALS	39,092	523,885	3,102,739

Percentage of each collection digitalised



Uploading of data to the Internet

The MCNB has published on-line over 451,111 datasheets of specimens from the collections. They are not unique data as some collections have data published on more than one websites. The approximate number of unique records is highlighted in green in the following table (216,915 specimen datasheets).

Collection	GBIF ⁴	Collections on-line ⁵	Taxo&Map ⁶	Jstor ⁷	VerNet ⁸	Sketchfab ⁹	NCD ¹⁰
Herbarium	59,580		5,691	1,426			24
Historical herbarium	15,675						
Herbarium-lichen collection	4,537						
Salvador Collection							1
Mineralogy		12,696					3
Petrology		8,597					11
Palaeontology	7,351						21
Sound Library							
Molluscs	36,653	37,145	37,882				40
General zoology	1,857	2,077	1,596				
Arthropods	31,885	33,924	29,885				
Vertebrates	28,890	28,890	24,430		21,312		
Tissue bank	5,200	5,200			4,876		
3D images						506	1
Total	194,875	128,529	99,484	1,426	26,188	506	103

⁴ EXTERNAL PORTAL. GBIF (*Global Biodiversity Information Facilities*) (www.gbif.es) (www.gbif.org).

⁵ WEB DEL MUSEU. On-line collections: data consultable on the Museum's website: <http://Geologiaenlinia.museuciencias.cat>; <http://zoologiaenlinia.museuciencias.cat>

⁶ BIOEXPLORA. Taxo&Map (<http://www.bioexplora.cat/ca/taxoimap>)

⁷ EXTERNAL PORTAL. JSTOR <http://plants.istor.org>

⁸ EXTERNAL PORTAL. VERTNET: project set up in USA for publishing data from vertebrate collections <http://portal.vertnet.org/p/museu-de-cincies-naturals-de-barcelona>

⁹ EXTERNAL PORTAL. Sketchfab (<https://Sketchfab.com>). 3D-image viewer.

¹⁰ BIOEXPLORA. NCD (Natural Collections Description) <http://www.bioexplora.cat/ncd/home/lang-nl> Tool managed by Jordi Agulló for consulting the Museum's work, visited on average 45 times a month.

Scientific and cultural services: consultations and loans

Consultations

Consultations are the way in which researchers access the specimens in our collections. They take place either in person in the Museum's installations or via on-line communication with the curators of the collections.

Collection	Scientific consultation in person	Elements consulted	Scientific consultations not in person	Elements consulted	On-line scientific consultations	Elements consulted	Cultural consultations
Herbarium	18	2,000	53	985	19,829		
Salvador Collection	8	85					
Mineralogy	27	162					
Petrology	1	244					4
Palaeontology	3	6,179					
Sound Library							
Non-arthropod invertebrates	10	84					
Arthropods	15	708	60				7
Vertebrates	19	365					
Total	101	9,827	113	982	19,829		11

Loans

The number of loans varies from year to year depending on the external and internal research projects underway, the verification tasks being carried out, and the number of exhibitions and activities set up and programmed.

Collection	Scientific loans	Specimens loaned	Cultural loans	Specimens loaned	Loans for MCNB activities	Specimens loaned	Show loan	Nº. specimens
Herbarium	5	94	1	8				
Salvador Collection								
Mineralogy	2	15	1	1				
Petrology			1	11	1	13		
Palaeontology	2	27						
Sound library								
Non-arthropod invertebrates	1	10						
Arthropods (*)	24	2,070	2	58	3	1,513		
Vertebrates	3	20	4	85	2	54	3	16
Total	37	2,236	9	163	6	1,580	3	16

(Includes all loans and verifications contracted)

5. Knowledge transfer

The curators of the collections are responsible for the Museum's publications. They also teach undergraduate and MA students, co-direct PhD theses and work with students and trainees.

They set up expert courses concerned with imparting the Museum's acquired knowledge and attend externally run courses.

The curators also participate directly in publicising the Museum's work via exhibitions, the social networks, public activities and contact with the media.

Publications	
Museum publications	
- Nº. publications	5
- Nº. volumes published	5
External publications	3
Teaching	
- PhD theses	8
- MA projects	-
- Undergraduate projects	6
- Tutorials, students	7
- Guided visits	4
- Postgraduate courses organised	-
- Courses run	4
Publicity	
Exhibition	
- Nº specimens Permanent Exhibition	3,770
- Nº specimens temporary exhibitions	179
- Nº exhibitions in which participated	12
Social networks	
- YouTube	0
- Public blog	10
- Internal blog	8
- Twitter	89
- Facebook	
- Website	2
Public activities	
- Nº activities	48
- Nº people attending	Over 720
Organisation of congresses and seminars	2
Media	
- Print press	3
- TV	3
- Radio	0

Publications

Museum publications

Animal Biodiversity and Conservation

[\(<http://abc.museucienciesjournals.cat/?lang=en>\)](http://abc.museucienciesjournals.cat/?lang=en)

Publishing of volumes:

40.1 (2017) with 13 articles

40.2 (2017) with 12 articles

Arxius de Miscel·lània Zoològica

[\(<http://amz.museucienciesjournals.cat/?lang=en>\)](http://amz.museucienciesjournals.cat/?lang=en)

Publishing of Volume 15, which contains 10 articles and 268 pages, as well as two data papers.

Treballs del Museu de Geologia de Barcelona

[\(<http://tmgb.museucienciesjournals.cat/?lang=en>\)](http://tmgb.museucienciesjournals.cat/?lang=en)

Publishing of Volume 23 (2017) containing five articles.

Collectanea Botanica

[\(<http://collectaneabotanica.revistas.csic.es/index.php/collectaneabotanica>\)](http://collectaneabotanica.revistas.csic.es/index.php/collectaneabotanica)

Teaching

Courses organised/taught

Introduction to the Conservation of Natural History Collections. Organised by ICP-MCNB-ESCRBBC. 26-30 June 2017. 14 participants.

Monographic course organised for the Barcelona Natural History Museum by the Catalan Palaeontological Institute, with collaboration from the Catalan School of Conservation and Restoration of Cultural Heritage.

Zoological Preparation Techniques for Scientific Collections, 30 January-2 February 2017. Organised by the MCNB and Barcelona University.

Class on the course *Examples of Using SIG*, part of the Teledetection and SIG Master's Course run by CREA. 20/03/2017. **Francesc Uribe**.

Knowledge of the World of Animals: Education and Awareness. Participation in the postgraduate course run by the Institute of Educational Science, Barcelona University. Class on terrestrial invertebrates. 2 November (17.00-20.00h). **Berta Caballero** and **Glòria Masó**

Awareness-raising

Exhibitions

Permanent exhibitions: 3,770 specimens on display in the MCNB collections.

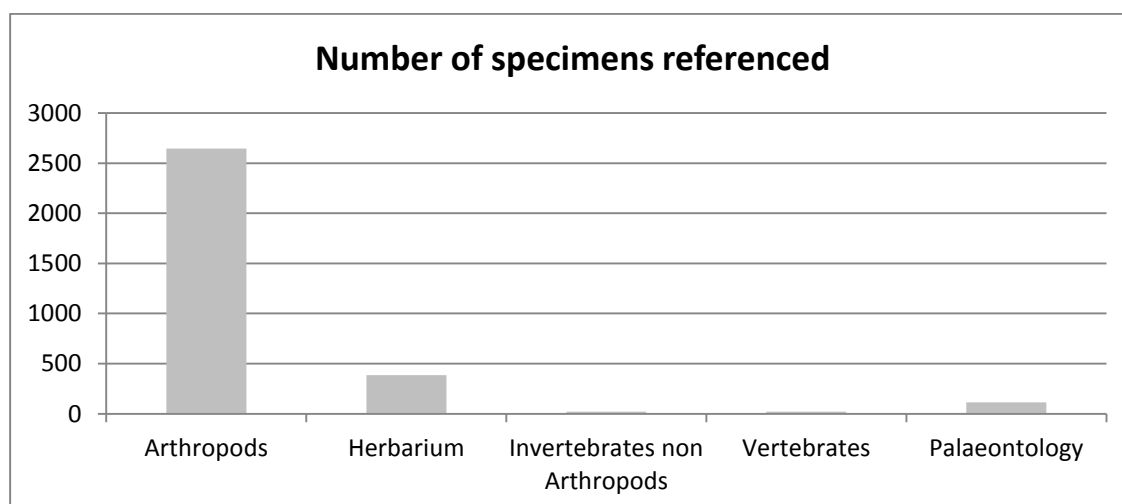
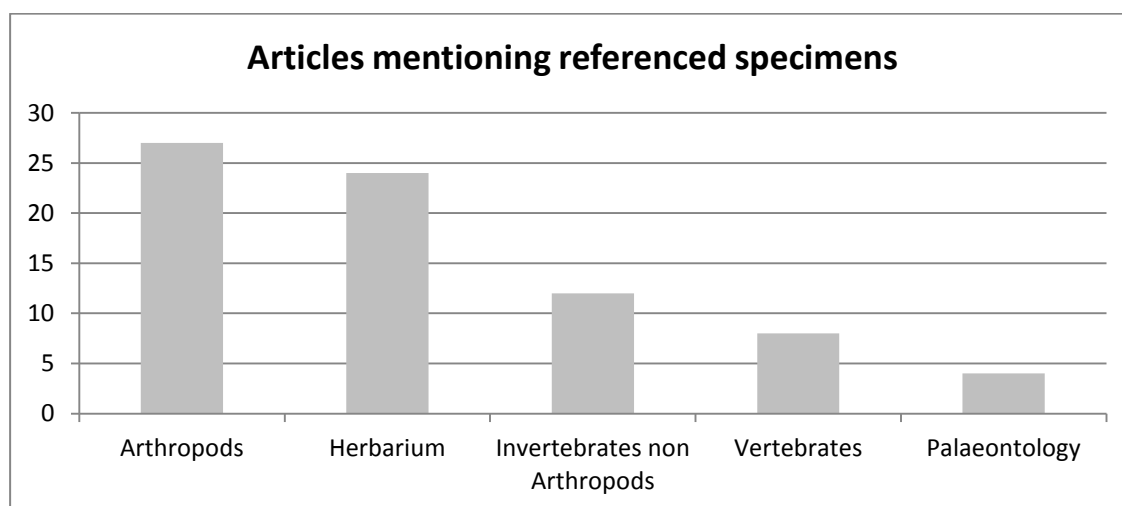
Temporary exhibitions

Temporary exhibitions	Nº examples
Museu de la Ciència i la Tècnica: Exhibition Clot del Moro	1
Caixa de Catalunya Foundation. La Pedrera.	4
La Caixa Foundation. Cosmocaixa, permanent exhibition	14
Manlleu Town Council. Ter Museum. Educational activities	71
Museu de les Cultures del Món – Museu Etnològic de Barcelona. IKUNDE exhibition.	24
Museu d'Arqueologia Bones. <i>A Journey back to the Middle Ages via physical anthropology</i>	1
CMCB Spinosaurus	61
Arenys de Mar Museum. Exhibition: <i>Al punt de sal</i>	1
CMCNB Abellaïta	1
CMCNB Océanos	1
TOTAL	179

6. Scientific output

The scientific and technical work on the Museum's specimens carried out by the MCNB staff and by external investigators generates valuable knowledge that is communicated via scientific and general articles, and presentations and posters at congresses, symposiums and workshops.

Articles in indexed publications	11
Articles in non-indexed publications	12
Articles mentioning referenced specimens	75
Nº specimens referenced	Over 3,143
Book chapters	1
Congresses, workshops and seminars	
Nº congresses, workshops and seminars	17
Nº oral communications	27
Nº posters	8
Organisation of congresses /seminars	3
Nº participants	109



Referenced specimens are those that are cited with their reference number in a publication.

Scientific articles

Articles in indexed publications (11)

Campeny, M., Melgarejo, J.C., Mangas, J., Manuel, J., Gonçalves, A.O. 2017. Recent carbonatitic magmatism in Angola: the dykes of the Chiva lagoon maar. *Boletín de la Sociedad Geológica Mexicana*, 69 (1): 209-222.

Covas, I. Senar, J. C. Roqué, I. & **Quesada, J.** 2017. Records of fatal attacks by Rose-ringed Parakeets *Psittacula krameri* on native avifauna. *Revista Catalana d'Ornitologia*. 33:45-49

Giuliani, A., **Campeny, M.**, Kamenestsky, V.S., Afonso, J.C., Maas, R., Melgarejo, J.C., Kohn, B.P., Matchan, E.L., Mangas, J., Gonçalves, A.O., Manuel, J. 2017. Southwestern Africa on the burner: Pleistocene carbonatite volcanism linked to deep mantle upwelling in Angola. *Geology*, 45 (11): 971-974.

Gras, A., Garnatje, T., **Ibáñez, N.**, López-Pujol, J., **Nualart N.** & Vallès, J. 2017. Medicinal plant uses and names from the Herbarium of Francesc Bolòs (1773–1844). *Journal of Ethnopharmacology* 204: 142–168. <https://doi.org/10.1016/j.jep.2017.04.002>

Macgregor-fors, I., **Quesada, J.** Lee, G-H. & Yeh, P.J. 2017. "Space invaders: House Sparrow densities along three urban-agricultural landscapes". *Avian Conservation and Ecology*. 12(2):11

Nualart, N., **Ibáñez, N.**, Luque, P., Pedrol, J., Vilar, L. & Guàrdia, R. 2017. Dataset of Herbarium specimens of threatened vascular plants in Catalonia. *PhytoKeys*, 77: 41–62. <https://doi.org/10.3897/phytokeys.77.11542>

Nualart, N., **Ibáñez, N.**, Soriano, I. & López-Pujol, J. 2017. Assessing the relevance of Herbarium collections as tools for conservation biology. *Botanical Review* 83(3): 303–325. <http://doi.org/10.1007/s12229-017-9188-z>

Robles-Salcedo, R., **Vicedo, V.** i Caus, E. (2017 online version). Latest Campanian and Maastrichtian Siderolitidae (larger benthic foraminifera) from the Pyrenees (S France and NE Spain). *Cretaceous Research*. <https://doi.org/10.1016/j.cretres.2017.08.017>

Sampaio, M.V., Korndörfer, A.P., Pujade-Villar, J., Hubaide, J.E.A., Ferreira, S.E., Arantes, S.O., Bortoletto, D.M., Guimarães, C.M., Sánchez-Espigares, J.A. & **Caballero-López, B.** 2017. Brassica aphid (Hemiptera: Aphididae) populations are conditioned by climatic variables and parasitism level: a study case of Triângulo Mineiro, Brazil. *Bulletin of Entomological Research*, 107, 410–418.

Vicedo, V. & Piuze, A., 2017 (printed version). Evolutionary trends and biostratigraphical application of new Cenomanian alveolinoids (Foraminifera) from the Natih Formation of Oman. *Journal of Systematic Palaeontology* 15:10, 821-850.

Villanova-de-Benavent, C., Torró, L., Castillo-Oliver, M., **Campeny, M.**, Melgarejo, J.C., Llovet, X., Galí, S., Gonçalves, A.O. 2017. Fe–Ti(–V) Oxide Deposits of the Kunene Anorthosite Complex (SW Angola): *Mineralogy and Thermo-Oxybarometry*. *Minerals*, 7: 246-271.

Articles in non-indexed publications (12)

Blanes-Dalmau, M., **Caballero López, B.**, Pujade-Villar, J. 2017. Estudi de les gales de la col·lecció Villarúbia dipositada al Museu de Ciències Naturals de Barcelona. *Butlletí de la Institució Catalana d'Història Natural* V. 81, 137-173 pp.

Campeny, M., 2017. La Geología de la sal: Al punt de Sal Ed. *Museu d'Arenys de Mar (Ajuntament d'Arenys de Mar)* 62 pp.

Díaz-Acha, Yael; Iria Díaz-Ontiveros y Laura Gutiérrez-García. 2017. *El mapa geológico y topográfico de la provincia de Barcelona, serie 1:40.000 (1900-1915): hojas IV y V. Catálogo petrológico del Museo de Ciencias Naturales de Barcelona*. Llibre de resums de la reunió, editat per la RSEHN. ISBN: 978-84-697-4764-3.

Garcia-Franquesa, E. 2017. A whale skeleton is moved. *Journal of Natural Science Collections*. Volume 5:115-124.

Macià, R. **Caballero-López, B. Masó, G.** 2017. Designació dels lectotipus de *Pseudochazara williamsi* (Romei, 1927) (Lepidoptera: Nymphalidae: Satyrinae) i *Carcharodus tripolinus* (Veirity, 1925) (Lepidoptera: Hesperiiidae: Pyrginae) de la col·lecció d'Ignasi de Sagarra dipositada al Museu de Ciències Naturals de Barcelona. *Butlletí de la Institució Catalana d'Història Natural* V. 81, 19-21 pp.

Macià, R. **Caballero-López, B. Masó, G.** 2017. The collection of Lepidoptera type specimens deposited in the Natural Sciences Museum of Barcelona (MCNB), Spain. *Arxius de Miscel·lània Zoològica*, 15: 93–206.

Mesquida, V., Gómez-Bellver, C., Guillot, D., Herrando-Moraira, S., **Nualart, N.**, Sáez, L. & López Pujol, J. 2017. El gènere *Kalanchoe* (*Crassulaceae*) a Catalunya: situació i distribució potencial del tàxon invasor *K. xoughtoni*. *Orsis* 31: 37–64. <https://doi.org/10.5565/rev/orsis.42>

Navarro-Miró, D., **Caballero-López, B.**, Blanco-Moreno, J.M., Pérez, A., Depalo, L., Masetti, A., Burgio, G., Canali, S., Sans, F.X. 2017. Agro-ecological Service Crops with roller crimper termination enhance ground-dwelling predator communities and pest regulation. 5th ISOFAR Scientific Conference "Innovative Research for Organic 3.0" at the 19th Organic World Congress, New Delhi, India, November 9-11. Conference Paper.

Ibáñez, N., Massó, S., Herrando-Moraira, S. & López-Pujol, J. Ecos del XIX International Botanical Congress. *Collectanea Botanica* 36: e008.

<http://collectaneabotanica.revistas.csic.es/index.php/collectaneabotanica/article/view/257/324>

Ibáñez, N., Vallès, J. & Garnatje, T. 2017. In memoriam, Pere Montserrat Recoder (Mataró, 8 d'agost de 1918 - Jaca, 4 de febrer de 2017). *Collectanea Botanica* 36: e007.

<http://collectaneabotanica.revistas.csic.es/index.php/collectaneabotanica/article/view/255/320>

Viñolas, A., **Caballero-López, B. & Masó, G.** 2017 The collection of type specimens belonging to the subfamily Pimeliinae (Coleoptera, Tenebrionidae) in the Natural Sciences Museum of Barcelona, Spain. *Arxius de Miscel·lània Zoològica*, 15: 30–92.

Viñolas, A., **Caballero-López, B., Masó, G.** 2017. Designation of lectotypes in the Coleoptera collection (Tenebrionidae: Diaperinae) of the Natural Sciences Museum of Barcelona (MCNB). *Butlletí de la Institució Catalana d'Història Natural* V. 81, 135-136 pp.

Articles with specimen references: 75 articles, plus 3,185 referenced registers

Herbarium: 24 articles, 385 referenced sheets

Agulló, J.C., Juan, A., Crespo, M.B., Alonso, M.A. & Terrones, A. 2017. An updated report on the distribution and conservation status of the endangered Cat's Head Rockrose *Helianthemum caput-felis* (Magnoliopsida: Violales: Cistaceae) in Algeria. *Journal of Threatened Taxa* 9(3): 9885–9891. <http://doi.org/10.11609/jott.2592.9.3.9885-9891>

Barres, L., Galbany-Casals, M., Hipp, A., Molero, J. & Vilatersana, R. 2017. Phylogeography and character evolution of *Euphorbia* sect. *Aphyllis* subsect. *Macaronesicae* (Euphorbiaceae). *Taxon* 66(2): 324–342. <https://doi.org/10.12705/662.3>

Carnicero, P., Sáez, L., Garcia-Jacas, N. & Galbany-Casals, M. 2017. Different speciation types meet in a Mediterranean genus: The biogeographic history of *Cymbalaria* (Plantaginaceae). *Taxon* 66(2): 393–407. <https://doi.org/10.12705/662.7>

- Fateryga, A.V., Svirin, S.A., Yevseyenkov, P.E. & Yena A.V. 2017. On the presence of *Holosteum marginatum* C. A. Mey. (Caryophyllaceae: Alsinoideae) in the Crimea. *Turczaninowia* 20(2): 23–30. <http://dx.doi.org/10.14258/turczaninowia.20.2.3>
- Ferrer Gallego, P.P., Roselló Gimeno, R., Laguna, E., Gómez Navarro, J. & Peris, J.B. 2017. Los híbridos de *Sideritis hirsuta* L. y *S. tragoriganum* Lag. (Labiatae). *Flora Montiberica* 67: 120–138. <https://dialnet.unirioja.es/descarga/articulo/5994646.pdf>
- García-Aloy, S., Vitales, D., Roquet, C., Sanmartín, I., Vargas, P., Molero, J., Kamau, P., Aldasoro, J. J. & Alarcón, M. 2017. North-west Africa as a source and refuge area of plant biodiversity: a case study on *Campanula kremeri* and *Campanula occidentalis*. *Journal of Biogeography* 44: 2057–2068. <https://doi.org/10.1111/jbi.12997>
- García-Fernández, A., Vitales, D., Pellicer, J., Garnatje, T. & Vallès, J. 2017. Phylogeographic insights into *Artemisia crithmifolia* (Asteraceae) reveal several areas of the Iberian Atlantic coast as refugia for genetic diversity. *Plant Systematics and Evolution* 303: 509–519. <https://doi.org/10.1007/s00606-017-1387-x>
- Garrido, L. & Mercadal, G. 2017. Demografia i conservació de *Simethis mattiazzi* (Liliaceae), espècie d'interès per a la flora vascular de Catalunya. *Collectanea Botanica* 36: e001. <http://dx.doi.org/10.3989/collectbot.2017.v36.001>
- Gómez-Bellver, C. & Sáez, L. 2017. Sobre la identitat de les plantes del complex *Opuntia humifusa* (Cactaceae) naturalitzades al nord-est de la península Ibèrica. *Orsis* 31: 21–30. <https://doi.org/10.5565/rev/orsis.41>
- Guillot, D. 2017. Primera cita de *Cylindropuntia kleiniae* (DC.) F. M. Knuth en la península ibèrica. *Collectanea Botanica* 36: e002. <http://dx.doi.org/10.3989/collectbot.2017.v36.002>
- Herrando-Moraira, S., Blanco-Moreno, J.M., Sáez, L. & Galbany-Casals, M. 2016. Re-evaluation of the *Helichrysum italicum* complex (Compositae: Gnaphalieae): A new species from Majorca (Balearic Islands). *Collectanea Botanica* 35: e009. <http://dx.doi.org/10.3989/collectbot.2016.v35.009>
- Herrando-Moraira, S., Carnicero, P., Blanco-Moreno, J.M., Sáez, L., Véla, E., Vilatersana, R. & Galbany-Casals, M. 2017. Systematics and phylogeography of the Mediterranean *Helichrysum pendulum* complex (Compositae) inferred from nuclear and chloroplast DNA and morphometric analyses. *Taxon* 66(4): 909–933. <https://doi.org/10.12705/664.7>
- Hidalgo, O., Vitales, D., Vallès, J., Garnatje, T., Siljak-Yakovlev, S., Leitch, I.J. & Pellicer, J. 2017. Cytogenetic insights into an oceanic island radiation: The dramatic evolution of pre-existing traits in *Cheirolophus* (Asteraceae: Cardueae: Centaureinae). *Taxon* 66(1): 146–157. <https://doi.org/10.12705/661.8>
- Koch, M.A., Michling, F., Walther, A. Huang, X.-C., Tewes, L. & Müller, C. 2017. Early-Mid Pleistocene genetic differentiation and range expansions as exemplified by invasive Eurasian *Bunias orientalis* (Brassicaceae) indicates the Caucasus as key region. *Scientific Reports* 7: 16764. <https://doi.org/10.1038/s41598-017-17085-8>
- López, E., Martínez-Sagarra, G. & Devesa, J.A. 2017. Taxonomic treatment of the *Festuca marginata* group (Pooideae, Poaceae) on the Iberian Peninsula (SW Europe). *Phytotaxa* 319 (3): 201–224. <https://doi.org/10.11646/phytotaxa.319.3.1>
- Malik, S., Vitales, D., Hayat, M.Q., Korobkov, A.A., Garnatje, T. & Vallès, J. 2017. Phylogeny and biogeography of *Artemisia* subgenus *Seriphidium* (Asteraceae: Anthemideae). *Taxon* 66(4): 934–952. <https://doi.org/10.12705/664.8>
- Martínez-Sagarra, G., Abad, P. & Devesa, J.A. 2017. Study of the leaf anatomy in cross-section in the Iberian species of *Festuca* L. (Poaceae) and its systematic significance. *PhytoKeys* 83: 43–74. <https://doi.org/10.3897/phytokeys.83.13746>

Mateo, G., Sáez, L., del Egado, F. & Gómiz García, F. 2017. Aportaciones al conocimiento del género *Hieracium* L. en España, XXVII: especies del macizo del Cardó (Tarragona). *Flora Montiberica* 69: 67–80. http://www.floramontiberica.org/FM/069/Flora_Montib_069_067-080_2017.pdf

Mesquida, V., Gómez-Bellver, C., Guillot, D., Herrando-Moraira, S., **Nualart, N.**, Sáez, L. & López Pujol, J. 2017. El gènere *Kalanchoe* (*Crassulaceae*) a Catalunya: situació i distribució potencial del tàxon invasor *K. ×houghtoni*. *Orsis* 31: 37–64. <https://doi.org/10.5565/rev/orsis.42>

Pujadas, A.J., Triano, E., Anaya, J., Grande, M., Raposo, C., Torres, P. & Hernández, P. 2017. *Foeniculum sanguineum* Triano & A. Pujadas (*Apiaceae*) new species from the south western Mediterranean Region. *Acta Botanica Malacitana* 40: 71–88. http://www.biolveg.uma.es/abm/Volumenes/vol40/40_Pujadas_Foeniculum.pdf

Rigat, M., Gras, A., Vallès, J. & Garnatje, T. 2017. Estudis etnobotànics a la comarca del Ripollès (Pirineu, Catalunya, península Ibèrica). *Collectanea Botanica* 36: e003. <https://doi.org/10.3989/collectbot.2017.v36.003>

Romo, A., Iszkuło, G., Seghir Taleb, M., Walas, Ł. & Boratyński, A. 2017. *Taxus baccata* in Morocco: a tree in regression in its southern extreme. *Dendrobiology* 78: 63–74. <http://dx.doi.org/10.12657/denbio.078.007>

Rosselló, J.A. & Sáez, L. 2017. Index Balearicum (III). An annotated check-list of the vascular plants described from the Balearic Islands. Additions (2008-2016) and corrections. *Orsis* 31: 65–78. <https://doi.org/10.5565/rev/orsis.45>

Siljak-Yakovlev, S., Godelle, B., Zoldos, V., Vallès, J., Garnatje, T. & Hidalgo, O. 2017. Evolutionary implications of heterochromatin and rDNA in chromosome number and genome size changes during dysploidy: A case study in *Reichardia* genus. *PLoS ONE* 12(8): e0182318. <https://doi.org/10.1371/journal.pone.0182318>

Palaeontology: 4 articles, 112 referenced registers

González-León, O., Ossó, À., Bover-Arnal, T., Moreno-Bedmar, J.A., Frijia, G., Vega, F.J. 2017. *Atherfieldastacus rapax* (Harbort, 1905) (Glypheidae, Mecochiridae) from the Lower Cretaceous of the Maestrat Basin (NE Spain). *Cretaceous Research* 77: 56-68.

Moreno-Bedmar, J.A., Robert, E., Matamales-Andreu, R., Bover-Arnal, T. 2017. Review of the early Albian ammonites of the Montmell Formation near Marmellar (Salou-Garraff Basin, Tarragona, Catalonia, Spain). *Carnets de Géologie* 17 (1): 1-10.

Ossó, A. 2017. New records of Palaeocorystoidea from the Iberian Peninsula and remarks on the taxonomic significance of the posterior margin of *Cenomanocarcinus* Van Straelen, 1936 and *Hasaracancer* Jux, 1971. *Zootaxa* 4303 (2): 273-283.

Vicedo, V. & Piuz, A., 2017 (versió impresa). Evolutionary trends and biostratigraphical application of new Cenomanian alveolinoids (Foraminifera) from the Natih Formation of Oman. *Journal of Systematic Palaeontology* 15:10, 821-850.

Non-arthropod invertebrates: 12 articles, 21 referenced registers

Gili, C. 2017. Additional data on *Nassarius rainboawe* Gili, 2015 (Neogastropoda, Nassariidae). *Miscellanea Malacologica*, 7(2), 25–27.

Gili, C. 2017. Contributions to the knowledge of *Nassarius absconditus* Gili, 2015 (Gastropoda, Nassariidae). *Miscellanea Malacologica*, 7(2), 37–40.

Gili, C. 2017. Further observations on the synonymy of *Nassarius reeveanus* (Dunker, 1847) with a revalidation of *N. luctuosus* (A. Adams, 1852) and *N. punctatus* (A. Adams, 1852). *Miscellanea Malacologica*, 7(2), 41–47.

López-Soriano, J., Quiñonero-Salgado, S., & Cadevall, J. 2017. Presència del bivalve invasor *Sinanodonta woodiana* (Lea, 1834) al delta del Llobregat (Baix Llobregat). *Arxius de Miscel·lània Zoològica*, 15, 1–7.

Martínez-Ortí, A., & Bros, V. 2017. Taxonomic clarification of three taxa of Iberian geometrids, *Helix montserratensis* Hidalgo, 1870 and subspecies (Gastropoda, Pulmonata), based on morpho-anatomical data. *Animal Biodiversity and Conservation*, 40(2), 247–267.

Quiñonero-Salgado, S., & Rolán, E. 2017. *Navalis perforatus* a new genus and new species (Gastropoda, Hydrobiidae) from Spain. *Nemus*, 7, 7–11.

Quiñonero-Salgado, S., & Rolán, E. 2017. Two new species of the genus *Moitessieria* (Gastropoda, Moitessieriidae) from Spain. *Iberus*, 35(2), 115–121.

Quiñonero-Salgado, S., Ruiz Cobo, J., & Rolán, E. 2017. *Platyla merillaensis* (Gastropoda, Aciculidae) a new species from Cantabria (N of Spain). *Iberus*, 35(2), 101–106.

Quiñonero-Salgado, S., Ruiz-Cobo, J., & Rolán, E. 2017. Three new species of *Spiralix* (Burgosia) (Gastropoda, Moitessieriidae) from the northern Iberian Peninsula. *Iberus*, 35(1), 9–70.

Ribas, A., Diagne, C., Tatar, C., Diallo, M., Poonlaphdecha, S., & Brouat, C. 2017. Whipworm diversity in West African rodents: a molecular approach and the description of *Trichuris duplantieri* n. sp. (Nematoda: Trichuridae). *Parasitology Research*, 116(4), 1265–1271.

Soler-Hurtado, M. M., López-González, P. J., & Machordom, A. 2017. Molecular phylogenetic relationships reveal contrasting evolutionary patterns in Gorgoniidae (Octocorallia) in the Eastern Pacific. *Molecular Phylogenetics and Evolution*, 111, 219–230.

Soler-Hurtado, M. M., Megina, C., Machordom, A., & López-González, P. J. 2017. Foxed intra- and interspecific differentiation in *Leptogorgia* (Octocorallia: Gorgoniidae). A description of a new species based on multiple sources of evidence. *Scientia Marina*, 81(June), 1–13.

Arthropods: 27 articles, 2,646 referenced registers

BAHILLO DE LA PUEBLA, P & LÓPEZ-COLÓN, J.I. (2016). Sobre la identidad de *Enicopus* (*Enicopus*) *ibericus* Jacquelin Du Val, 1860 (Coleoptera: Dasytidae). *Heteropterus Rev. Entomol.*, 16(2): 93-107.

BLANES-DALMAU, M., CABALLERO-LÓPEZ, B. & PUJADE, J. (2017). Estudi de les gales de la col·lecció Vilarrúbia dipositada al Museu de Ciències Naturals de Barcelona. *Butlletí ICHN*, 81: 137-173. 2017 Catalogue, commented and photographed.

CASTELLÓ, J. (2017). New and little-known species of isopods (Crustacea, Isopoda) from the eastern Mediterranean. *Zootaxa* 4311 (2): 151–182.

DIÉGUEZ FERNÁNDEZ, J. M., (2015). Registros interesantes de coleópteros para España y Marruecos (Insecta: Coleoptera). *Archivos Entomológicos*, 14: 27-31.

DIÉGUEZ FERNÁNDEZ, J.M. & PÉREZ VALCÁRCCEL, J. (2013). *Pseudeuparius sepicola* (Fabricius, 1792) en Galicia (Coleoptera, Anthribidae). *Archivos Entomológicos*, 8: 141-142.

DIÉGUEZ FERNÁNDEZ, J.M. & PÉREZ VALCÁRCCEL, J. (2017). Registros interesantes de coleópteros para Galicia (NO España) (Insecta: Coleoptera). *Archivos Entomológicos*, 17: 463-465.

DIÉGUEZ FERNÁNDEZ, J.M. & VENTURA, D. (2012). La Familia Anthicidae (Coleoptera) en la Isla de Menorca (Islas Baleares, España). *Boletín de la Sociedad Entomológica Aragonesa (S.E.A.)*, nº 50 (30/06/2012): 439–446.

MACIÀ, R., CABALLERO-LÓPEZ, B. MASÓ, G. 2017. The collection of Lepidoptera type specimens deposited in the Natural Sciences Museum of Barcelona (MCNB), Spain. *Arxius de Miscel·lània Zoològica*, 15: 93–206.

MACIÀ, R., CABALLERO-LÓPEZ, B. & MASÓ, G. (2017). Designació del lectotipus de *Pseudochazara williamsi* (Romei, 1927) (Lepidoptera, Nymphalidae, Satyrinae) i *Carcharodus tripolinus* (Verity, 1925) (Lepidoptera: Hesperiiidae: Pyrginae) de la col·lecció d'Ignasi de Sagarra dipositada al Museu de Ciències Naturals de Barcelona. *Butlletí ICHN*, 81: 19-21.

MEDEROS, J. & EIROA, E. (2017). Novedades para la fauna de Limoniidae y Tipulidae (Diptera) del Parc natural de la serra de Collserola (Cataluña, España). *Butlletí ICHN*, 81: 185-189.

MEDEROS, J. & ZARAGOZA J.A. (2017). Nueva cita de *Pselaphochernes scorpioides* (Hermann, 1804) (Pseudoscorpiones: Chernetidae) en asociación forética con *Achyrolimonia decemmaculata* (Loew, 1873) (Diptera: Limoniidae). *Revista Ibérica de Aracnología*, 31: 133–135.

NEL, J. & REQUENA, E. (2017). Description d'une nouvelle espèce du groupe de *Caryocolum amaurella* (Hering, 1924), découverte dans les Pyrénées : *C. tredosella* sp. n. (Lepidoptera, Gelechiidae). *Revue de l'Association Roussillonnaise d'Entomologie*, 26(4): 177 – 179.

OLMO-VIDAL, J. M. (2017). *Lluciapomaresius nisae*, a new species of Ehippigerini (Orthoptera: Tettigoniidae: Bradyporinae) from the northeast of the Iberian Peninsula. *Zootaxa* 4221 (1): 123–130.

OLMO-VIDAL, J. M. (2017). *Prionotropis ancossae*, a new species of Thrinchinae (Orthoptera: Pamphagidae) from the northeast of the Iberian Peninsula. *Zootaxa* 4258 (3): 287–293.

PÉREZ DE-GREGORIO, J.J. & REQUENA, E. (2017). *Synaphe diffidalis* (Guenée, 1854). Presencia en Catalunya, estatus sistemático y distribución en la Península Ibérica (Lepidoptera: Pyralidae: Pyralinae). *Heteropterus Rev. Entomol.*, 17(1): 35-39.

PÉREZ DE-GREGORIO, J.J., RONDÓS, M. & ROMAÑA, I. (2017). Notes sobre els Ascalaphidae de Catalunya, Notes sur les Ascalaphidae de Catalogne, (Neuroptera). *Revue de l'Association Roussillonnaise d'Entomologie*, 26(4) :169 – 173.

PRIETO MANZANARES, M. (2017). Primera cita de *Anthrenus (Anthrenus) munroi* Hinton, 1943 (Coleoptera, Dermestidae) para Cataluña. Nota científica. *Boln. Asoc. esp. Ent.*, 41 (1-2): 219-221.

PRIETO MANZANARES, M. (2017). Sobre tres derméstidos de Les Planes de Son i la mata de València (Pirineo de Lleida), Nuevos para la fauna de Cataluña (Coleoptera: Dermestidae). *Butlletí ICHN*, 81: 31-35.

RUIZ, J.L. & GARCÍA-PARÍS, M. (2015). Una nueva especie de *Meloe* Linnaeus, 1758 del suroeste de Marruecos incluida en el grupo de *M. (eurymeloe) rugosus* Marsham, 1802 (Coleoptera: Meloidae). *Graellsia*, 71(1): e018. <http://dx.doi.org/10.3989/graellsia.2015.v71.118>.

SENDRA, A., ALBERTO JIMÉNEZ-VALVERDE, A., GILGADO, J. D., LEDESMA, E., BAQUERO, E., PÉREZ-SUÁREZ, G., CUESTA, E., HERRERO-BORGOÑÓN, J.J., JORDANA, R., TINAUT, A., BARRANCO, P. & ORTUÑO, V.M. (2017). Diplurans of subsurface terrestrial habitats in the Iberian Peninsula, with a new species description (Diplura: Campodeidae). *Zootaxa* 4291 (1): 061–080.

VILELA CRUZ, P., FALCÃO SALLES, F. & HAMADA, N. (2017). Additions and corrections to the systematics of mayfly species assigned to the genus *Callibaetis* Eaton 1881 (Ephemeroptera: Baetidae) from South America. *Zootaxa* 4231 (4): 500–534.

VIÑOLAS, A. & GHAHARI, H. (2017). A checklist of Ptinidae (Coleoptera Bostrichoidea) of Iran. *REDIA*, 100: 139-147.

VIÑOLAS, A. & HONOUR, R. (2017). Nuevos géneros y especie de Ernobiinae de Sudamérica y Nuevos datos sobre el género *Pachotelus* Solier, 1849 (Coleoptera: Ptinidae). *Butlletí ICHN*, 81: 45-57.

VIÑOLAS, A. & MUÑOZ-BATET, J. (2017). Noves aportacions al conèixement de la fauna coleopterològica de la península Ibèrica i illes Balears. Nota 2a (Coleoptera). *Butlletí ICHN*, 81: 177-184.

VIÑOLAS, A., 2016. Noves dades sobre els Ptinidae (Coleoptera) de la Comunitat Valenciana, península Ibèrica. *Butlletí ICHN*, 80: 93-99.

VIÑOLAS, A., CABALLERO-LÓPEZ, B. & MASÓ, G. (2017). The collection of type specimens belonging to the subfamily Pimeliinae (Coleoptera, Tenebrionidae) in the Natural Sciences Museum of Barcelona, Spain. *Arxius de Miscel·lània Zoològica*, 15: 30–92.

VIÑOLAS, A., CABALLERO-LÓPEZ, B. & MASÓ, G. (2017). Designation of lectotypes from the Coleoptera collection (Tenebrionidae: Diaperinae) of the Natural Sciences Museum of Barcelona. Nota breu. *Butlletí ICHN*, 81: 135-136. 31

Vertebrates: 8 articles, 21 referenced registers

Boscaini, A., Alba, D. M., Beltrán, J. F., Moya-Sola, S., & Madurell-Malapeira, J. (2016). Latest Early Pleistocene remains of *Lynx pardinus* (Carnivora, Felidae) from the Iberian Peninsula: Taxonomy and evolutionary implications. *Quaternary Science Reviews*, 143, 96-106.

Calvo, I. C. (2017). 'La ballena vuelve al museo'; proceso de diseño y cálculo de una estructura ligera. *Informes de la Construcción*, 69(546), 189.

Covas, L., Senar, J. C., Roqué, L., & Quesada, J. (2017). Records of fatal attacks by Rose-ringed Parakeets *Psittacula krameri* on native avifauna. *Revista Catalana d'Ornitologia*, 33, 45-49.

Ferrón, H. G., & Botella, H. (2017). Squamation and ecology of thelodonts. *PloS one*, 12(2), e0172781.

Ferrón; H. Martínez-Perez, C. ; Martín, A. & Botella, H. 2015. The study of the relationship between squamation pattern and lifestyle as a potential tool for ecological inferences in deep water sharks *19th Annual Scientific Conference of the European Elasmobranch Association*.

García-Franquesa, E. 2017. A whale skeleton is moved. *Journal of Natural Science Collections*. Volume 5; 115-124.

Mascort, R., & Budó, J. (2017). La tortuga llaüt a l'Alt Empordà. *Annals de l'Institut d'Estudis Empordanesos*, 48, 11-44.

Sauqué, V., Rabal-Garcés, R., Madurell-Malaperia, J., Gisbert, M., Zamora, S., de Torres, T., & Cuenca-Bescós, G. (2017). Pleistocene cave hyenas in the Iberian Peninsula: new insights from Los Aprendices cave (Moncayo, Zaragoza). *Palaeontologia Electronica*, 20(1), 1-38.

Book chapters and other publications

GONZÁLEZ-LAGOS C. & QUESADA, J. 2017. Stay or Leave? Avian Behavioral Responses to Urbanization in Latin America. In MacGregor-Fors, I., & Escobar-Ibáñez, J. F. (Eds.). (2017). *Avian Ecology in Latin American Cityscapes*. Springer, Cham.

Communications at congresses, seminars and scientific/technical workshops

Oral communications (25)

Caballero-López, B., Mederos, J. Prieto, M., Brañas, N. Gago, S., Viñolas, A., **Agulló, J. i Masó, G.** 2017. *Biodiversitat de coleòpters saproxílics al Parc Natural dels Ports*. Technical workshop on mature forests. 18 October 2017 Roquetes.

Caballero-López, B., Navarro, D., Blanco-Moreno, J.M., Sans, F.X. 2017. Aphids, natural enemies response to soil management treatment. WP 5 – FtB - SOILVEG workshop meeting 12-16 June Stende, Latvia.

Gallemit, J., Dochev, D. & Metodiev, L. The echinoids of the K/T boundary Moravitsa section (Western Fore-Balkan, Bulgaria). 11th Romanian Symposium of Palaeontology. Bucarest, 25-30 September 2017.

López-Pujol, J. & **Nualart, N.** *Catalunya com a hotspot d'invasions vegetals: els exemples d'Agave (Agavaceae) i Kalanchoe*. Barcelona Botanical Institute (IBB seminars), 31 January 17.

Navarro-Miró, D., **Caballero-López, B.**, Blanco-Moreno, J.M., Pérez, A., Depalo, L., Masetti, A., Burgio, G., Canali, S., Sans, F.X. 2017. Agro-ecological Service Crops with roller crimper termination enhance ground-dwelling predator communities and pest regulation. 5th ISOFAR Scientific Conference *Innovative Research for Organic 3.0* at the 19th Organic World Congress, New Delhi, India, November 9-11. Oral communication.

Roqué, I., Del Canto, I., **Carrillo-Ortiz, J.G.**, Orta, C. & **Quesada, J.** 2017. (Oral contribution) *Effects of prolonged freezing on the preparation quality of fresh material destined to bird collections*. 10th European Bird Curator Meeting. 17-19 October, Paris (France)

Santos-Bethencourt, R.; **Caballero-López, B.**; Olivas, F.J.; **Masó, G.**; Lombarte, A.; Uribe, F; Abelló, P. 2017. *Zariquey: A tribute to two great scientists and their legacies*. Crustaceana Society Mid-year Meeting 19-22 Juny. Barcelona. Oral communication and poster.

5th Workshop Catalan Natural Science Collections Technical Staff. ICM-CSIC. Barcelona 25 October 2017

Caballero-López, B., Mederos, J. Prieto, M., Brañas, N. Gago, S., Fadrique, F., **Agulló, J. i Masó, G.** 2017. Seguiment d'espècies protegides: passat i futur de les col·leccions. 5th Meeting of Catalan Natural Science Collection Technical Staff Barcelona. 25 October 2017. Oral communication.

Carrillo-Ortiz, J.G. 2017. *Innovació en la preparació zoològica del MCNB*. 5th Meeting of Catalan Natural Science Collection Technicians. 25 October 2017. Barcelona.

Fernández Lluch, David. Results in 2017 of the conservation of geological and palaeontological collections.

Montes-Moreno, N., **Ibáñez, N.**, **Nualart N.** & Pérez, M. *El Banc de Teixits de l'Herbario BC: gestió i conservació de la col·lecció*. 5th Meeting of Catalan Natural Science Collection Technical Staff. Marine Science Institute. Barcelona, 25 October.

Nualart, N., Ibáñez, N., Soriano, I. & López-Pujol, J. *El potencial de les col·leccions botàniques en recerca aplicada a la conservació.* 5th Meeting of Catalan Natural Science Collection Technical Staff. Marine Science Institute. Barcelona, 25 October.

Quesada, J. 2017. *Reptes, limitacions i possibilitats de la recerca pròpia en col·leccions zoològiques.* 5th Meeting of Catalan Natural Science Collection Technical Staff. 25 October. Barcelona.

Uribe, Francesc. 2017. *Presentació analítica (metrics) de les relacions creades entre col·leccions i recerca,* Francesc Uribe, 5th Meeting of Catalan Natural Science Collection Technical Staff, 25/10/2017, Marine Science Institute, CSIC.

XXII Biennial meeting of the Royal Spanish Natural History Society. Coimbra (Portugal), 7-9 September 2017

Díaz, Anna, Pericay, Martí & **Uribe, Francesc.** *La versión pública y colaborativa de la georreferenciación de col·leccions en el Museu de Ciències Naturals de Barcelona (MCNB): servicions web de edició y consulta.* Oral presentation at the XXII Bienal de la Real Sociedad Española de Historia Natural in Coimbra (Portugal), 7-9 September 2017.

Garcia Franquesa, E. 2017. Atlas osteològic, una colecció de imàgenes 3D. XXII Bienal de la Real Sociedad Española de Historia Natural. Coimbra 6-9 October 2017.

5th National Congress on Exotic Invasive Species. Girona, 16-18 October 2017

Cachón, P., Herrando-Moraira, S., **Nualart, N.,** Massó, S., Vitales, D. & López-Pujol J. *Del invernadero a la naturaleza: patrones de invasión de Kalanchoe x houghtonii D. B. Ward (Crassulaceae).* EEI 2017, 5^o National Congress on Exotic Invasive Species. Girona, 16-18 October.

Farelo, P., Gómez-Bellver, C., Maria Montserrat, J., Pyke, S., López-Pujol, J. & **Ibáñez, N.** *Primeros datos de la flora alóctona de la montaña de Montjuïc (Barcelona).* EEI 2017, 5th National Congress on Exotic Invasive Species. Girona, 16-18 October.

Nualart, N., López-Pujol, J., **Ibáñez, N.,** Herrando, S. & Gómez-Bellver, C. *La invasión de Agave en Cataluña: actualización de las especies presentes, distribución y perspectivas de futuro.* EEI 2017, 5th National Congress on Exotic Invasive Species. Girona, 16-18 October.

1st Workshop of the thematic Network CRNOBIRD (Ministry of Competitiveness), Valencia, 7-10 November 2017.

Quesada, J. *Reconocimiento entre especies de señales intraespecíficas de dominancia en passeriformes.* CRNOBIRD workshop 7-10 Nov. 2017 Valencia.

Uribe, F. *Ensayo de DNA barcoding para estudiar la dieta de passeriformes, en particular Parus major,* 1^{as} JORNADAS DE LA RED TEMÁTICA CRNOBIRD (Ministry of Competitiveness), Valencia, 7-10 November 2017.

Internal Collection Seminar. Barcelona Natural History Museum, 14 December. 35 participants.

Garcia Franquesa, Eulàlia. Un esquelet de balena es mou. Seminari intern de col·leccions. 14/12/2017. 35 participants.

Garcia Franquesa, Jordi Cadevall, Ángeles Zamora, **Vicent Vicedo**, **Berta Caballero**, **Glòria Masó**, **Neus Nualart**, **Neus Ibáñez**, David Pérez. *Unitat de registre (2012-2017)*. Internal collections seminar. 14/12/2017. 35 participants.

Mederos, J., Brañas, N., **Carrillo, J.**, Gago, S., **Masó, G.**, **Caballero-López, B.** 2017. Indiana Jones tras los tesoros del S18?. Barcelona. 14 de Desembre 2017. Organised as internal collections seminar, Nature Laboratory, MCNB. Oral communication.

Montes-Moreno, N., Garcia-Jacas, N., **Nualart, N.**, Susanna, A. & Sáez, L. *Tipificació de noms i notes taxonòmiques en tàxons del gènere Phagnalon (Compositae) descrits per Sennen*. Internal collections seminar. Barcelona Natural History Museum, 14 December.

Muñiz, D. & **Ibáñez, N.** *La liquenoteca Werner; a la cacera dels tipus perduts*. Internal collections seminar. Barcelona Natural History Museum, 14 December.

Nualart, N. & **Ibáñez, N.** *Els Herbarios com una eina per la conservació dels tàxons endèmics i amenaçats de Catalunya*. Internal collections seminar. Barcelona Natural History Museum, 14 December.

Uribe, F. & Prieto, M. *DNA barcoding i la gestió de col·leccions al departament d'Invertebrados no Artrópodos*. Collection departments seminar, Barcelona Natural History Museum. 14 December 2017.

Posters (8)

Cachón, P., Herrando-Moraira, S., **Nualart, N.**, Massó, S., Vitales, D. & López-Pujol J. *From greenhouse to the wildlife: invasion patterns of Kalanchoe × houghtonii using ecological niche*. XIX International Botanical Congress. Schenzhen, China, 23-29 July.

Carrillo-Ortiz, J., Guallar, S., Roqué, I. & **Quesada, J.** 2017. (Poster) *Revising birds' skin preparation for facilitating its scientific utility*. 10th European Bird Curator Meeting. 17-19 October, Paris (France)

Díaz-Acha, Yael, Iria Díaz-Ontiveros y Laura Gutiérrez-García. *El mapa geològic i topogràfic de la província de Barcelona, serie 1:40.000 (1900-1915): hojas IV y V. Catálogo petrológico del Museo de Ciencias Naturales de Barcelona*. Poster presented at XXII Bienal de la Real Sociedad Española de Historia Natural in Coimbra (Portugal), 7-9 September 2017.

Gómez-Bellver, C., Laguna, E., Agut, A., Ballester, G., Fos, S., Guillot, D., Francisco, S., Oltra, J., Pérez Rovira, P., Deltoro, V., Herrando-Moraira, S., **Nualart, N.** & López-Pujol, J. *Opuntia aurantiaca Lindl.: un neòfito reciente con un gran potencial invasor en España*. EEI 2017, 5^o National Congress on Invasive Exotic Species. Girona, 16-18 October.

Lee, J.; Macgregor-fors, I.; **Quesada, J.**; Yeh, P. 2017. "Ecology from the desktop: Using Google Street View to assess environmental variables in urban ecological studies". UCLA Department of Ecology and Evolutionary Biology 19th Annual Research Symposium. Skulls of the Algerian hedgehog (*Atelerix algirus*). Vertebrate Zoology. 66(3):411-418.

Pérez, M. & **Garcia-Franquesa, E.** *Incidència dels materials d'embalatge permanent en el control ambiental passiu de col·leccions osteològiques. Resultats preliminars*. XV Conservation-Restoration Technical Meeting. Organised by CRAC Catalan Association of Professional Conservers-Restorers. Barcelona, 27-28 November 2017

Rubió, C., Herrando-Moraira, S., **Nualart, N.**, Vilatersana, R. & López-Pujol, J. *Past, present, and future of the invasión of Senecio pterophorus*. XIX International Botanical Congress. Schenzhen, China, 23-29 July.

Rubió, C., Herrando-Moraira, S., **Nualart, N.**, Vilatersana, R. & López-Pujol, J. *Estudios de nicho ecológico como herramienta para la inferencia del potencial invasor de Senecio pterophorus*. EEI 2017, 5th National Congress on Exotic Invasive Species. Girona, 16-18 October.

7. Research

The collection curators run the MCNB's research projects and participate as researchers in projects led by universities and other research centres. Much of the material collected during fieldwork is incorporated into the Museum's collections. These research projects generate knowledge and consolidate the Museum's scientific reputation as a reference institution in the study of natural diversity, ecology and evolution.

Lines of research

Herbarium

History of Botany and an analysis of collections. Biodiversity and plant evolution

<https://museuciencies.cat/en/area-cientifica/lineas-de-investigacion/conservacion-de-la-flora-mediterranea/>

Mineralogy and Petrology Departments

Carbonatites and associated mineral deposits. Metallogenetic characterisation of deposits associated with critical elements (REE, Nb, Ta...).

GeoArcheology and Archimetry.

Palaeontology Department

Biostratigraphy and Palaeobiogeography in the Tethys

<https://museuciencies.cat/en/area-cientifica/lineas-de-investigacion/biostatigrafia-y-paleobiogeografia-del-tethys/>

Non-arthropod Invertebrate Department

Local adaptation under global change: Who, When and How?

<https://www.researchgate.net/project/Local-adaptation-under-global-change-Who-When-and-How>

Arthropod Department

Biospeleology

<https://museuciencies.cat/en/area-cientifica/lineas-de-investigacion/diversidad-natural/bioespeleologia/>

Functional ecology in agrarian ecosystems

<https://museuciencies.cat/en/area-cientifica/lineas-de-investigacion/diversidad-natural/ecologia-funcional-en-agroecosistemas/>

Biodiversity studies. Monitoring current and historical species

<https://museuciencies.cat/en/area-cientifica/lineas-de-investigacion/diversidad-natural/>

Vertebrate Department

Research in zoological collections

Improving zoological preparation techniques for vertebrates

Vertebrate ecology. Evolutionary ecology and bird behaviour

<https://museuciencies.cat/en/area-cientifica/lineas-de-investigacion/diversidad-natural/ecologia-de-vertebrados/>

Museum projects

Monitoring pollinators in the Barcelona Botanical Garden

Joint project run by MCNB and CREAM (Jordi Bosch). **David Bertran** and **Berta Caballero López**

Barcode Library of the Continental Molluscs of Catalonia

ZooSysEvo Advanced Research Group (IrBio, UB & MCNB) and Catalan Malacological Society. Barcoded identification references created for all the continental molluscs found in Catalonia. Laboratory costs funded by ZooSysEvo; the MCNB funds collection work in the field. **Francesc Uribe**

PasserCat

Conservation biology of a declining species: the House Sparrow. €28,000. (2011-2017). Museu de Ciències Naturals de Barcelona. **Javier Quesada**

Documentation using molecular techniques

(€1500) 2012-present. Museu de Ciències Naturals de Barcelona. **Javier Quesada**.

Gavà Mines Museum – GeoArcheology and Archimetry

Josep Bosch (Museu de les Mines de Gavà), Joan Carles Melgarejo (Univ. Barcelona), Yael Díaz (MCNB), Marc Campeny (MCNB). Detailed mapping and characterisation of the phosphate mineralisations and neolithic mines in the municipality of Gavà.

Jaspis de Montjuïc - GeoArcheology and Archimetry

Miquel Molist (UAB), Adrià Breu (UAB), Yael Díaz (MCNB), Marc Campeny (MCNB).

Characterise the jasper found on the mountain of Montjuïc as a means of creating a comparative tool that will help archaeologists determine the origin of the material found there and the extent to which it was traded.

External projects

The role of insularity and subsequent geographical isolation of the Iberian Peninsula in the great biota crises during the Cretaceous-Paleogene. Biostratigraphical and paleo-environmental applications.

CGL 2015-69808P. **Vicent Vicedo**

Proyecto FLORAPYR

EFA0100/15. Seven French, Spanish and Andorran grant students (Aranzadi Zientzia Elkarte-Sociedad de Ciencias Aranzadi, Bazzania S.C. Investigación y Gestión en Biodiversidad, Conservatoire botanique national méditerranéen de Porquerolles, Conservatoire botanique pyrénéen agréé Conservatoire botanique national des Pyrénées et de Midi-Pyrénées, Institut Botànic de Barcelona (CSIC) i Instituto Pirenaico de Ecología (CSIC), Universitat de Barcelona). Aim: continue improving knowledge of Pyrenean flora and monitoring indicators of climate change. Grant FEDER: €534,780. Total annual budget: €822,737. (2016-2019). Interreg Program V-A (POCTEFA) 2014-2020. **Neus Ibáñez & Neus Nualart**.

Local adaptation under global change: who?, how?, when?

Coordinated project. Ministry of Economy and Competitiveness: CGL2016-79568-C3-1-P. **Joan Carles Senar, Javier Quesada, Francesc Uribe.** 2016-2018.

Improving soil conservation and resource use in organic cropping systems for vegetable production through introduction and management of Agro-ecological Service Crops (ASC)

Head researcher: Dr. F. Xavier Sans. Plant Biology Department, Botanical Unit of Barcelona University. €64,250 (2015-2017). CORE Organic Plus. B1 136 SOILVEG. **Berta Caballero López.**

Established research groups

Biodiversity and Plant Biosystematics (GReB).

Investigador principal: J. Vallès (Universitat de Barcelona). Participants IBB: M. Alarcón, J.J. Aldasoro, N. García-Jacas, S. Garcia, T. Garnatje, **N. Ibáñez**, J. López-Pujol, S. López, J. Martín, G. Mas de Xaxars, S. Massó, N. Montes, **N. Nualart**, A. Susanna & R. Vilatersana.

Vertebrate Biology

2014-SGR-1.612. Sostoa Fernández, Adolfo De; Blas Esteban, Marina Teresa; Colin, Nicole; Ferrer Parareda, Javier Maria; **Quesada Lara, Javier**; Serra Cobo, Jordi; Vinyoles Cartanya, Maria Dolors. Barcelona University (Spain).

Cretaceous and Lower Tertiary

Consolidated research group, Catalan Autonomous Government (2014SGR 00960). **Jaume Gallemí i Vicent Vicedo.**

Ecology of Agrarian Systems

SGR Group members: Xavier Sans Serra, Lourdes Chamorro Lorenzo, José Manuel Blanco Moreno, **Berta Caballero López**, Laura Armengot Martinez, Roser Rotchés Ribalta, Paola Baldivieso Freitas, Marian Mendoza Garcia, Laura José Maria Domínguez, Miriam Burriel Bosch. 2014. SGR 663.

Systematics and Evolutionary Biology

ZooSysEvo. Barcelona University (Miquel Arnedo, Juli Pujade, Marta Riutort, Eduardo Mateos) and MCNB (**Dacha Atienza, Eulàlia Garcia Franquesa and Francesc Uribe**). <http://zoosysevo.net>

Mineral resources, applications and sustainability

MINRESOUR (SGR 1661). Barcelona University (Joan Carles Melgarejo i Draper, Esperança Tauler Ferrer, Joaquín A. Proenza Fernández, Salvador Martínez Manent, Cristina Villanova de Benavent, Lisard Torró i Abat). MCNB (**Marc Campeny Crego, Yael Díaz Acha**). UPC-Manresa (Pura Alfonso Abella, Josep Maria Mata i Perelló). Barcelona University Scientific/Technical Centres (Tariq Jawhari, Eva Prats, Xavier Llovet). Montreal University (Robert L. Martin). Melbourne University (Montgarri Castillo Oliver). Agostinho Neto University, Luanda, Angola (Antonio O. Gonçalves).

8. Financial summary

The collection department in the Ciutadella buildings generated an income of €42,786.33 in 2017.

FINANCIAL SUMMARY: RUNNING COSTS 2017	
	AMOUNT
COLLECTIONS	
Registering, inventory and documentation	€401,053.41
Preventative conservation and restoration	€106,005.03
Preparation of specimens	€87,668.72
Verification of collections	€28,232.48
Acquisitions for collections	€3,088.56
Research	€10,639.03
Innovation projects	€78,117.23
Running of collections	€64,927.71
RESEARCH - conducted by collection staff	€10,539.05
PUBLICATIONS - organised by collection staff	€13,538.30
TOTAL	€803,809.52