

# BOTANICAL INSTITUTE OF BARCELONA



Annual Report 2015



**institut  
botànic**

Centre mixt

**CSIC**



© IBB 2016

Texts and graphics: IBB

Design: IBB

Images ceded by the authors

# **BOTANICAL INSTITUTE OF BARCELONA**

**Annual Report 2015**

Barcelona, November 2016



# INDEX

## The Institute

Introduction	
Description	1
Mission and Objectives	1
Organizational structure	
Management	3
Departments	3
Scientific Advisors	3
Institute's Scientific Board	4
Governing Unit	4
Personnel	
CSIC	5
Barcelona City Hall / Natural Sciences Museum Consortium	6
Predoctoral Researchers	6
Associated Researchers	7

## Research

Research Lines	
Biodiversity	8
Palynology and Paleoecology	10
History of Botany and Analysis of Collections	11
Projects	
Internal	12
External	12
Contracts	12
Consolidated Research Groups	
Biodiversity and Plant Biosystematics	14
Mediterranean Mountains' Landscapes and Paleoenvironments	15

### Scientific Production

Scientific Articles	
SCI Publications	17
Non-SCI Publications	21
Book chapters and other publications	24
Communications in Congresses and Seminars	
Oral presentations	25
Posters	27

### Training and Knowledge Transfer

Service Unites	
PALAB Analytic	28
CERTIBB	28
IBB's Own Journal	
<i>Collectanea Botanica</i>	31
Tutoring and Teaching	
PhD Dissertations	35
Master's Theses	35
Undergraduate Final Projects	35
High School Mentoring	35
Classes, presentations and participation in tribunals	36
Dissemination	
Scientific Seminars	37
Library and Archive	38
Exhibitions	39
Social Networks	41
Website	41
Citizen Science	46
Other Scientific Dissemination Activities	48
Presence and Collaborations with the Media (radio/television)	49

### Library and Archive

Introduction	52
Acquisitions	52
Loans and on-site consultation	52
New users	53
Technical process	53

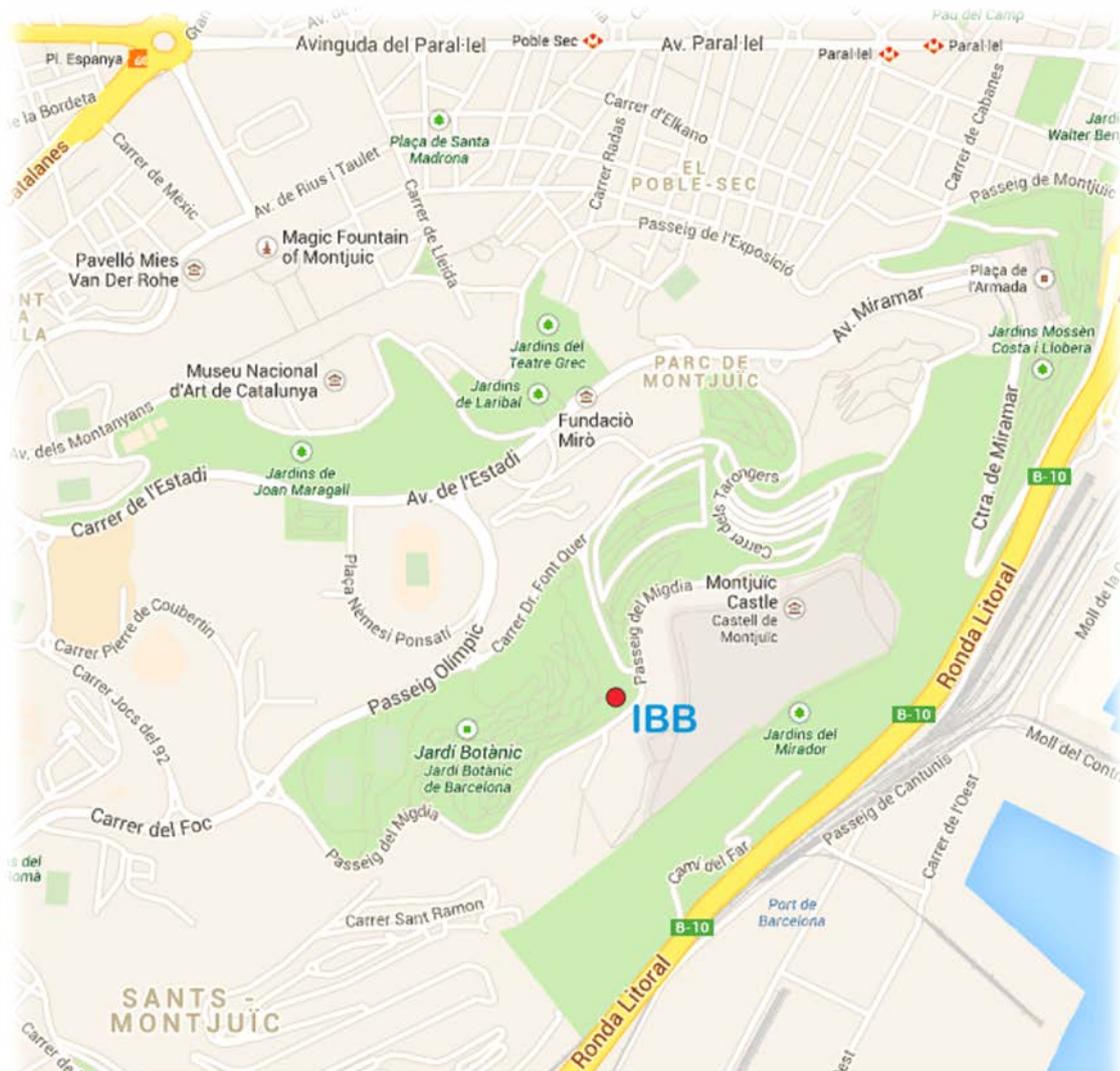
Digital CSIC	53
Reference services and information searches	53
Image digitalisations	54
Participation in courses	54

## **Collections**

Salvador's Cabinet	
Introduction	56
Scientific use of the collection	56
Herbarium	
Introduction	59
Acquisitions	59
Documentation	61
Specimens' preparation	63
Documentation projects	63
Scientific use of collections	64
Participation in conferences and meetings	68
Participation in courses	69



# THE INSTITUTE



Passeig del Migdia s/n  
08038 Barcelona  
Tel. 93 289 06 11  
<http://www.ibb.bcn-csic.es/>



# INTRODUCTION

## Description

The *Botanical Institute of Barcelona* (IBB-CSIC-ICUB) is a joint venture between the Spanish National Research Council (CSIC) and the Barcelona City Council (AB). The Institute was established in 1934; in 1942 Pius Font i Quer was appointed as tenured scientist for the Institute. In 1986, IBB was incorporated as an associated centre; one year later, the first tenured scientist of IBB's modern era joined the institution. In 1998, a new agreement was signed with the City Council creating the Institute as a joint centre.

The second largest botanical centre in Spain, IBB stands out due to both its scientific significance and the volume of its collections. Current botanical collections include approximately 800,000 herbarium specimens. These collections, as well as the specialised library, are part of the CSIC Library Network, which can be accessed via the Internet and is fully accessible to all interested researchers. The IBB also holds the Salvador Cabinet, one of the few naturalist collections of the Enlightenment period still preserved. This collection includes a variety of specimens: fossils, shells, seeds, various animal and plant products and the herbarium. Holdings also include a scientific, medical and pharmaceutical library from the 16th and 18th centuries—one of the most important libraries of its kind in the world.

The IBB is located in *Montjuic Park*, one of the most emblematic areas of Barcelona, both culturally and historically. The "historical building," which was the first headquarters of the Institute, is located near the *National Palace*, home to the *National Art Museum of Catalonia*. Currently, the IBB is located in a newer building (2003), located atop the *Botanical Garden of Barcelona* (JBB)—an institution with which it has a close relationship.

## Mission and objectives

Under the current agreement between the Research Council (CSIC) and City Council (AB), signed June 5, 2008, the Institute's mission is to promote quality research in the various branches of Botany, with the following objectives:

- *To contribute to research advancement and technological development in all branches of botanical sciences according to the guidelines laid down in successive strategic plans of the IBB.*
- *To provide scientific advice to the Botanical Garden of Barcelona.*

- *To train research personnel and support postgraduate teaching.*
- *To coordinate general and technical equipment services to make better use of existing resources as well as those acquired after the implementation of this agreement.*
- *To promote collaborations with other national and international centres.*
- *To collaborate with the government by contributing to the advancement of industry, transference of knowledge and research results.*



Botanical Institute of Barcelona. Photo: IBB

# ORGANIZATIONAL STRUCTURE

## Management

**Director:** Teresa Garnatje Roca

**Deputy Director:** Neus Ibáñez Cortina

**Manager:** Joan Lambea Castro (part of the year) / Montserrat Roig Lozano (rest of the year)

## Departments

Currently, the IBB is structured in three units or departments, with their corresponding departmental heads:

- Research (Ángel Maria Romo Díez)
- Library and Archive (Karina Barros Ferradás)
- Collections (Neus Ibáñez Cortina)

## Scientific Advisors

The scientific advisory board is comprised of researchers from the institute, including public officials and those employed with doctorates. In 2015, the board was comprised by:

- Juan José Aldasoro Martín
- Núria Garcia Jacas
- Teresa Garnatje Roca
- Neus Ibáñez Cortina
- Noemí Montes Moreno
- Ángel Maria Romo Díez
- Diana Muñiz Pérez
- Alfonso Susanna de la Serna
- Roser Vilatersana Lluch

## Institute's Scientific Board

The Scientific Board of the Institute is constituted by the department heads, along with three labour representatives for employees under contract (permanent and temporary), the director, the deputy director and the manager of the IBB. During 2015, the Board has been composed by:

- Teresa Garnatje Roca (Director)
- Neus Ibáñez Cortina (Deputy Director)
- Ángel María Romo Díez (Research)
- Karina Barros Ferradás (Documentation)
- Neus Nualart Dexeus (Collections)
- Joan Lambea Castro (part of the year)/Montserrat Roig Lozano (rest of the year) (Manager)
- Sergi Massó Alemán (Temporary Personnel)
- Anna Maria Prats Solano (Permanent Personnel)
- Diana Muñoz Pérez (Temporary Personnel)

## Governing Unit

The highest governing and management body is the governing unit, consisting of two representatives from the City Council (appointed by the mayor of the city), two representatives from the Research Council (appointed by the president of CSIC) and the Director and Manager of the IBB, with the Manager acting as the Secretary. The governing unit in 2015 was composed by:

- Josep Lluís Alay (Barcelona's Institute for Culture) (until November) / Joaquim Vicente (from December)
- Anna Omedes (Barcelona's Natural Sciences Museum)
- Lluís Calvo (CSIC delegate in Catalonia)
- Xavier Querol (Coordinator of the Natural Resources Area)
- Teresa Garnatje Roca (IBB Director)

Secretary: Joan Lambea Castro (until March) / Montserrat Roig Lozano (from April) (IBB Manager)

# PERSONNEL

## CSIC

### Public officials

- Juan José Aldasoro Martín (Tenured Scientist)
- Karina Barros Ferradás (Librarian)
- Núria Garcia Jacas (Tenured Researcher)
- Teresa Garnatje Roca (Tenured Scientist)
- Joan Lambea Castro (Manager, part of the year)
- Montserrat Roig Lozano (Accounts Payable, part of the year/Manager, rest of the year)
- Ángel María Romo Díez (Tenured Scientist)
- Alfonso Susanna de la Serna (Tenured Researcher)
- Roser Vilatersana Lluch (Tenured Scientist)

### Employed (temporary)

- Daniel Vitales Serrano (Contract by project, part of the year)
- Sònia Garcia Giménez (Ramón y Cajal contract, part of the year)

### Collaborators

- Ugo D'Ambrosio Palau
- Sònia Herrando
- Jordi López Pujol
- Sara López Vinyallonga
- Sepand Riyahi
- Daniel G. Shaw

## Barcelona City Hall / Natural Sciences Museum Consortium

### Public officials

- Rosa Fernández Fernández (Collections Assistant)
- Neus Ibáñez Cortina (Collections Director and Curator)
- María Jiménez Rodríguez (Receptionist)
- Isidora Manso Calzada (Library Assistant)

### Employed (permanent)

- Neus Nualart Dexeus (Collections Curator)
- Jordi Pallàs Serra (Herbarium Technician)
- Anna Maria Prats Solano (Herbarium Assistant)
- Miquel Veny Mesquida (Collections Curator)

### Employed (temporary)

- Yasmine Sciacquatori (Catalan Occupational Service)

### External Collaborators

- Laura Gavioli
- Carlos Gómez Bellver
- Jordi López Pujol
- Noemí Montes Moreno (Nubilum)
- Diana Muñiz Pérez (Nubilum)
- David Pérez Prieto

### Predoctoral Researchers

- Pau Carnicero Campmany (UAB Fellowship)
- Almudena Galian Millán
- Sara Garcia Aloy
- Airy Gras Mas
- Julià López Vila
- Gemma Mas Xarxars Giner (ADR-UB Fellowship)

- Sergi Massó Alemán (ADR-UB Fellowship)
- Montserrat Rigat Coll
- Daniel Vitales Serrano (FPU Fellowship, part of the year)

## Associated Researchers

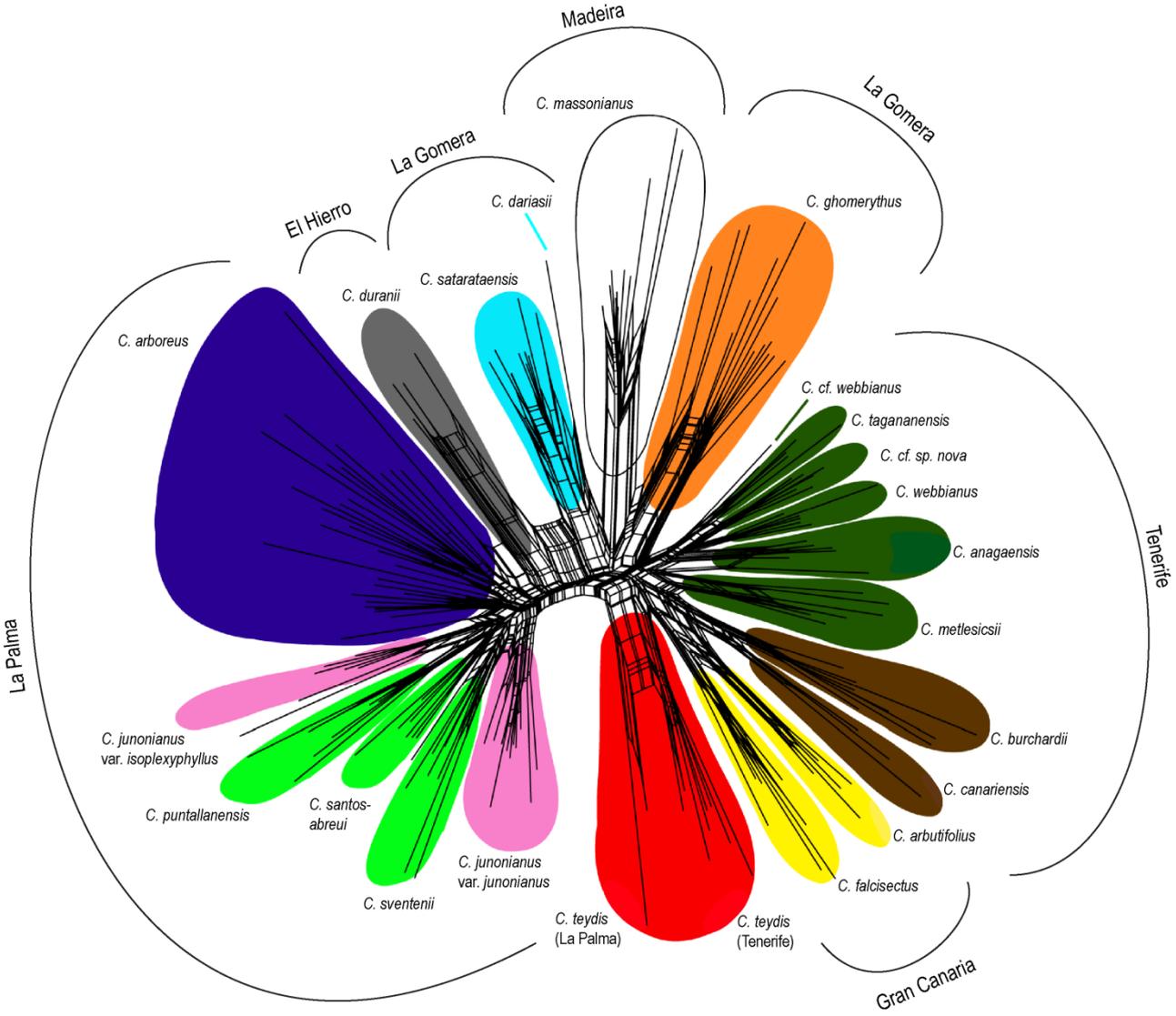
Following CSIC's regulations, two Associated Units were created in 2013, corresponding to the Ecology Department (Faculty of Biology) and the Botany Unit (Department of Natural Products, Plant Biology and Edaphology, Faculty of Pharmacy), both at the University of Barcelona (UB). These associated units were approved on June 24, 2013 and have a term of 3 years.

By virtue of its approval, the following researchers are considered IBB Associated Researchers:

- Sònia Garcia Giménez (Faculty of Pharmacy, University of Barcelona, part of the year)
- Joan Martín Villodre (Faculty of Pharmacy, University of Barcelona)
- Joan Vallès Xirau (Faculty of Pharmacy, University of Barcelona)
- Teresa Vegas Vilarrúbia (Faculty of Biology, University of Barcelona)



# RESEARCH





## RESEARCH LINES

Currently, the IBB focuses on three main lines of research:

- Biodiversity
- Palynology and Paleoecology
- History of Botany

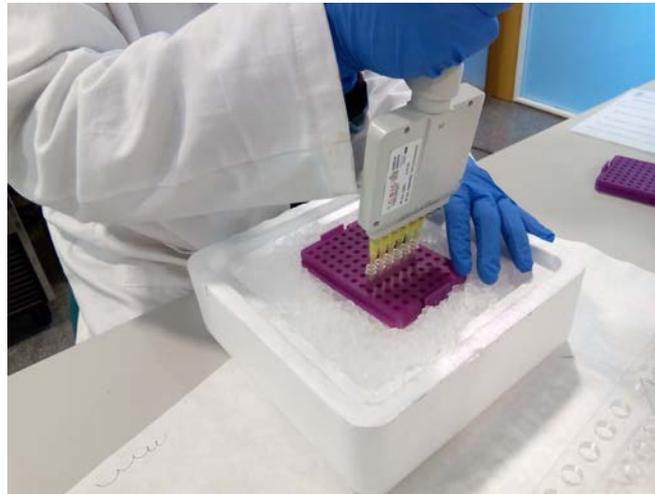
These lines constitute the official Research Groups at IBB, compiled in CSIC's Strategic Plan for 2014-2017. Amongst them, the third research line is financed by the City Hall of Barcelona.

### Biodiversity

#### Systematics, evolution, biogeography, cytogenetics and plant conservation

- *Systematics and molecular studies of different taxonomic groups* (mainly Asteraceae, Campanulaceae, Geraniaceae, Plantaginaceae, Capparidaceae, Cupressaceae and Pinaceae), elaboration of dated phylogenetic trees and analysis of diversification rates.
- *Studies on the evolution of characters* in the biology of each group and of adaptation and coevolution processes with their pollinators.
- *Biometric studies* on functional traits in plants living in extreme environments.
- *Biogeographic analyses* using diversification-extinction-cladogenesis (DEC) or dispersion and vicariance (DIVA).
- *Identification of biodiversity concentration areas* ("hotspots") and on potential refuges. Study of ecological and climatic factors conditioning distribution using niche modelling with past, present and future climatic layers.
- *Phylogeographic analyses, genotyping, neutrality and effective population size tests* to deepen knowledge on the recent history of each studied group.
- *Studies on the role of hybridization* in evolution and genesis of new species.
- *Studies on the origin and patterns of colonization in invasive species.*
- *Genetic and demographic studies on botanical groups facing diverse challenges* (especially taxa included in red lists). Analyses of genetic variability and structure in studied species. Proposal of conservation measures and criteria to preserve genetic and functional variability in various menaced species (population prioritization, germplasm banks, etc.). Elaboration of management, conservation and recuperation plans.

- *Palynology*. Studies on the morphology of pollen grains under light microscopy to determine size, under scanning electron microscopy to determine ornamentation, and under transmission electron microscopy to study exine ultrastructure.
- *Karyology*. Chromosome counts are carried out to establish the evolution of chromosome numbers and ploidy levels in the studied groups.
- *Molecular cytogenetics*. We carry out fluorochrome banding techniques, fluorescence in situ hybridization (FISH) and staining of organizer nucleolar regions (NOR), as well as numerous research studies about ribosomal DNA and telomeric regions in several plant groups. We have developed a database which the most relevant data acquired in this field ([www.plantrdnadatabase.com](http://www.plantrdnadatabase.com)). We study the role of transposable elements (TEs) in plant genome evolution through NGS.
- *Genome size*. We carry out measurements of nuclear DNA content by flow cytometry of the studied species.
- Update data bases on nuclear DNA amounts in Asteraceae ([www.asteraceaegenomesize.com](http://www.asteraceaegenomesize.com)) and ribosomal DNA ([www.plantrdnadatabase.com](http://www.plantrdnadatabase.com)) in order to analyse the data and to establish general patterns of evolution.



Laboratory research. Photo: IBB

## Ethnobotany

Study of ethnobotanical Catalan-speaking territories and their comparison with other territories, mostly Iberian and Mediterranean, including the following focuses of interest:

- *Ethnofloristic studies*. One purpose of these studies is to contribute to the creation of an inventory of cultural and natural heritage. Additionally, our intention is to constitute one of the stages of bioprospection, searching forms of exploitation and management of biodiversity.
- *Study of agro-ecosystems, particularly homegardens*. Ecosystems shaped by farming activities not only provide a reservoir of wild and cultivated biodiversity, but also the management practices and knowledge, which makes them of particularly interest.
- *Study of wild edible plants*. We address our efforts concerning wild edible plants and minor crops to the compilation of the traditional knowledge of these types of plants with ethnobotanical prospections in the territories we study. We also try to understand current status and how far the perception and consumption of these plants by people has varied over time.
- *Phytonymy*. Popular names of plants are one of the most abundant and diverse ethnobotanical data sets. Catalan names of plants are first compiled and then we study their variation, geographical distribution, originality and ethnobotanical meaning.

## Palynology and Paleoecology

Activities of this research group revolve around:

- *Reconstruction* of temporal dynamics of ecosystems and analysis of potential causes.
- *Study* of biotic responses to past climate changes.
- *Evaluation* of possible consequences of future climate changes and suggestions of conservation strategies.
- *Analysis* of human influences (deforestation, fire, agriculture, etc.) on biotic communities and landscape through history.
- *Contribution* to knowledge on present biodiversity's origin and biogeographical patterns.
- *Contribution* to understand processes responsible for current community's configurations.
- *Promotion* of the usage of Palynology and Paleoecology in botanical and ecological studies, as well as in conservation biology.
- *Analysis* of the relations between science and society.

## History of Botany and Analysis of Collections

This research group studies the various herbaria of the Botanical Institute of Barcelona (IBB) from the following perspectives:

- *Taxonomical*: search for types and sheets of taxonomic and / or nomenclatural interest.
- *Historical*: study of the history of the collections and the botanists and correspondents who worked in their construction through their documentation and correspondence.
- *Geographical*: quantitative study of the regions where specimens were collected.
- *Conservation*: study of the specimens collected in places where they are currently extinct or in decline and review the representativeness in the herbarium of endemic and threatened taxa; we include the contribution of new chorological, altitudinal, chronological, phenological dating and taxa with risks of over collection.
- *Gardening*: study of plants cultivated in ancient times and follow-up of the introduction of alien species still preserved in the herbaria.
- *Biodiversity*: assessment of the representativeness of certain families in the herbarium, characterizing them from geographical, chronological, ecological and taxonomic points of view, studying their floristic richness at different geographic levels.

Our primary objective is to promote the value of IBB herbaria as witness for comparison and classification of taxa, to verify examples of possible extinction due to climate change, and to date the introduction of alien plants in our country.

We also seek to demonstrate the importance of herbaria for the development of floristic, taxonomic and biodiversity studies while highlighting herbaria as repositories of information concerning the distribution, ecology, phenology and variability of taxa.

Currently we are working on three main themes:

- Study of the Salvador Cabinet
- Study of the Trèmols herbarium and *Hieracium* collection
- Analyses of Collections

## PROJECTS\*

### Internal

Elementos transponibles y evolución de plantas. Una aproximación multidisciplinar en especies no modelo (CGL2013-49097-C2-2-P). Secretaría de Estado de Investigación, Desarrollo e Innovación. Ministerio de Economía y Competitividad. 2014-2016. Principal Investigator: **T. Garnatje**, G. Nieto (project coordinator). IBB participants: **T. Garnatje, J. Vallès, D. Vitales, J. Martín & S. Garcia**.

Support funds for Research Groups (SGR) “Biodiversitat i Biosistemàtica Vegetals (GReB)” (2014-SGR 514). Secretaria d'Universitats i Recerca del Departament d'Economia i Coneixement. Generalitat de Catalunya. 2014-2016. Principal Investigator: J. Vallès. IBB participants: **J. J. Aldasoro, N. Garcia-Jacas, S. Garcia, T. Garnatje, N. Ibáñez, S. López, J. Martín, G. Mas de Xaxars, S. Massó, N. Montes, N. Nualart, A. Susanna & R. Vilatersana**.

### External

Biogeografía de los sabinares de *Juniperus turbinata* Guss. en la reserva de la biosfera de El Hierro y en el parque nacional de Doñana (CSO2011-24425). Ministerio de Ciencia e Innovación. 2012-2015. Principal Investigator: Montserrat Salvà-Catarineu. IBB participant: **A. M. Romo**.

Driving forces along an urban-suburban gradient: spatial patterns and plant diversity variation of residential vegetation in Beijing, China (41201049). National Natural Science Foundation of China. 2013-2015. Principal Investigator: H.-F. Wang. IBB participant: **J. López-Pujol**.

### Contracts

Estudo com marcadores moleculares AFLP da população (79 indivíduos) *Argyranthemum thalassopilum* da Selvagem Pequena. Direção Regional de Florestas e de Conservação da Natureza – Madeira. 2015. Principal Investigator: **R. Vilatersana**.

Desarrollo de marcadores moleculares para identificación mediante *DNA fingerprinting* de las razas cromosómicas de *Achillea millefolium*. Laboratoris Uriach-Achillea (Grup Uriach). Principal Investigator: **A. Susanna**. IBB participants: **N. Garcia Jacas, S. López & R. Vilatersana**.

Collection of *Nigella* species material in Greece Island. Chinese Academy of Sciences. 2015.  
Principal Investigator: **R. Vilatersana**.

\* Does not include information on projects of the Palynology and Paleoecology group, which ceased its activities at the IBB in early 2015.

## CONSOLIDATED RESEARCH GROUPS

During 2015, IBB researchers were part of two consolidated research groups, recognized by the Agency for Administration of University and Research Grants (AGAUR) of the Generalitat of Catalonia. These groups are: the “Plant Biodiversity and Biosystematics Group” (GReB) and the “Mediterranean Mountains’ Landscapes and Paleoenvironments Group”.

### *Biodiversity and Plant Biosystematics Group (GReB)*

#### Composition

The *Biodiversity and Plant Biosystematics Group* (GReB) consists of researchers from three institutions:

##### *Autonomous University of Barcelona*

- Botany Unit from the Department of Animal Biology, Plant Biology and Ecology at the Faculty of Biosciences

##### *University of Barcelona*

- Botany Unit from the Department of Natural Products, Plant Biology and Edaphology at the Faculty of Pharmacy
- Botany Section from the Department of Plant Biology at the Faculty of Biology
- Department of Physical Geography at the Faculty of Geography and History
- Department of Ecology at the Faculty of Biology

##### Botanical Institute of Barcelona

#### Objectives

- *To study the floristic biodiversity in the Western Mediterranean region, aiming to define and catalogue plant biodiversity, as well as to establish the scientific bases to the adequate management of natural resources.*

- *To analyse the evolutionary mechanisms at the root of current plant diversity, through cytogenetic studies, biosystematics, systematics, molecular phylogeny and population biology.*
- *To undertake studies on Conservation Biology applied to threatened species, endangered, endemic or rare in Catalonia and Western Mediterranean.*
- *To study the causes for the current biodiversity in the Neotropical region, origin, evolution and conservation.*

Principal Investigator: **J. Vallès** (Universitat de Barcelona) IBB participants: **J. J. Aldasoro, N. García-Jacas, S. García, T. Garnatje, N. Ibáñez, S. López, J. Martín, G. Mas de Xaxars, S. Massó, N. Montes** (tècnic), **N. Nualart, A. Susanna & R. Vilatersana.**

## ***Mediterranean Mountains' Landscapes and Paleoenvironments Group***

### **Composition**

The Mediterranean Mountains' Landscapes and Paleoenvironments Research Group is constituted by researchers from the following institutions:

University of Barcelona

- Department of Physical Geography
- Service for Landscape Management

*Complutense University of Madrid*

- *Department of Physical Geography*

*University of Extremadura*

- *Department of Graphical Expression*

*University of León*

- *Department of Physical Geography*

*University of Lisbon*

- *Centre of Geographical Studies*

*Botanical Institute of Barcelona*

## Objectives

Analysis and explanation of landscape evolutionary changes throughout the Quaternary and recent times, along with current dynamics, with special emphasis on the Eastern Pyrenees, Sierra Nevada and El Hierro island. These objectives are organized around the following core study areas:

- Geomorphology of cold environments (glaciarism and periglaciarism)
- Geomorphological cartography
- Paleoenvironmental reconstruction of landscape
- Quaternary and Holocene chronology of events
- Historical glaciarism: Little Ice Age
- Current morphogenetic dynamics and processes in cold environments
- Current climate behaviour in natural systems
- Historical evolution of landscape from documentary and natural records
- Landscape and plant dynamics. Biodiversity
- Heritage value of landscape

Principal Investigator: A. Gómez (University of Barcelona). IBB Participant: **A. Romo**.

## *Paleoecology and evolutionary ecology*

Consolidated Research Group recognized by the Generalitat of Catalonia. 2014-1016. SGR 1207. Responsible Researcher: Meike Kohler, ICREA Researcher. Adscription centre: Catalan Institute of Palaeontology (ICP), ICP Building, UAB Campus. IBB Participants: **V. Rull & T. Vegas**.



# SCIENTIFIC PRODUCTION





## SCIENTIFIC ARTICLES

### SCI Publications

Chung, M. Y., **López-Pujol, J.**, Chung, J. M., Kim, K.-J., Park, S. J. & Chung, M. G. 2015. Polyploidy in *Lilium lancifolium*: Evidence of autotriploidy and no niche divergence between diploid and triploid cytotypes in their native ranges. *Flora* 213: 57-68.

Chung, M. Y., **Lopez-Pujol, J.** & Chung, M. G. 2015. Genetic evidence of a progenitor-derivative species pair in East Asian *Lilium*. *Annales Botanici Fennici* 52: 211-218.

Chung, M. Y., **López-Pujol, J.**, Lee, Y. M., Oh, S. H. & Chung, M. G. 2015. Clonal and genetic structure of *Iris odaesanensis* and *Iris rossii* (Iridaceae): insights of the Baekdudaegan Mountains as a glacial refugium for boreal and temperate plants. *Plant Systematics and Evolution* 301: 1397-1409.

Ferrer-Gallego, P. P., **Romo, A. M.**, Roselló, R., Laguna, E. & Peris, J. B. 2015. A revised typification of *Jasione corymbosa* and *J. glabra* (Campanulaceae) from the Western Mediterranean area. *Phytotaxa* 233: 94-97.

Hidalgo, O., **García, S.**, **Garnatje, T.**, Mumbrú, M., Patterson, A., Vigo, J. & **Vallès, J.** 2015. Genome size in aquatic and wetland plants: fitting with the large genome constraint hypothesis with a few relevant exceptions. *Plant Systematics and Evolution* 301: 1927-1936.

Hidalgo, O., **Vallès, J.**, **Romo, A. M.**, Canela, M.-A. & **Garnatje, T.** 2015. Genome size variation in gymnosperms under different growth conditions. *Caryologia* 68: 92-96.

Hilpold, A., López-Alvarado, J., **García-Jacas, N.** & Farris, E. 2015. On the identity of a *Centaurea* population on Procida Island, Italy: *Centaurea corensis* rediscovered. *Plant Biosystems* 149: 1025-1035.

**López-Vinyallonga, S.**, **López-Pujol, J.**, Constantinidis, T., **Susanna, A.** & **García-Jacas, N.** 2015. Mountains and refuges: Genetic structure and evolutionary history in closely related, endemic *Centaurea* in continental Greece. *Molecular Phylogenetics and Evolution* 92: 243-254.



*Centaurea princeps* Boiss. & Heldr., an endemic from Greece. Photo: A. Susanna

**López-Vinyallonga, S.**, Soriano, I., **Susanna, A.**, Montserrat, J.M., Roquet, C. & **García-Jacas, N.** 2015. The polyploid series of the *Achillea millefolium* aggregate in the Iberian Peninsula investigated using microsatellites. *PLoS ONE* 10: e0129861.

Mairal, M., Pokorny, L., **Aldasoro, J. J.**, Alarcón, M. & Sanmartín, I. 2015. Ancient vicariance and climate-driven extinction continental-wide disjunctions in Africa: The case of the Rand Flora genus *Canarina* (Campanulaceae). *Molecular Ecology* 24: 1335–1354.

Mairal, M., Sanmartín, I., **Aldasoro, J. J.**, Culshaw, V., Manolopoulou, I. & Alarcón, M. 2015. Palaeo-islands as refugia and sources of genetic diversity within volcanic archipelagos: The case of the widespread endemic *Canarina canariensis* (Campanulaceae). *Molecular Ecology* 24: 3944- 3963.

**Mas de Xaxars, G.**, Fridlender, A., **Garnatje, T.** & **Vallès, J.** 2015. Molecular and cytogenetic confirmation of the hybrid origin of *Jacobaea* × *mirabilis* (Asteraceae, Senecioneae), with nomenclatural notes on this name. *Phytotaxa* 234: 271-279.

**Mas de Xaxars, G.**, García-Fernández, A., Barnola, P., **Martín, J.**, Mercadé, A., **Vallès, J.**, Vargas, P., Vigo, J. & **Garnatje, T.** 2015. Phylogenetic and cytogenetic studies reveal hybrid speciation in *Saxifraga* subsect. *Triplinervium* (Saxifragaceae). *Journal of Systematics and Evolution* 53: 53-62.

Mavrodiev, E. V., Chester, M., Suárez-Santiago, V. N., Visger, C. J., Rodríguez, R., **Susanna, A.**, Baldini, R. M., Soltis, P. S. & Soltis, D. E. 2015. Multiple origins and chromosomal novelty in the allotetraploid *Tragopogon castellanus* (Asteraceae). *New Phytologist* 206: 1172-1183.

Olanj, N., **Garnatje, T.**, Sonboli, A., **Vallès, J.** & **Garcia, S.** 2015. The striking and unexpected cytogenetic diversity of genus *Tanacetum* L. (Asteraceae): A cytometric and fluorescent *in situ* hybridisation study of Iranian taxa. *BMC Plant Biology* 15: 174.

Reyes-García, V., Menendez-Baceta, G., Aceituno-Mata, L., Acosta-Naranjo, R., Calvet-Mir, L., Domínguez, P., **Garnatje, T.**, Gómez-Baggethun, E., Molina-Bustamante, M., Molina, M., Rodríguez-Franco, R., Serrasolses, G. & **Vallès, J.**, Pardo-de-Santayana, M. 2015. From famine foods to delicatessen: Interpreting trends in the use of wild edible plants through cultural ecosystem services. *Ecological Economics* 120: 303-311.

**Rigat, M.**, **Vallès, J.**, **D'Ambrosio, U.**, **Gras, A.**, Iglésias, J. & **Garnatje, T.** 2015. Plants with topical uses in the Ripollès district (Pyrenees, Catalonia, Iberian Peninsula): Ethnobotanical survey and pharmacological validation in the literature. *Journal of Ethnopharmacology* 164: 162-179.

**Rull, V.** 2015. Long-term vegetation stability and the concept of potential natural vegetation in the neotropics. *Journal of Vegetation Science* 26: 603-607.

**Rull, V.** & **Vegas-Vilarrúbia, T.** 2015. Crops and weeds from the Estany de Montcortès catchment, central Pyrenees, during the last millennium: a comparison of palynological and historical records. *Vegetation History and Archaeobotany* 24: 699-710.

**Rull, V., Vegas-Vilarrúbia, T. & Montoya, E.** 2015. Neotropical vegetation responses to Younger Dryas climates as analogs for future climate change scenarios and lessons for conservation. *Quaternary Science Reviews* 115: 28-38.

**Vallès, J., Garnatje, T., Robin, O. & Siljak-Yakovlev, S.** 2015. Molecular cytogenetic studies in western Mediterranean *Juniperus* (Cupressaceae): a constant model of GC-rich chromosomal regions and rDNA loci with evidences for paleopolyploidy. *Tree Genetics and Genomes* 11: 43.

**Vegas-Vilarrúbia, T., Hernández, E., Rull, V. & Rull Vegas, E.** 2015. The Orinoco megadelta as a conservation target in the face of the ongoing and future sea level rise. *Science of the Total Environment* 515-516: 129-142.

**Vitales, D., García-Fernández, A., Garnatje, T., Vallès, J., Cowan, R. S., Fay, M. F. & Pellicer, J.** 2015. Conservation genetics of the rare Iberian endemic *Cheirolophus uliginosus* (Asteraceae). *Botanical Journal of the Linnean Society* 179: 157-171.



Inflorescence detail of *Cheirolophus uliginosus* (Brot.) Dostál. Photo: IBB

## Non-SCI Publications

**Barros, K.** 2015. The Salvador Cabinet obtains the category of property of cultural interest (Bé Cultural d'Interès Nacional–BCIN). *Collectanea Botanica* 34: e011.

Guillot, D., Laguna, E. & **López-Pujol, J.** 2015. Primera cita de *Opuntia* 'Papiki' en la provincia de Teruel (España). *Bouteloua* 20: 153-159.

Guillot, D., Laguna, E., **López-Pujol, J.** & Puche, C. 2015. *Kalanchoe delagoensis* 'Morvedre'. *Bouteloua* 22: 64-75.



*Kalanchoe delagoensis* Eckl. & Zeyh., species recently detected in Catalonia.  
Photo: J. López-Pujol

Guillot, D., **López-Pujol, J.**, Laguna, E. & Puche, C. 2015. *Kalanchoe daigremontiana* Raym.-Hamet & H. Perrier 'Iberian Coast'. *Bouteloua* 21: 35-48.

Guillot, D., **López-Pujol, J.**, Laguna, E., Silva, V. & Puche, C. 2015. Un nuevo cultivar de Luther Burbank presente en la flora alóctona de la Península Ibérica, *Opuntia ficus-indica* 'Vertex'. *Bouteloua* 20: 124-143.

Liu, J. Q., Ren, M. X., **Susanna, A.** & **López-Pujol, J.** 2015. Special issue on Ecology, evolution, and conservation of plants in China: Introduction and some considerations. *Collectanea Botanica* 34: e001.

**López-Pujol, J.** & Guillot, D. 2015. Primera cita de *Agave americana* 'Marginata aurea' en Navarra. *Bouteloua* 21: 134-136.

**López-Pujol, J.** & Guillot, D. 2015. Primera cita de *Arundo donax* var. *versicolor* como alóctona en la Península Ibérica y en Europa. *Bouteloua* 22: 191-194.

**López-Pujol, J.**, Guillot, D. & Meer, P. van der. 2015. Tres nuevos ágaves para la flora alóctona catalana. *Bouteloua* 22: 55-63.

**López-Pujol, J.**, Guillot, D. & Meer, P. van der. 2015. New data from alien Agavaceae on the Mediterranean coast of the Iberian Peninsula. *Xerophilia* 4 (3): 103-118.

**López-Pujol, J.** & Guillot Ortiz, D. 2015. First report of *Cotoneaster pannosus* Franch. (Rosaceae) in Tarragona Province, and updated distribution area in Spain. *Botanica Complutensis* 39: 63-69.

**Massó, S.** & **López-Pujol, J.** 2015. Actualitzat el Catàleg de Flora Amenaçada de Catalunya. *La Brolla* 35: 6-7.

**Nualart, N.**, **Barros, K.**, **López-Pujol, J.** & **Montes-Moreno, N.** 2015. On-line visibility of the Botanic Institute of Barcelona. *Collectanea Botanica*, 34: e010.

**Nualart, N.**, **Barros, K.**, **López-Pujol, J.** & **Montes-Moreno, N.** 2015. Visibilidad del Instituto Botánico de Barcelona y su Herbario BC en la red. *Boletín de la Asociación de herbarios Ibero-Macaronésicos* 17: 31-32.

**Vallès, J., D'Ambrosio, U., Gras, A., Parada, M., Serrasolses, G. & Garnatje, T.** 2015. Una denominació recent per a una ciència antiga. *Revista de Girona* 290: 80-83

**Vallès, J. & Garnatje, T.** Reivindicació de l'etnobotànica entre les ciències naturals i socials. 2015. *Mètode* 86: 23-27



Fieldwork in collaboration with an ethnobotanical informant. Photo: IBB

Wang, H. F. & **López-Pujol, J.** 2015. Urban green spaces and plant biodiversity at different spatial-temporal scales: A case study from Beijing, China. *Collectanea Botanica* 34: e008.

Wang, H. F., Ren, M. X., **López-Pujol, J.**, Ross Friedman, C., Fraser, L. H. & Huang, G. X. 2015. Plant species and communities in Poyang Lake, the largest freshwater lake in China. *Collectanea Botanica* 34: e004.

Wang, Z. Q., Guillot, D. & **López-Pujol, J.** 2015. *Crassula ovata*, a new alien plant for mainland China. *Collectanea Botanica* 34: e009.

## Book chapters and other publications

Blanché, C., Bosch, M., **López-Pujol, J.**, **Massó, S.**, Simon, J., Rovira, A. M. & Molero, J. 2015. Caracterització biològica i citogenètica de la població retrobada de l'esperó de Bolòs (*Delphinium bolosii*) al Parc Natural de Sant Llorenç del Munt i l'Obac. In: Duran, C., Hernández, J., Grau, J. & Melero, J. (Eds.), *VIII Trobada d'estudiosos de Sant Llorenç del Munt i l'Obac*. Diputació de Barcelona, Barcelona: 197-207.

**Ibáñez, N.**, **Nualart, N.**, **Muñiz, D.**, **Pallàs, J.** & **Prats, A.M.** 2015. *Exsiccata de flora iberomacaronésica selecta: XIX centuria, 2014*. AHIM, Madrid.

Llop, E. & **Muñiz, D.** 2015. Els líquens. In: Vilar, L. & Quintana, X. (Eds.), *El poblament vegetal i els hàbitats del massís del Montgrí, les Illes Medes i la Plana del Baix Ter* (Recerca i Territori, 3). Càtedra d'Ecosistemes Litorals Mediterranis, Torroella de Montgrí: 51-58.

**López-Pujol, J.**, Bosch, M., **Massó, S.**, Molero, J., Simon, J., Rovira, A. M. & Blanché, C. 2015. Estudi preliminar de variabilitat isoenzimàtica de *Delphinium bolosii* al Parc Natural de Sant Llorenç del Munt i l'Obac. In: Duran, C., Hernández, J., Grau, J. & Melero, J. (Eds.), *VIII Trobada d'estudiosos de Sant Llorenç del Munt i l'Obac*. Diputació de Barcelona: 208-218.

**Massó, S.**, Blanché, C., Barriocanal, C., Martinell, M. C. & **López-Pujol, J.** 2015. How habitat fragmentation affects genetic diversity? The case of a sand dune plant (*Stachys maritima*) in the Iberian Peninsula. In: Urbano, K. V. (Ed.), *Advances in Genetics Research* 16. Nova Science Publishers, New York: 65-78.

**Romo, A. M.** & Boratyński, A. 2015. The yew (*Taxus baccata*) in Morocco: a tree in regression in its southern extreme. In: *Actes de les IV Jornades Internacionals del Teix*. Centre Tecnològic Forestal de Catalunya, Solsona (Lleida): 114.

**Vitales, D.**, Pellicer, J., **Vallès, J.** & **Garnatje, T.** 2015. Molecular insights into the diversification of Cheirolophus (Asteraceae) in Macaronesia. In Muñoz-Torrero, D., Vinardell, P. & Palazón, J. (Eds.), *Recent Advances in Pharmaceutical Sciences* 5. Research Signpost, Kerala: 85-100.

# COMMUNICATIONS IN CONGRESSES AND SEMINARS

## Oral presentations

Carceller, F., **Romo, A. M.** & Costa, F. 2015. Aproximació al bioturisme en àrees periurbanes protegides: els itineraris de natura de la font de l'Amigó i del turó de les Maleses (Parc de la Serralada de Marina). *III Trobada d'Estudiosos dels Parcs de la Serralada Litoral Central*, Barcelona, Spain.

Chung, M. Y., **López-Pujol, J.**, Kang, C. K. & Chung, M. G. 2015. The role of the Baekdudaegan (Korean Peninsula) as a major Southern glacial refugium for plant species: Priorities for Conservation. *2015 Korea National Arboretum International Symposium*. Pocheon, South Korea.

**Garcia, S., Gras, A., Kovařík, A. & Garnatje, T.** 2015. 5S rDNA high dynamism in plants: transposable elements and evolution. *XV Jornada de Biologia Evolutiva*, Barcelona, Spain.

**Garnatje, T. & Vallès, J.** 2015. *Classificació de productes culinaris, Celler de Can Roca*, Girona, Spain,

Grossi, M.A., Gutiérrez, D.G., **Garcia-Jacas, N. & Susanna, A.** 2015. Patrón filogeográfico preliminar de *Acanthostyles Buniifolius* (Asteraceae, Eupatorieae). *XXXV Jornadas Argentinas de Botánica*, Salta, Argentina.

**Ibáñez, N. & Pardo, J.** 2015. Salvadoriana. De l'antic gabinet de curiositats al laboratori científic del segle XXI. *L'àgora dels naturalistes*, Barcelona, Spain.

**López-Pujol, J.** 2015. Genetic structure and phylogeography of *Paeonia* subsect. *Delavayanae*. *Evolutionary Biology Forum núm. 48 of the Botanical Institute (Chinese Academy of Sciences)*. Beijing, China.

**López-Pujol, J.** 2015. Richness, evolution, and conservation of the Chinese flora. *Evolutionary Biology Forum núm. 48 of the Botanical Institute (Chinese Academy of Sciences)*. Beijing, China.

**López-Pujol, J.** 2015. Towards a Red Book for Hainan Island. Hainan University, Haikou, China.

- López-Pujol, J.** 2015. Identification of Quaternary plant refugia in China: methods and some own examples. Sichuan University. Chengdu, China.
- López-Pujol, J.** 2015. Facing the challenge of Chinese flora: richness, endemism, threats, and conservation. *International Conference on Ecology, Evolution, and Conservation of Tropical Plants & the 6th National Conference on Tropical Forest Ecology of China*. Haikou, China.
- López-Pujol, J.** 2015. La Xina. El repte de conservar una megaflore. *Seminaris de l'institut Botànic de Barcelona*. Barcelona, Spain.
- Mas de Xaxars, G., Vallès, J., Vitales, D., Hidalgo, O. & Garnatje, T.** 2015. Especiació i hibridació en el gènere *Rhaponticum* Vaill. (Asteraceae) als Alps. *XV Jornada de Biologia Evolutiva*, Barcelona, Spain.
- Pardo-de-Santayana, M. & **Garnatje, T.** 2015. Medicinal and veterinary plants in the Spanish inventory of traditional knowledge related to biodiversity. *Indigenous Plant Use Forum & Society for Economics Botany*, Clanwilliam, South Africa.
- Susanna, A.** 2015. Phylogeny and biogeography of the tribe Cardueae. Phylogeography of Central Tibet, Sichuan University. Chengdu, China.
- Susanna, A. & Garcia-Jacas, N.** 2015. The tribe Cardueae (Compositae): a window into the biogeography of the Mediterranean. *Evolutionary Biology Forum núm. 48 of the Botanical Institute (Chinese Academy of Sciences)*. Beijing, China.
- Susanna, A. & Garcia-Jacas, N.** 2015. The tribe Cardueae (Compositae): phylogeny, systematics and biogeography. Hainan University, Haikou, China.
- Susanna, A. & Garcia-Jacas, N.** 2015. Striking disjunctions between East Asia and the Mediterranean: the case of tribe Cardueae (Compositae). *International Conference on Ecology, Evolution and Conservation of Tropical Plants & 6th Conference on Tropical forest Ecology of China*, Haikou, China.
- Vallès J., D'Ambrosio, U., Garnatje, T., Gras, A. & Parada, M.** 2015. A la natura, als horts i als mercats. Un calendari vegetal. *II Col·loqui "Mirades de la ciència sobre el temps. El cicle de l'any"*, Barcelona, Spain.

**Vilatersana, R.**, Sanz, M., **Galian, A.** & Castells E. 2015. Rutes d'invasió de *Senecio pterophorus*. *Seminaris de l'institut Botànic de Barcelona*, Barcelona, Spain,

**Vilatersana R.**, Carvalho J.A., Pomar M., **Massó S.** & **López-Pujol J.** 2015. Conservation of the critically endangered flora of the Savage Island, Atlantic Ocean. *6th International Conference on Ecology, Evolution and Conservation of Tropical Plants - 6th Conference on Tropical Forest Ecology of China*, Haikou, China.

**Vilatersana, R.**, Carvalho, J.A., Pomar, M., **Massó, S.** & **López-Pujol, J.** 2015. Conservation of the critically endangered flora of the Savage Island, Atlantic Ocean. *Evolutionary Biology Forum núm. 48 of the Botanical Institute (Chinese Academy of Sciences)*. Beijing, China.

## Posters

**Carnicero, P.**, Galbany-Casals, M., Schönswetter, P., Fraga, P., **Garcia-Jacas, N.** & Sáez, L. 2015. Phylogeography of western Mediterranean Cymbalaria and systematic implications. *10th Systematics Biennial*, Oxford, UK.

**Herrando S.**, **Carnicero P.**, Blanco-Moreno J.M., Saéz L., Véla, E., **Vilatersana R.** & Galbany-Casals M. 2015. Systematics and evolutionary history of the *Helicrysum pendulum* complex (Compositae) in the Mediterranean basin. *Systematics - The Science that Uncerpins Biology*, Oxford, UK.

**D'Ambrosio, U.**, Pozo, C., **Garnatje, T.** & **Vallès, J.** 2015. El barri del Fondo i les seves plantes alimentàries. *Sabors del món a la Santa Coloma de Gramenet del segle XXI*, Santa Coloma de Gramenet, Spain.



# TRAINING AND KNOWLEDGE TRANSFER





## SERVICE UNITS

With the aim to maximize technological transfer to businesses, to other research and teaching institutions, as well as society in general, IBB has created two service units (PALAB Analytic and CERTIBB). These units offer IBB's personnel, know-how and physical facilities for applied purposes according to the needs of such businesses, institutions and citizens.

### PALAB Analytic

This Service Unit, created in 2012, began operations in 2013.

The Unit offers services both, scientific and public, interested in the distinct and varied applications of Palynology (Paleoecology, Archaeology, Biostratigraphy, Taxonomy, Melisopalynology, etc.). PALAB Analytic services have initiated with the analysis of honey (Melisopalynology) and are targeted for any commercial sector (apiarists, associations, cooperatives, packers, distributors, consumers, etc.) or individual person interested in honey composition, its botanical origin, its organoleptic properties and recommended use according to such characteristics.

#### Types of analyses

- Basic physicochemical analyses (pH, conductivity, % water, HMF, glucose-oxidase, diastase)
- Melisopalynology (regular, detailed)
- Pollen analysis in royal jelly, corbicular pollen, pollen bread, waxes, propolis, bees...
- Sensory analysis (colour, aroma, flavour, smell, consumption recommendations)
- Botanical and biogeographic consulting (honey origin, apiary localization)

### CERTIBB

Its mission is to provide to businesses and society a series of tools based in molecular techniques with the objective to offer the following services:

**Identification service and species certification**, using DNA bar coding techniques that allow us to detect and identify the ingredients that compose a food or medicine with a vegetal origin, and their proportions in various preparations. In a similar way, these techniques allow to identify any sample with a forestry, agrarian or environmental interest.

**Analysis of species, varieties and populations using genotyping techniques**, in order to direct prospections for lineages rich in health-promoting compounds, as well as to value the genetic characteristics of populations, races, varieties, and lineages of plants.

**Consulting** in identifications uses and properties of plants in aspects related with conservation and the environment (invasive species impact, population viability of endemic and/or endangered species, conservation strategies and environmental impact analyses).

**Training** in the different genetic analysis techniques with basic research orientations (systematics, taxonomy, population biology, cytogenetics, ethnobotany, conservation...) and applied (sectors such as alimentary, pharmaceutical, industrial) for company workers and research centers.

### Types of essays

- DNA extraction, amplification and sequencing.
- Identification of amplified DNA fragments using bar coding techniques.
- Research and development of molecular markers for genotyping, e.g., SSR and AFLPs.
- Data base creation with DNA profiles.

### Main applications

- Identification of plants with medicinal, alimentary, industrial, agrarian or conservation purposes.
- Characterization of potentially more productive cytotypes/genotypes (agriculture, forestry) or more appropriate for industrial applications.
- Research on species or populations suitable for medicine-oriented bioprospection.



IBB laboratory. Photo: IBB

## IBB'S OWN JOURNAL

### *Collectanea Botanica*

The IBB publishes the scientific journal *Collectanea Botanica*, with a yearly periodicity, which accepts articles on taxonomy and systematics of all plant groups and fungi. It also includes related fields such as biogeography, bioinformatics, cytogenetics, conservation, ecophysiology, phylogeny, phylogeography, floristics, functional morphology, nomenclature and plant-animal relations, as well as reviews and summary works. In 2013, *Collectanea Botanica* was officially included in the SCOPUS/Elsevier data base.

During the year 2015, the Editorial Board of the journal was formed by:

**Director:** Jordi López Pujol

**Secretary:** Alfonso Susanna de la Serna

#### **Editors:**

- Mercè Galbany Casals (Autonomous University of Barcelona)
- Sònia Garcia Giménez (University of Barcelona)
- Núria Garcia Jacas (IBB)
- Teresa Garnatje Roca (IBB)
- Neus Ibáñez Cortina (IBB)
- Javier López Alvarado (Autonomous University of Barcelona)
- Josep Maria Montserrat Martí (Botanical Garden of Barcelona)
- Àngel María Romo Díez (IBB)
- Llorenç Sáez Goñalons (Autonomous University of Barcelona)
- Roser Vilatersana Lluch (IBB)

The journal also has an Advisory Board, with international focus, constituted by:

- Inés Álvarez Fernández (*Royal Botanical Garden of Madrid-CSIC*)
- Gabriel Blanca López (*University of Granada*)
- Cèsar Blanché Vergés (*University of Barcelona*)
- Adam Boratyński (*Institute of Dendrology, Kórnik, Poland*)
- Empar Carrillo Ortuño (*University of Barcelona*)
- Sílvia Castro (*Universidade da Coimbra, Coimbra, Portugal*)

- Manuel Benito Crespo Villalba (University of Alacant)
- Victoria Ann Funk (*Smithsonian Institution*, EUA)
- Antonio Galán de Mera (*University San Pablo-CEU*)
- Ester Gaya Bellés (*Royal Botanic Gardens*, Kew, UK)
- Amelia Gómez Garreta (University of Barcelona)
- Oriane Hidalgo (*Royal Botanic Gardens*, Kew, UK)
- Norbert Kilian (*Free University of Berlin*, Berlin, Germany)
- João Loureiro (*Universidade da Coimbra*, Coimbra, Portugal)
- Encarnación Montoya Romo (Institut de Ciències de la Terra Jaume Almera, ICTJA-CSIC)
- Santiago Ortiz Núñez (*University of Santiago*)
- Joan Pedrol Solanes (University of Lleida)
- Toby Pennington (*Royal Botanical Garden Edinburgh*, UK)
- Ernesto Pérez-Collazos (*University of Zaragoza*)
- Rosalía Piñeiro Portela (*Royal Botanic Gardens*, Kew, UK)
- Ming-Xun Ren (*Hainan University*, Haikou, Xina)
- Rob D. Smissen (*Landcare Research*, Lincoln, New Zeland)
- Ignasi Soriano Tomàs (University of Barcelona)
- Joan Vallès Xirau (University of Barcelona)

Volume 34, corresponding to 2015 revolved around the diversity of plants in China, their evolution and conservation, with the following contents:

Articles:

- Special issue on *Ecology, evolution, and conservation of plants in China*: Introduction and some considerations  
*J. Q. Liu, M. X. Ren, A. Susanna, J. López-Pujol*
- Distribution patterns of long-lived individuals of relict plants around Fanjingshan Mountain in China: Implications for in situ conservation  
*H. Y. Liao, M. X. Ren*
- The upper reaches of the largest river in Southern China as an “evolutionary front” of tropical plants: Evidences from Asia-endemic genus *Hiptage* (Malpighiaceae)  
*M. X. Ren*
- Plant species and communities in Poyang Lake, the largest freshwater lake in China  
*H. F. Wang, M. X. Ren, J. López-Pujol, C. Ross Friedman, L. H. Fraser, G. X. Huang*

- Influences of leaf-mining insects on their host plants: A review  
*W. H. Liu, X. H. Dai, J. S. Xu*
- Distribution patterns of the subtropical evergreen broad-leaved forests of southwestern China, as compared with those of the eastern Chinese subtropical regions  
*C. Q. Tang*
- Orchid diversity in China's Hainan Island: Distribution and conservation  
*X. Y. Hu, J. Zhu, X. Q. Song, R. X. He*
- Urban green spaces and plant diversity at different spatial–temporal scales: A case study from Beijing, China  
*H. F. Wang, J. López-Pujol*

#### Letters to the Editor:

- *Crassula ovata*, a new alien plant for mainland China  
*Z. Q. Wang, D. Guillot, J. López-Pujol*

#### News and novelties:

- On-line visibility of the Botanic Institute of Barcelona  
*N. Nualart, K. Barros, J. López-Pujol, N. Montes-Moreno*
- The Salvador Cabinet obtains the category of property of cultural interest (*Bé Cultural d'Interès Nacional–BCIN*)  
*K. Barros*

# Collectanea Botanica

Volumen 34

enero-diciembre 2015

Barcelona (España)

ISSN-L: 0010-0730



Ecology, evolution, and conservation of plants in China

**nat** museu de  
ciències naturals  
de Barcelona

**CSIC**  
INSTITUT BOTÀNIC DE BARCELONA

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

*Collectanea Botanica* journal cover, volume 34. Photo: IBB

# TUTORING AND TEACHING

## PhD Dissertations

Vitales, D. 2015. Filogeografia, genètica de poblacions i citogenètica molecular del gènere *Cheirolophus* (*Asteraceae*, *Cardueae*). Faculty of Pharmacy, University of Barcelona. Directors: **J. Vallès & T. Garnatje**.

Mairal, M. 2015. Macroevolución y microevolución en sistemas insulares: el patrón Rand Flora en el género *Canarina*. Department of Biology and Geology, Physics and Inorganic and Analytical Chemistry, Rey Juan Carlos University. Directors: I. Sanmartín, M. L. Alarcón & **J. J. Aldasoro**.

## Master's Theses

Buenaventura, P. 2015. Diversitat genètica i modelització ecològica del nínxol per a quatre espècies del complex *Cheirolophus webbianus* de l'illa de Tenerife. Faculty of Biology, University of Barcelona. Directors: **D. Vitales, T. Garnatje & L. Moiset Agustí**.

## Undergraduate Final Projects

Alegre, G. 2015. Study of the evolution and the structure of the ribosomal RNA genes in plants: analysis of the intergenic spacer (IGS) in species of the genus *Armeria*. Faculty of Biology, University of Barcelona. Directors: **S. Garcia & T. Garnatje**.

## Mentoring

Requena, J. 2015. Pràctiques de Sistemàtica, Biodiversitat i evolució de plantes vasculars. Autonomous University of Barcelona. Faculty of Biosciences. Tutors: M. Galbany & **Núria Garcia-Jacas**.

Almeida, B. & Aldea, C. de IES de Aran Vielha. 2015. Treball de recerca de Batxillerat. La natura ens cuida: estudi etnobotànic de la Vall d'Aran i recerca sobre altres aspectes actuals de les plantes medicinals. Tutor: **T. Garnatje**.

## Classes, presentations and participation in tribunals

Class in the *Gaudir UB* course: Botany in the kitchen. University Extension Program. Professor: **T. Garnatje**.

Class in Applied Botany to Biology undergraduates. Autonomous University of Barcelona. Professor: **T. Garnatje**.

Class in Applied Botany in the herbarium to Biology undergraduates. Autonomous University of Barcelona. Professor: **N. Ibáñez**.

Class in the *Gaudir UB* course: Culinary and gastronomic botany. University Extension Program. Professor: **T. Garnatje**.

Class of Kitchen and Science. University Extension Program. Professor: **T Garnatje**.

High-school teachers' training course "Collectionism as a scientific practice". CSIC in the classroom. Professor: **N. Ibáñez**.

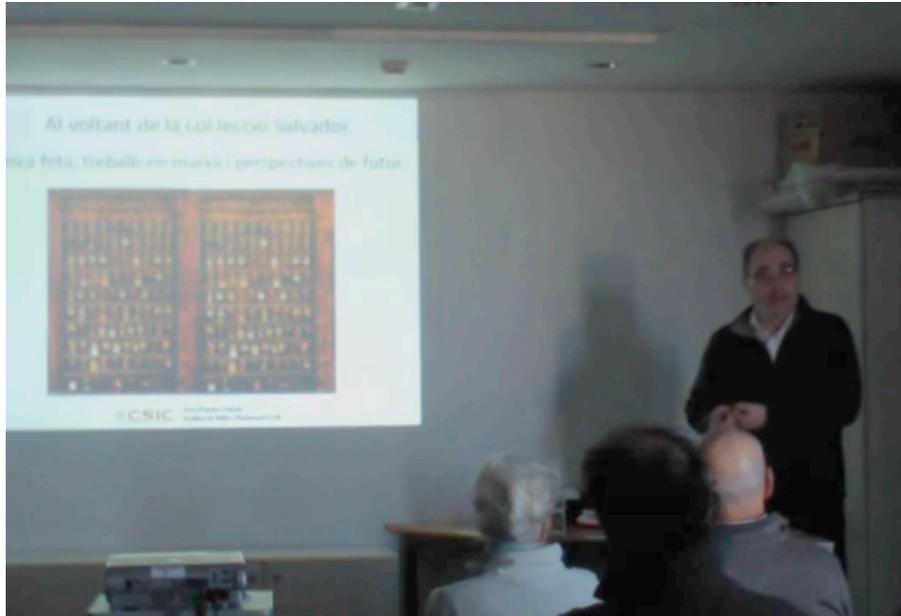


Teachers' training course on the Salvador collection. Photo: IBB

## DISSEMINATION

### Scientific seminars

- *Rutes d'invasió de Senecio pterophorus*. **Roser Vilatersana**. 27/01/2015. 22 assistants.
- *Al voltant de la col·lecció Salvador. Tasca feta, treballs en marxa i perspectives de futur*. **José Pardo**. 24/02/2015. 31 assistants. <http://hdl.handle.net/10261/116747>
- *Estudis preliminars de l'endemisme bètico-rifeny Cynara baetica* **Sergi Massó**. 24/03/2015. 24 assistants. <http://hdl.handle.net/10261/122161>
- *Estudis filogeogràfics en les Cymbalaria de la Mediterrània occidental i noves implicacions sistemàtiques*. **Pau Carnicero**. 28/04/2015. 22 assistants. <http://hdl.handle.net/10261/121806>
- *L'Atlas de la Flora dels Pirineus*. **Neus Nualart**. 26/05/2015. 24 assistants. <http://hdl.handle.net/10261/122188>
- *Intensificació agrícola, biodiversitat i serveis ecosistèmics de pol·linització*. **Jose Manuel Blanco**. 30/06/2015. 22 assistants. <http://hdl.handle.net/10261/122017>
- *La Xina – El repte de conservar una megaflorea*. **Jordi López**. 25/09/2015. 25 assistants.
- *My quest for Ice-Age Equator 40 years after Paul Colinvaux's Amazon expeditions: Long-term dynamics of a mega-diverse ecosystem in central Ecuador*. **Encarni Montoya**. 27/10/2015. 18 assistants.
- *Perfect Genome and Transcriptome Reference Preparation*. **Ran Xu**. 24/11/2015. 17 assistants.



Seminar at the Botanical Institute of Barcelona about the Salvador collection. Photo: IBB.  
Spaker: J. Pardo

## Library and archive

- Guided visit to the Association of Bibliophiles of Barcelona, May 23, 2015. Participants: **N. Ibáñez & K. Barros.**
- Guided visit during **Planta't**, 7 June. Centred around archival documents during the celebration of the International Archives Day. Participants: **N. Ibáñez & K. Barros.**
- Guided visits during the **Science Week** (21 & 22 November). Participants: **K. Barros.**
- News about the IBB's Library and Archive in the "**Las bibliotecas hablan**" section of CSIC's Library Network (<https://goo.gl/etrpl2>).
- Participation in the **Salvadoriana Wikimarathon** celebrated on June 13. Participants: **N. Ibáñez & K. Barros.**



Visit to the library of the Botanical Institute by the Association of Bibliophiles. Photo: IBB

## Exhibitions

### ***Salvadoriana* exhibition**

On 19 May 2014, the *Salvadoriana* exhibition was inaugurated at the Botanical Institute. This exhibition explains what is the Salvador cabinet (17th and 18th centuries), contextualizing its origins, its conservation and its arrival to this day.

It is an exhibition coproduced between the IBB and the Museum of Natural Sciences of Barcelona, and will be open until April 2016. The commissaries have been Dr. Jose Pardo Tomás (Institutió Milà i Fontanals, CSIC) and Dr. **Neus Ibáñez Cortina** (IBB).

During 2015 the exhibition was visited by 9,110 people: 427 in groups of students, 8,534 individual visitors and 149 in other groups.



Guided visit to the exhibition. Photo: IBB

## Social networks

IBB is present in Facebook, aiming to disseminate IBB's activities, publications and other information of botanical interest.

The number of total followers by the end of 2015 has been of 458 (155 new "likes" during 2015). The number of posts during this year has been of 1212. Posts with more repercussion include:

- *Job offer published at the IBB website on 4 postings within the Garantia Juvenil program.* 9 September 2015. Outreach: 1637 people.
- *Announcement of the workshop on identification of herbarium sheets and living plants for the Science Week 2015.* 24 October 2015. Outreach: 1510 people.
- *Link to the article "Reivindicació de l'etnobotànica" in the Mètode journal.* 15 October 2015. Outreach: 1251 people.
- *Announcement of the workshop on plant structure observation under the microscope for the Science Week 2015.* 29 October 2015. Outreach: 1222 people.
- *Announcement of the declaration of heritage of cultural interest of the Salvador collection.* 30 January 2015. Outreach: 1195 people.
- *Job offer published at the IBB website for a documentalist in the Library and Archive.* 1 September 2015. Outreach: 1124 people
- *Link to the section Natural Remedies in the TV Program "Esto es vida" (liver depurative syrup).* 27 December 2015. Outreach: 1081 people.
- *Localization of "Silene mutabilis" in Baix Llobregat, by the team of Llorenç Sáez.* 11 November 2015. Outreach: 1029 people.

## Website

In early 2015 a new IBB website was designed (<http://www.ibb.bcn-csic.es/en/>), with a dynamic and modern look to disseminate research, teaching and activities carried out by the institution. It is available in Catalan, Spanish and English. The home page includes a descriptive section by means of tabs in the top of the page, and a dynamic section with news and events.

21 10 2015 CSIC MNCB BCN CERTIBB
🇪🇸 🇬🇧
📧 📺 📺 📺

# institut botànic de Barcelona

INSTITUTO INVESTIGACIÓN DOCUMENTACIÓN DOCENCIA PUBLICACIONES EXPOSICIONES NOTICIAS

### TRABAJA CON NOSOTROS

#### EVENTOS

Martes 27 de octubre  
**SEMINARI: My quest for Ice-Age Equator 40 years after Paul Colinvaux's Amazon expeditions**

Domingo 25 de octubre  
**Vistete de otoño!**

Martes 29 de septiembre  
**SEMINARIO: China, el reto de conservar una megaflorea**

Jueves 17 de septiembre  
**Diversitat genètica i modelització ecològica del nínxol per a quatre espècies del complex de Cheilodophus webbianaus de l'illa de Tenerife**

octubre 2015						
Lun	Mar	Mie	Jue	Vie	Sab	Dom
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

### PLANTAS DE USO TÓPICO DE LA COMARCA DEL RIPOLLÈS

Investigadores del Instituto Botánico de Barcelona (IBB) y de la Universidad de Barcelona han escrito un artículo publicado recientemente en el Journal of Ethnopharmacology sobre los usos tópicos de algunas especies de plantas de la comarca del Ripollès. La piel es la estructura que aísla y protege el cuerpo humano de los factores ambientales, además [...]

[Leer más](#)  
 Escrito por **Dra. Teresa Garnatje**  
 Publicado el **02/10/2015**

### LA DESACIDIFICACIÓN MASIVA DE LA BIBLIOTECA SALVADOR

Durante el pasado mes de diciembre los libros que forman la biblioteca del Gabinete Salvador fueron sometidos a un tratamiento de conservación conocido como desacidificación masiva. Tras un análisis y diagnóstico de los libros del gabinete, se llegó a la conclusión de que este tratamiento era el más apropiado dado el alto grado de acidez [...]

[Leer más](#)  
 Escrito por **Karina Barros**  
 Publicado el **25/09/2015**

### PUBLICACIÓN DE LA MEMORIA ANUAL 2014 DEL IBB

Para dar a conocer la actividad que se lleva a cabo en el Instituto Botánico de Barcelona (IBB), el centro publica anualmente una memoria. En esta noticia el IBB presenta la del 2014, cuya versión en catalán se encuentra disponible a través de este enlace (próximamente se publicarán las versiones en castellano e inglés). La [...]

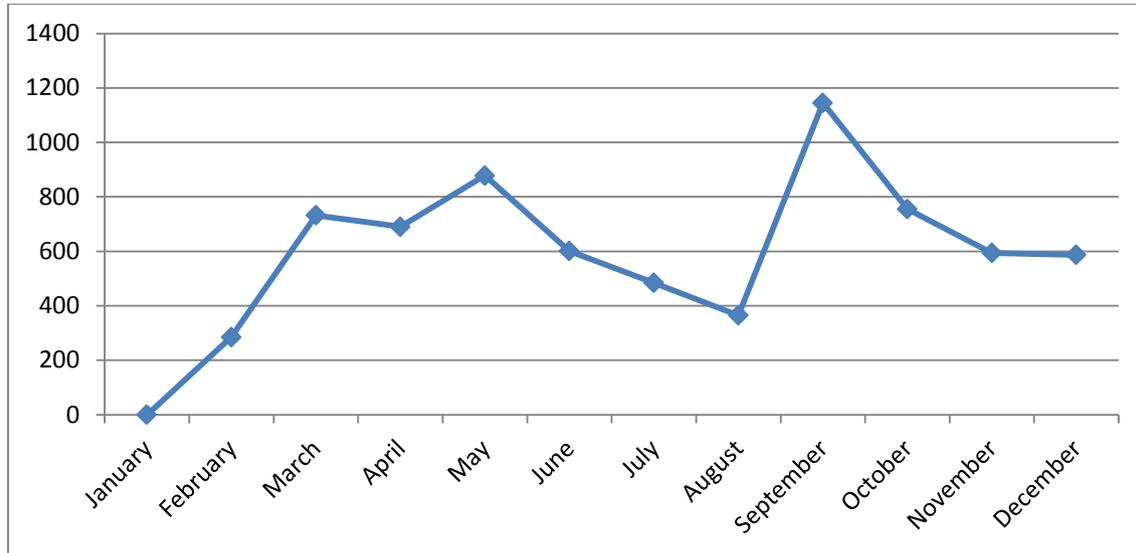
[Leer más](#)  
 Escrito por **Neus Nualart, Dra. Neus Ibáñez**  
 Publicado el **17/09/2015**

### EL IBB, PRESENTE EN UN CONGRESO EN HAINAN, CHINA

Durante el pasado mes de mayo, una delegación del Instituto Botánico de Barcelona (IBB), formada por los doctores Jordi López-Pujol, Alfonso Susanna y Roser Vilatersana, asistió a la International Conference on Ecology, Evolution, and Conservation of Tropical Plants & the 6th Conference on Tropical Forest Ecology of China, organizada por la Universidad de Hainan y [...]

[Leer más](#)  
 Escrito por **Dr. Jordi López-Pujol, Dr. Alfonso**

7,116 visits by 4,278 users have taken place throughout the year at the IBB's website, with the consultation of 31,531 webpages. The following figure shows the monthly evolution of website visits:



In 2015, a total of 32 news have been published, grouped into three main themes:

### Research

- [Inventari espanyol dels coneixements tradicionals relatius a la biodiversitat](#) N. Nualart (19/03/2015)
- [Llibre "Figueres, natura i cultura. Una aproximació etnobotànica"](#) T. Garnatje (01/04/2015)
- [Llibre "El poblament vegetal i els hàbitats del massís del Montgrí, les illes Medes i la plana del Baix Ter"](#) D. Muñiz (12/04/2015)
- [L'ús dels drons en conservació de plantes](#) J. López-Pujol (24/04/2015)
- [Presentació de la tesi de Daniel Vitales](#) D. Vitales (30/04/2015)
- [Premi crítica Serra d'Or](#) J. Vallès (07/05/2015)
- [Una delegació de l'IBB visita l'Institut de Botànica de Pequín, Xina](#) J. López-Pujol (15/06/2015)
- [Plantes alimentàries i multiculturalitat al barri del fondo](#) U. d'Ambrosio (03/07/2015)

- [L'IBB, present en un congrés a Hainan, Xina](#) J. López-Pujol & A. Susanna (07/09/2015)
- [Plantes d'ús tòpic de la comarca del ripollès](#) T. Garnatje (02/10/2015)
- [Reivindicació de l'Etnobotànica](#) T. Garnatje (22/10/2015)
- ["Muntanyes i refugis": investigadors de l'IBB publiquen un estudi genètic sobre endemismes de les muntanyes de Grècia](#) J. López-Pujol, A. Susanna & N. Garcia-Jacas (05/11/2015)
- [Investigadors de l'IBB participen en un estudi que avala el perill de desaparició de l'espècie \*Cheirolophus uliginosus\*](#) D. Vitales (19/11/2015)
- [Impacte de la dispolòidia i la poliploïdia en les \*Artemisia\* d'alta muntanya](#) S. Garcia (23/12/2015)

## Documentation

- [Atles de la Flora dels Pirineus](#) N. Nualart (01/01/2015)
- [Els documents de Pius Font Quer de l'arxiu històric](#) K. Barros & T. Prunera (04/03/2015)
- [Inici de tasques de digitalització](#) K. Barros (16/04/2015)
- [L'Associació de Bibliòfils de Barcelona visita l'IBB](#) K. Barros (29/05/2015)
- [L'IBB s'uneix a la celebració del dia internacional dels arxius](#) K. Barros & T. Prunera (09/06/2015)
- [Personal de l'herbari BC assisteix al Taller GBIF-Es "Publicación de Información de especies"](#) N. Montes-Moreno (19/06/2015)
- [Intervenció de conservació d'una part de la col·lecció de l'herbari de l'IBB](#) O. Muñoz, N. Ibáñez (17/07/2015)
- [Presentació del TFG realitzat a l'herbari de l'IBB](#) N. Nualart, N. Ibáñez & I. Soriano (31/07/2015)
- [Desacidificació massiva de la biblioteca Salvador](#) K. Barros (25/09/2015)

## ATLES DE LA FLORA DELS PIRINEUS

L'Atlas de la flora dels Pirineus, projecte en el qual ha participat l'Institut Botànic de Barcelona (IBB), ja està disponible a Internet per a tothom que el vulgui consultar. Aquest portal s'ha elaborat en el marc del projecte de recerca de l'Observatori Pirenaic del Canvi Climàtic (OPCC) finançat per la Comunitat de Treball dels Pirineus (CTP) a través del programa europeu POCTEFA. Han estat dos anys de treball intens dels diferents equips i han participat més de 40 investigadors tal com ja s'apuntava a l'article de la Brolla del juliol de 2012.

Aquest Atlas permet la consulta de les més de 4.000 espècies presents a la serralada pirenenca i és consultable en línia en dos llocs web:

- <http://www.florapyrenaea.es/>: conté fitxes descriptives dels tàxons amb informació sobre el seu nom científic i popular, hàbitat i preferències ecològiques, rang altitudinal, distribució global a Europa i als Pirineus i comentaris sobre la seva morfologia. També inclou dibuixos i fotografies per a il·lustrar cada planta.



News about the Atlas of the Pyrenean Flora in the IBB's webpage (01/01/2015)

## Activities

- [Setmana de la Ciència 2014](#) N. Montes-Moreno (01/01/2015)
- [Any Font Quer](#) N. Nualart (01/01/2015)
- [Primers resultats del BioBlitzBCN 2015](#) N. Nualart, N. Montes-Moreno, T. Garnatje, S. Pyke & N. Ibáñez (22/05/2015)
- [Viquimarató Salvadoriana](#) K. Barros (26/06/2015)
- [Campanya de recol·lecció AHIM 2015](#) N. Nualart & N. Montes-Moreno (10/07/2015)
- [Viatge de recol·lecció a les illes Gregues](#) R. Vilatersana (23/07/2015)
- [Publicació de la memòria anual 2014 de l'IBB](#) N. Nualart & N. Ibáñez (17/09/2015)
- [Setmana de la Ciència 2015](#) N. Nualart, N. Montes-Moreno, J. López-Pujol & K. Barros (01/12/2015)
- [III Trobada de Tècnics de Col·leccions de Ciències Naturals de Catalunya](#) N. Nualart & D. Muñiz (14/12/2015)

34 entries have been published in relation to IBB's events, mainly to announce institutional seminars in addition to other activities with the involvement of IBB's researchers and technicians.

## Citizen Science

Botanical itinerary to the Vall de Montalegre in Tiana. March 22, 2015. Participants: **A. M. Romo**.

Guided botanical itinerary to the Rocar de Tiana. September 20, 2015. Participants: **A. M. Romo**.

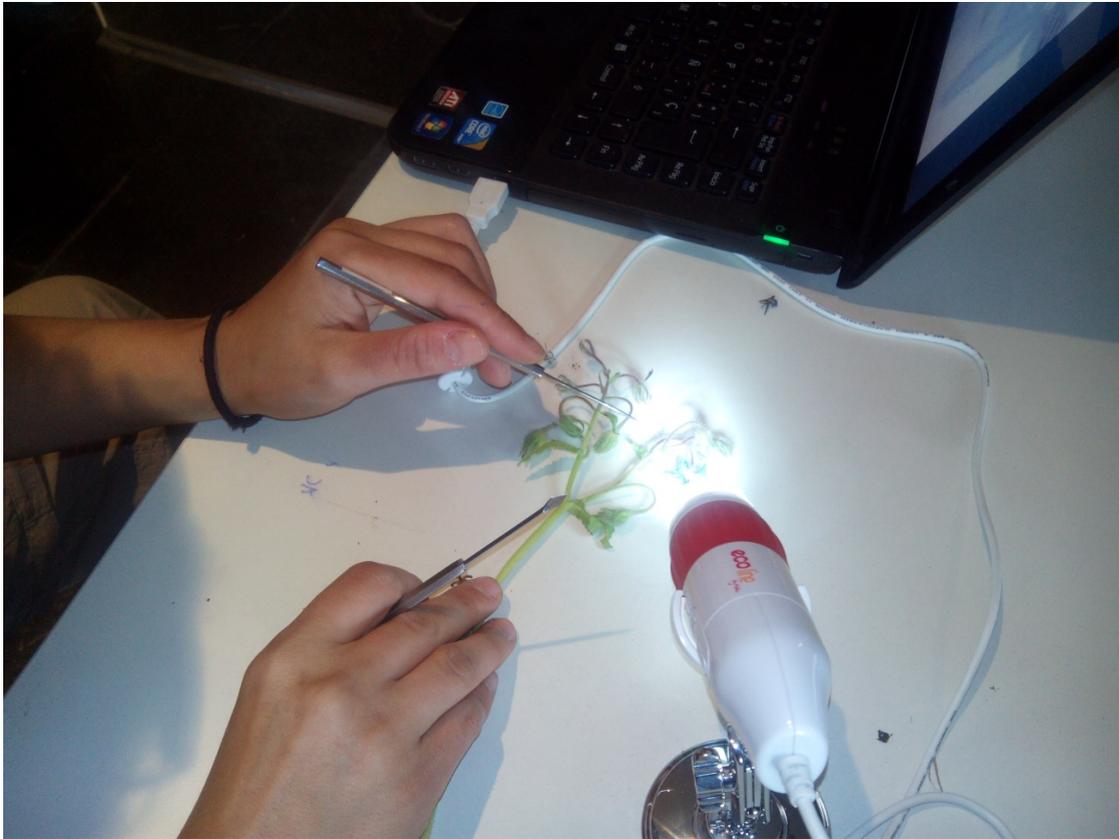
Guided botanical itinerary to the Vall de Pomar in Badalona. May 24, 2015. Participants: **A. M. Romo**.

Participation in *BioblitzBcn* 2015 celebrated in Montjuïc on the 16 and 17 of May, 2015. Participants: **T. Garnatje, N. Ibáñez, N. Montes, N. Nualart & D. Pérez**.

Guided visits to the *Salvadoriana* exhibition, the laboratory and the herbarium, "Workshop on plant identification" and "Organography workshop" within the Science Week 2015. November 21, 2015. Participants: **S. Garcia, N. Ibáñez, J. López, N. Montes, N. Nualart & D. Vitales**.

Participation in the *Planta't* 2015 edition, organized by the Botanical Garden of Barcelona, with guided visits to the herbarium, library, the *Salvadoriana* exhibition and the laboratories, with a workshop on plant identification. June 7, 2015. Participants: **K. Barros, N. Nualart, N. Ibáñez, J. López & N. Montes**.

Workshop on "How do plants evolve" within the Escolab activities. April 13, 2015. Participants: **J. J. Aldasoro, Sara Garcia, Sònia Garcia & D. Vitales**.



Identification of plants workshop in *BioblitzBcn*. Photo: IBB



Participation in the Science Week with a “Workshop on plant organography at the microscopic level”. Photo: IBB

## Other Scientific Dissemination Activities

Scientific talk “Etnobotànica: introducció i mètode” for Herbes Campus. Remeiart 2015. Santa Margarida i els Monjos. Speaker: **T. Garnatje**.

Book presentation "Figueres, Natura i Cultura", 19 March 2015. Participants: **T. Garnatje**.

Participation in the CSIC stand at the Science Area of the *Saló de l'Ensenyament* celebrated from March 18 to 22 in Barcelona. Participants: **N. Ibàñez, A. M. Romo, K. Barros, J. López, N. Montes & N. Nualart**.

Herbarium guided visit to Geography undergraduates from the University of Barcelona. January 16, 2016. Participants: **N. Montes**.

Guided visit to the herbarium, the Salvador cabinet and the *Salvadoriana* exhibition to Forestry and Landscaping undergraduates. April 9, 2015 Participants: **N. Ibáñez**.

Guided visit to the herbarium, the Salvador cabinet and the *Salvadoriana* exhibition to extension students from the Autonomous University of Barcelona. April 10, May 22, October 23, November 13 and December 11, 2015. Participants: **N. Ibáñez, N. Montes & N. Nualart**.

Guided visit to the herbarium, the Salvador cabinet and the *Salvadoriana* exhibition to CSIC researchers. May 13, 2015. Participants: **N. Ibáñez & N. Nualart**.

Guided visit to the herbarium and the Salvador cabinet to workers at the Biomedical Research Institute of Barcelona. May 20, 2016. Participants: **N. Ibáñez & N. Nualart**.

Visits to the bibliographic collection and herbarium scientific collections at the Botanical Institute and living plants at the Botanical Garden of Barcelona. Technical journeys for Phytotherapy students, promoted by Santiveri. June 2, 2015. Participants: **A. M. Romo**.

Guided visit to the herbarium, the Salvador cabinet and the *Salvadoriana* exhibition to Biology undergraduates from the Autonomous University of Barcelona. October 30, 2015. Participants: **N. Ibáñez**.

## Presence and Collaborations with the Media (radio/television)

Description of the Botanical Institute of Barcelona and visits to the laboratories and herbarium carried out by Teresa Garnatje and Neus Ibáñez. *El Jardí de Carles Herrera* TV program, nº 97 Season 3, 8tv, issued on March 30, 2015. [https://www.youtube.com/watch?v=\\_178gzSroDA&list=PLoHyTAITPG0XAKMwpt6Q1XTfbf2cPNYJr&index=4](https://www.youtube.com/watch?v=_178gzSroDA&list=PLoHyTAITPG0XAKMwpt6Q1XTfbf2cPNYJr&index=4)

Description of the herbarium and Salvador Cabinet carried out by Neus Ibáñez. *El Jardí de Carles Herrera* TV program, nº 122 Seasons 3, 8tv, issued on March 30 2015. <https://www.youtube.com/watch?v=FM37L5Xwyc0&index=3&list=PLoHyTAITPG0XAKMwpt6Q1XTfbf2cPNYJr>

Collaboration as advisory committee in the section "Natural remedies" by the EtnoBioFic group. *Esto es Vida* TV program, TV1.

## Press briefings

### Written press

#### *On Cheirolophus uliginosus research*

22/09/2015. SINC La ciencia es noticia. [La escoba de charcos, una de las especies de plantas más amenazadas de la Península.](#)

23/09/2015. El Buzón. [La Escoba de charca, una de las especies de plantas más amenazadas de la Península Ibérica.](#)

23/09/2015. Amazings Noticias de la Ciencia y la Tecnología. [La escoba de charcos, una de las especies de plantas más amenazadas de la Península.](#)

23/09/2015. Noticias sobre Medio Ambiente. [En peligro la escoba de los charcos, especie endémica muy amenazada.](#)

#### *On ethnobotanical research*

28/04/2015. La Vanguardia. [Un estudio analiza las plantas que usan los chinos de Santa Coloma en la cocina.](#)

08/12/2015. Ultima hora. *De plantas silvestres a delicatessen.*

#### *On the Crítica Serra d'Or 2015 Award*

29/04/2015. Ara. [Jordi Coca, Francesc Parcerisas i Francesc Serés, entre els guardonats dels premis Crítica Serra d'Or 2015.](#)

### Online news

#### *On ethnobotanical research*

29/04/2015 Notícies del Campus d'Alimentació de Torribera. [Es presenta el programa "Cuines del Mon" amb la participació del Campus de l'Alimentació.](#)

### *On Cheirolophus uliginosus research*

22/09/2015 Noticias de la Universidad Rey Juan Carlos. [La escoba de charca, una de las especies de plantas más amenazadas de la península Ibérica.](#)

22/09/2015. Te interesa.es. [Doñana se está quedando sin la 'escoba de charca', una de las plantas más amenazadas en España.](#)

22/09/2015. Cinabrio blog. [Escoba de charcos, humilde plantas amenazadas de la Península Ibérica preocupa hasta el Rey de España.](#)

23/09/2015. El diario.es. [La URJC alerta del riesgo de extinción de la planta 'escoba de charca' de Doñana.](#)

# LIBRARY AND ARCHIVE





# LIBRARY AND ARCHIVE

## Introduction

During 2015 the library partook usual tasks such as new acquisitions, technical treatment, information and reference, loans, etc.

Worth mentioning is the launching at the beginning of the year of a new platform for the Interlibrary Loan Service, GTBIB, accelerating this process and providing greater autonomy to users, with a personal space that allows permanent access to their particular requests.

In addition, during this year we have initiated the first digitalization phase of both the Salvador Cabinet and Historical Archive repositories, thanks to the Barcelona Open Challenge initiative, in which projects presented by the Botanical Institute of Barcelona were selected.

On another hand, an archive has been concluded aiming to describe the totality of the Font i Quer Archive, and other usual tasks have been developed, including document dissemination, collaborations with other institutions and attendance to consultations by users.

## Acquisitions

Mode of reception	Number
Purchased	55
Exchanged	5
Donations	143
<b>TOTAL</b>	<b>203</b>

## Loans and on-site consultation

Type of loan	Number
Personal loan	198
On-site consultation	1205
Interlibrary loans requested by IBB's researchers	87
Interlibrary loans sent to other research centres	75

## New users

During 2015, the library registered **14 new users**.

## Technical process

### Library

- Cataloguing (new registries incorporated to CIRBIC):

Type of material	Number
Books	293
Microforms	0
Maps	10
Digital resources	0
<b>TOTAL</b>	<b>303</b>

### Archive

- Inventory initiation of the **Pinya de Rosa's slides collection**, from the materials donated by his heirs in 2009.
- Finalization of the **Font i Quer collection of archives**.

## Digital CSIC

- **125 new records** were added corresponding to articles published by IBB researchers.
- Creation of the late collection "IBB News" in the repository in order to archive news published in the IBB website.

## Reference services and information searches

- Individualized consultations for which specific information was generated, and in some cases, documents were scanned:
  - o Library: 9

- o Archive: 6

## Image digitalizations

- Initiation of digitalization tasks of the **Barcelona Open Challenge** project, granted in 2014.
- Digitalization of two photographs for illustrations of the work **Flora Vascular del Delta del Llobregat**, edited by the Institute for Catalan Studies (IEC) and the Catalan Institution for Natural History (ICHN).
- Digitalization of four documents of the Salvador collection for the publication of a divulgative article in the institutional journal **AH. Andalucía en la Historia**.
- Digitalization of four glass plates of the Cuatrecases collection for an article on the field excursion of SIGMA in Catalonia.
- Digitalization of 10 photographs and 7 pages of the inventory carried out by Josep Cuatrecases for a research work on the Elx Palmerie.
- Digitalization of 21 letters by Pius Font i Quer and 13 plates for an article on Pius Font i Quer.
- Preparation of three additional digitalization projects within the **Barcelona Open Challenge** initiative to be carried out in 2016:
  - o Manuscript documentation of the Salvador Collection (16<sup>th</sup>-19<sup>th</sup> centuries).
  - o Selection of books of the Salvador Library.

## Participation in courses

- Introduction to bibliometrics and evaluation of science for documentalists. 6-7 May 2015, CSIC's Training Office.
- Access 2010 advanced online course. 19 October - 20 November 2015, CSIC's Training Office.
- Techniques to identify, solve and prevent problems (online). 28 September - 23 October 2015, CSIC's Training Office.



Free-access archives at the library of the Botanical Institute. Photo: IBB

# COLLECTIONS





# SALVADOR'S CABINET

## Introduction

The objectives for 2015 have included the conclusion of specimens remaining to be reviewed and update the database. Given that it is a historical collection, does not suffer increments nor new records. During this year, after revision of materials, those records with more than one taxon have been duplicated (adding \_2 to the record number). This is why the inventory is larger than in 2014.

During 2015 the dissemination of the collection towards citizens has increased the number of guided cultural visits to the *Salvadoriana* exhibition and the cabinet (both to university students and the public in general) as well as the presence on the Internet with the publication of a new website for the Botanical Institute and by joining the Facebook social network.

## Scientific use of the collection

### Consultations

	Consultations	Elements consulted
On-site scientific consultations	15	220
Cultural consultations	278	278

### On-site scientific consultations

The collection has been revised by 14 specialists in different groups, with a total of 188 records. In addition, 32 elements have been consulted by 5 specialists without the revision of specimens.

Name of researcher	Research Centre / University	Name of research project	Number of elements
Amador Viñolas & Gloria Masó	Museu de Ciències Naturals Barcelona	Revision of arthropods	90
Juli Pujadé & Berta Caballero	Museu de Ciències Naturals Barcelona	Revision of arthropods	13

Carles Curto		Revision of minerals	2
Dacha Atienza	Museu de Ciències Naturals Barcelona	Revision of minerals	5
Jordi Cadevall & al.		Revision of invertebrates	25
Eulàlia Garcia	Museu de Ciències Naturals Barcelona	Revision of chordates	2
Glòria Masó	Museu de Ciències Naturals Barcelona	Revision of arthropods	30
Glòria Masó & Dacha Atienza	Museu de Ciències Naturals Barcelona	Revision of arthropods	5
Neus Nualart & Neus Ibáñez	Museu de Ciències Naturals Barcelona	Botanical revision	1
Yael Díaz & al.	Museu de Ciències Naturals Barcelona	Revision of petrology	15
Enric Aragonés Valls		Meteorites	2
David Nuñez Córdoba	Escola Superior Agricultura Barcelona (UPC)	Final degree project. Consultation of herbarium sheets	8
Kevin Pometti Benítez	Aix Marseille Université	Consultation of documents	13
Miquel Seco García	Facultat de Química (UB)	Consultation of books	4
José Pardo-Tomás	Institución Milá y Fontanals	Consultation of documents	5



Salvador's collection at the Botanical Institute. Photo: IBB

# HERBARIUM

## Introduction

The objective of the herbarium's documentation task force has been to computerize the specimens using HERBAR software (with 15.288 registries computerized). These documentation tasks for the herbarium have been carried out by the companies Nubilum S.L. and Casal & Badosa S.L., subcontracted by Barcelona's City Hall (Natural Sciences Museum Consortium). This year, after the end of a 3 year contract for giving support with technical staff, this endeavour has been able to continue thanks to the incorporation of a new documentalist included in the consotrium budget.

In relation to the collection basic tasks, mounting of herbarium sheets has continued, computerization of the taxonomic data files, and intercalation of sheets in the main herbarium. In addition, type specimens were searched for cataloguing and scanned to obtain high resolution images. These images are available at the portals of GBIF (*Global Biodiversity Information Facility*) and AHIM (*Asociación de Herbarios Ibero-Macaronésicos*).

## Acquisitions

Origin	Mode of reception*	Description	RU	Elements
Àngel Hernansáez	D	Vascular plants from Fogars de la Selva (1 lot)	1	1
Àngel Romo	D	Vascular plants (2 lots)	-**	2
Anna Prats	D	Vascular plants and algae from la Costa Brava (1 lot)	-**	8
Carlos Gómez	D	Vascular plants from Catalonia (2 lots)	16	16
Carlos Macias (UAB)	D	Vascular plants from Osca	-**	1
Daniel Vitales	D	Vascular plants from the Canary Islands (1 lot)	7	7
David Pérez Prieto	D	Vascular plants from Abrera (1 lot)	2	2
Ernst Vitek (W)	E	Vascular plants (1 lot)	121	121

Francisco Gómiz	D	Vascular plants from Spain (1 lot)	3	3
Hilari Álvarez	D	Vascular plants from Catalonia (2 lots)	10	10
Hilarión Pedauyé (CIBIO)	D	Vascular plants from 'Alacant (1 lot)	-**	1
Jaume Morera	D	Vascular plants	151	151
Jaume X. Soler Mari	D	Vascular plants from Spain and Greece (1 lot)	312	312
Jesús Pastor Piñero	D	Vascular plants from the CCMA herbarium (1 lot)	-**	500***
Jordi López Pujol	D	Vascular plants from Catalonia and China (4 lots)	22	22
Jordi Pallàs	D	Vascular plants from the Canary Islands (1 lot)	-**	1
Josep M <sup>a</sup> Montserrat	D	Vascular plants from Sicília (1 lot)	1	1
Julià Molero (CEDOC)	D	Vascular plants (1 lot)	2	2
Julian Campbell (University of Kentucky)	D	Vascular plants from Catalonia (1 lot)	2	2
Llorenç Sáez (UAB)	D	Vascular plants from Catalonia (2 lots)	-**	7
Mercè Galbany (UAB)	D	Vascular plants from Europe (1 lot)	28	28
National Botanical Institute Pretoria	D	Vascular plants from South Africa (1 lot)	-**	1
Herbario de Granada	E	Vascular plants from the <i>Exsiccata de Flora Ibero-macaronesica Selecta</i> (1 lot)	101	101
Neus Nualart	R	Vascular plants from Spain (4 lots)	152	152
Núria Garcia-Jacas	D	Vascular plants (1 lot)	228**	400***
P. Pablo Ferrer (CIEF)	D	Vascular plants (1 lot)	-**	3

Samuel Pyke	R	Vascular wild and cultivated plants at the JBB and seeds (4 lots)	137	137
Sergi Massó	D	Vascular plants from Spain (2 lots)	34	34
Trinitat Prunera	R	Vascular plants from Girona (1 lot)	5	5
Welmoud A. Out (Kiel)	D	Vascular plants from the JBB (1 lot)	7	7
TOTAL:			1114	2038

\* D: Donaction, E: Exchange, R: Recollection

\*\* Lots arrived by the end of December were not registered completely in 2015

\*\*\* Numbers are approximate as the lot has not been registered nor counted

## Documentation

Group	Collection	Registered units in 2015	Total registered units	Total volume	Percentage
Main	Main herbarium	13.398	86.690	?	?
Historical	Bernades	-	814	814	100%
	Cadevall	-	8242	8242	100%
	Costa	-	7	15.000	0,04%
	F.X. Bolòs	384	384	6000	6,4%
	<i>Hieracium</i> collection	-	2091	2091	100%
	ICHN	-	1202	1202	100%
	R. Bolòs	-	-	6000	-
	Ruiz & Pavón	-	695	695	100%
	Salvador	6	4923	4923	100%
	SBB	-	1211	1211	100%
	Sennen	47	1114	85.000	1,31%
	Trèmols	1892	6259	9000	69,54%
Vayreda	1	14	30.000	0,05%	
Others	Cuatrecasas	-	416	3900	10,67%
	Seed collection	4	514	514	100%

	Reference herbarium	-	4	?	?
	Botanical garden	129	2436	2.436	100%
	Wood collection	-	145	145	100%
Cryptogamy	Algae	8	48	1000	4,80%
	Mosses	1	7	7000	0,10%
	Fungi	3	3	3000	0,10%
	Lichens - Caliciales	-	199	199	100%
	Lichen collection	373	2884	5000	57,68%
	Werner's lichen collection	-	3	3200	0,09%
<b>TOTAL</b>		<b>120.305</b>	<b>800.000</b>	<b>aprox. 15%</b>	

### Informatization of the taxonomic file

Collection	Number of records	
	2015	Total
Main herbarium thesaurus	972	32.934

### Digitalization of images

Collection	Number of images	
	2015	Total
Main herbarium	53	3441
Historical collection	8	1146
Cryptogamy (lichens, mosses and fungi)	2	104
<b>TOTAL</b>	<b>63</b>	<b>4691</b>

### Data base publications in the Internet

Collection	Name of Web Portal	Number of published records
Main herbarium	GBIF ( <a href="http://www.gbif.org">http://www.gbif.org</a> )	59.580
Historical collection (Cadevall, Cuatrecasas, ICHN, Ruiz & Pavón, Trèmols, SBB, Sennen i Vayreda)	GBIF ( <a href="http://www.gbif.org">http://www.gbif.org</a> )	15.675
Lichen collection	GBIF ( <a href="http://www.gbif.org">http://www.gbif.org</a> )	1998
Type specimens from Africa and America (from diferent collections)	JSTOR ( <a href="http://plants.jstor.org">http://plants.jstor.org</a> )	1426
Digitalized herbarium sheets (from diferent collections)	GBIF- <i>imágenes</i> ( <a href="http://www.gbif.es/Imagenes.php">http://www.gbif.es/Imagenes.php</a> )	2870
Main herbarium	TaxoMap ( <a href="http://taxomap.bioexplora.cat/taxomap.php">http://taxomap.bioexplora.cat/taxomap.php</a> )	5691
<b>TOTAL</b>		<b>87.240*</b>

\* Total includes sheets that are repeated as the same sheet can be found in different web portals

## Specimens' preparation

Type of preparation	Number of elements
Mounting of herbarium sheets	4327
<b>TOTAL</b>	<b>4327</b>

## Documentation projects

<b>Name of project</b>	<b>Documentation of the collections of the Botanical Institute of Barcelona (file 0351/2014)</b>
<b>Participants</b>	Two documentalists at the herbarium (37.5 hours/week) and one archivist (12hours/week) hired through Nubilum during 5 months (January 1 <sup>st</sup> - May 31 <sup>st</sup> )
<b>Objectives</b>	Computerization of herbarium sheets and archive cataloguing

<b>Results (*)</b>	Herbarium: 2780 sheets from the main herbarium and 232 lichen taxa. Archive: inventory of one box of Font i Quer and document selection and grouping of Angel Romo's archive.
<b>Funding</b>	53,575 €

<b>Name of project</b>	<b>Documentation of the collections of the Botanical Institute of Barcelona (file 0456/2014 lot 3)</b>
<b>Participants</b>	Two documentalists at the herbarium (37.5 hours/week) and one archivist (12hours/week) hired through Nubilum during 2 years (starting September 15 <sup>th</sup> )
<b>Objectives</b>	Computerization of herbarium sheets and archive cataloguing
<b>Results (*)</b>	Herbarium: 4583 sheets from the main herbarium. Archive: document selection and grouping of Angel Romo's archive.
<b>Funding</b>	33,304.70 €

<b>Name of project</b>	<b>Technical works at the herbarium of the Botanical Institute of Barcelona (file N15000022)</b>
<b>Participants</b>	Laura Gavioli (self-employed)
<b>Objectives</b>	Intercalation and sorting of sheets
<b>Results (*)</b>	Main herbarium: 41 boxes of intercalated sheets, 5 boxes sorted Trèmols hebarium: 1892 computerized sheets Hieraciotheca: 153 potential type sheets found
<b>Funding</b>	4,367.2 €

## Scientific use of collections

### Email consultations

	<b>Number of consultations</b>	<b>Name of requested elements</b>
Data requests	21	190 data on sheets
Image requests	15	15 images



Herbarium of the Botanical Institute of Barcelona. Photo: IBB

### On-site scientific consultations

There have been a total of 24 on-site visits with approximately 1,626 consulted sheets:

Researcher	Centre / University	Consultation	Number of elements
Alfonso Susanna (7 visits)	Institut Botànic de Barcelona	<i>Rhaponticoides</i> and <i>Centaurea</i>	105
Alfredo García Fernández	Universidad Rey Juan Carlos	Revision of <i>Silene</i>	-
Andrés Valverde	Institut Joaquim Rubió i Ors	Photography of a <i>Narcissus serotinus</i> sheet	2
Carles Benedí (2 visits)	Universitat de Barcelona	<i>Glebionis</i> and <i>Artemisia</i> for <i>Flora iberica</i>	2
Carlos Gómez (2 visits)	Institut Botànic de Barcelona	Consultation of allochthonous flora sheets	12
Gemma Mas de Xaxars	Universitat de Barcelona	Work on <i>Artemisia</i>	
Gonzalo Mateo	Jardí Botànic de Valencia	<i>Hieracium</i>	40
Guillaume Fried, Bruno Chauvel, Gerhard Karrer	Laboratoire de la Santé des Végétaux	Revision of <i>Ambrosia</i>	150
Ignasi Soriano (3 visits)	Universitat de Barcelona	<i>Tanacetum</i> for <i>Flora iberica</i>	250
Jaume X. Soler	Universitat Autònoma de Barcelona	<i>Arenaria</i> and <i>Limonium</i>	-
Joan Font	Universitat de Vic	Revision of <i>Myosotis minutiflora</i> sheets	4
Joana Grau	Yale University	<i>Quercus suber</i>	-
Johan van Valkenburg	The National Reference Centre	Revision of <i>Ambrosia</i>	150
Josep Vicens	Universitat de Barcelona	Verification of Balearic citations	-
Juli Pujadé, Berta	Universitat de Barcelona	Parasitized sample	-

Caballero		(possible gall) from <i>Vella</i>	
Julian Campbell	University of Kentucky	<i>Prunus</i>	100
Kaid Harche (2 visits)	Université des Sciences et de la Technologie d'Oran Mohamed	<i>Retama</i> and <i>Argania</i>	-
Kyra Prats	Yale University	<i>Quercus suber</i>	30
Llorenç Sáez (5 visits)	Universitat Autònoma de Barcelona	Revision of various genera	202
Martin Barber		<i>Flora anómala de España</i>	-
Noemí Montes	Institut Botànic de Barcelona	<i>Phagnalon</i> from the Sennen herbarium	10
Pau Carnicero (6 visits)	Universitat Autònoma de Barcelona	Verification of sheets	95
Pere Fraga (2 visits)		Revision of plants from the Menorcan flora	374
Yeter Yesil	Faculty of Pharmacy (Istanbul University)	<i>Polygonatum</i> , <i>Paris</i> , <i>Nonea</i>	100

### Requests for destructive sampling

Six requests for destructive sampling have been received, affecting 8 sheets.

### Scientific exchanges

Thirteen scientific exchanges have been carried out sending a total of 565 sheets. These loans are detailed as follows:

Researcher	Centre / University	Project	Sheets	Loan-return dates
Larry Hufford	Marion Ownbey Herbarium (EEUU)	<i>Helianthemum squamatum</i> , for molecular analyses	1	26/02/2015
Manuel Crespo	Universitat d'Alacant	<i>Rouya</i> and <i>Margotia</i> for Fernando Martínez Flores PhD Dissertation	4	26/02/2015

Anna Jakubska-Busse	University of Wroclaw	<i>Epipactis</i>	6	26/02/2015
Fco. Javier Hernández	Universidad de Salamanca	<i>Gnaphalium</i> for <i>Flora iberica</i>	4	26/02/2015
Eusebio López Nieto	Universidad de Córdoba	<i>Festuca</i> for <i>Flora iberica</i>	460	03/03/2015
Arne Anderberg	Swedish Museum of Natural History	<i>Cheliadenus</i>	14	15/04/2015
Manuel Crespo	Universitat d'Alacant	<i>Margotia gummifera</i> from the Iberian Peninsula	9	29/05/2015
Marcus Koch	Universität Heidelberg	<i>Bunias orientale</i>	7	29/05/2015
David Harris	Royal Botanic Garden Edinburgh	<i>Allium grosii</i>	2	29/05/2015
Jesús Riera	Jardí Botànic de València	<i>Centaurea aspera</i> from littoral zones	42	26/08/2015
Julià Molero Briones	Universitat de Barcelona	<i>Euphorbia</i> from the Canary Islands	7	08/09/2015 - 29/09/2015
Fco. Javier Hernández	Universidad de Salamanca	<i>Pulicaria</i> for <i>Flora iberica</i>	6	29/12/2015
F. J. Salgueiro	Universidad de Sevilla	<i>Cicerbita</i> for <i>Flora iberica</i>	3	29/12/2015

## Participation in conferences and meetings

- III Workshop on Research and Territory. Museu de la Mediterrània de Torroella de Montgrí, 6 & 7 March 2015
- Technical Meeting to organize the new Project of the Pyrenean Flora. Centre d'Estudis de la Neu i la Muntanya d'Andorra (CENMA), Andorra, 5 & 6 May 2015.
- III Meeting of Collection's Technicians in Natural Sciences of Catalonia. Institut Català de Paleontologia, UAB, 25 November 2015.
- Annual Meeting of the AHIM (Association of Ibero-Macaronesic Herbaria). Real Jardín Botánico, Madrid, 27 November 2015.

## Participation in courses

- “Mini Workshop GBIF.ES: New portal of biodiversity data by GBIF Spain”. Coordinating unit of GBIF in Spain. On-line workshop. 4 hours, February 2015.
- “Emergency Plan of the Botanical Institute of Barcelona”. CSIC’s Service for the Prevention of Occupational Risks in Catalonia and the Balearic Islands. 2 hours, April 2015.
- “GBIF Workshop on Species Information Publication”. Coordinating unit of GBIF in Spain. Real Jardín Botánico, Madrid. 16 hours, May 2015.
- “GBIF.ES Workshop: Management of natural history collections using Herbar Zoorbar Fusión”. GBIF Coordinating Unit in Spain. Real Jardín Botánico (CSIC), Madrid. 16 hours, November 2015.



