

Natural Science Museums in Catalonia

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NATURAL SCIENCE MUSEUMS IN THE 21ST CENTURY

Reflections about the new roles and responsibilities that museums should be adopting in the 21st century put a particular emphasis on social relevance. It calls for museums to devote themselves to exploring in-depth the issues that most interest and concern the world; that they provide centres of knowledge, sources of expertise and trust. That they are less focused on the past and more on issues of current and future interest. That they become spaces for dialogue in which to discuss sensitive matters without avoiding controversial issues. That they play an active role in the civic life of their community or country. That they foster their educational potential and serve as agents for social change. That they stimulate new attitudes in their visitors. And that they encourage accessibility, including the broadest possible social spectrum in their activities.

Natural science museums are unique in that they combine both scientific and educational functions in a single institution. In their beginnings they played a pivotal role in helping to advance scientific knowledge and enjoyed considerable social prestige and support, but towards the end of the 20th century their situation was, like everywhere else in the world, one of crisis: significant infrastructural deficits, problems with the deterioration of collections, lack of storage space, inadequate research and antiquated permanent exhibitions. Cutting-edge biology and science were heading off in different directions. At this time, new science centres were emerging which did not have to cope with the costs associated with research and

major collections and excelled in scientific dissemination with a modern, attractive and participative museum offering.

The most important challenge facing these museums is, therefore, the challenge of reappraisal and social relevance, of knowing how to articulate and communicate their purpose beyond purely scientific circles. What key contribution do they make to present-day society? There has been some intensive reflection over the last decade in the midst of the increasing awareness of global environmental change and the international scientific community's realization that the classification of biodiversity and geodiversity is an urgent priority. We are living in a period in human history in which it is more necessary than ever to increase knowledge and understanding of our natural environment. Issues such as climate change and the accelerated loss of species and habitats are both a scientific priority and a social concern. The importance of natural science and history museums therefore lies in vigorously addressing this social need, which is both scientific and educational, and using their collections, research and information to do so. It is this response that will define their future importance in the eyes of twenty-first century society.

In this context, there is more and more consensus on the leading role that natural science museums should be developing as **centres of knowledge on natural diversity and its evolution**, as well as the crucial importance of adopting a philosophy of **responsibility and commitment to conservation of the natural environment**. The Natural History Committee of the ICOM adopted in 1995

this principle: “Natural history museums should efficiently fulfil their unique and vital role in the study of biodiversity, global change, conservation and environmental education. Their collections and associated information are essential for fulfilling this function.”

Research can make a vital contribution, providing the most comprehensive possible information about collections and the fieldwork undertaken to promote more effective conservation strategies so that the people responsible for environmental policies and programmes can take better decisions. The collections are valuable databases of species and habitats, and their curators and researchers are scholars of their systematics, biogeography, geology and evolutionary ecology.

2006: Study on the situation of natural science museums in Catalonia*

(Margarida Loran and Anna Omedes)

*The main conclusions of the study are still being validated.

Purpose and objectives of the study

This study on museums and other centres with collections or themed areas of natural sciences in Catalonia was carried out in the context of the preparation by ICUB-MCNB of a proposal for the model of the future National Natural Science Museum.

This study entailed:

- Gathering specific information, both qualitative and quantitative, to provide a detailed overview of the activities and resources of the museums and centres with natural science collections in Catalonia, and
- Identifying the main potentials and needs of the sector and opportunities for cooperation between centres.

Participating centres

The study involved the participation of 33 centres

with collections or themed areas on natural sciences, including the museums registered in the Museum Registry of Catalonia as well as collections open to the public and scientific collections of reference in non-museum institutions. It thus included institutions with significant collections and/or activities in the sphere of natural sciences which, up to now, had not been taken into consideration.

A. Monographic natural science centres (14 centres)

These are centres dedicated exclusively to natural sciences, generally with a themed specialization in botany, zoology, geology or palaeontology. These centres house natural history collections that are both Catalan and international in scope and are both qualitatively and quantitatively important. They have a definite scientific character and generally have the taxonomic expertise necessary to make an important contribution to research and the work undertaken to conserve biodiversity and geodiversity.

- Museum of Natural Sciences of Ciutadella (MZ and MG) and the Barcelona Botanical Gardens.
- Botanical Institute of Barcelona (mixed management: city council and CSIC).
- Dr M. Crusafont Institute of Palaeontology.
- Geological Museum of the Seminary of Barcelona.
- Marimurtra Botanical Gardens.
- Valenti Masachs Geology Museum (UPC).
- Animal Biodiversity Resource Center (UB).
- Institute of Marine Sciences (CSIC) – Biological Reference Collections.
- Centre for Research on Plant Biodiversity (UB).
- Museum of Arenys de Mar – Mollfuleda Museum of Mineralogy.
- Butterfly Museum of Catalonia.
- Cau del Cargol (Shells of the World Museum).
- Cosmocaixa Barcelona.

B. Regional museums (13 centres)

This category includes local, county and supra-municipal museums whose activities are not so much focused on collections but mainly on the

study, interpretation, conservation and promotion of the heritage in their regional sphere, whether dedicated solely to natural heritage or as multidisciplinary museums.

Dedicated exclusively to natural sciences:

- Granollers Museum of Natural Sciences.
- Darder Museum – Lake Interpretation Centre.
- Museum of La Garrotxa – The Volcano Museum.
- Pallars Jussà Museum of Natural Sciences.

Multidisciplinary, though leaning more towards natural sciences in their proposition, collections, and activities:

- Museum of Montsià.
- Museum of Conca Dellà.
- Municipal Museum of Alcover.

Those which include natural sciences in their proposition and activities and also have natural history collections:

- Museum of Mataró.
- Museum of Gavà.
- Museum of El Prat.
- Torre Balldovina Museum.
- County Museum of Conca de Barberà – Natural History Centre of Conca de Barberà.
- Can Quintana – Mediterranean Cultural Centre.

C. Museums based on other areas which include some form of natural heritage (6)

This includes the group of museums which, despite being devoted entirely to other themes, have a significant natural heritage collection, generally for historic reasons (resulting from an acquisitions policy in the past that was different from the museum's current orientation) but also as a result of more recent circumstances.

- Museum of the Mines of Cercs – Fumanya paleontological site.
- Leather Museum of Igualada and the County of Anoia.
- Museum of Vilafranca – The Wine Museum.
- Salvador Vilaseca Museum of Archaeology.

- County Museum of Urgell-Tàrraga.
- Fishing Museum.

Main considerations and conclusions

- There are a large number of museums and centres with natural history collections in Catalonia. The centres with significant heritage and/or activities in this subject number around 40, though some of them are not registered. But there are other museums that also have natural history material (the Registry mentions 47 museums with collections, in varying proportions with respect to the total collection).
- Most of the centres have a well-defined historical trajectory and identity.
- Almost half the centres are monographic, and as a whole account for 97.3% of the natural history collections; they have a clear scientific nature and both a Catalonia-wide and international sphere of action.
- A similar proportion are regional museums with a local, county and supra-municipal scope, which have a more regional approach to interpretation and associations with the protected natural areas in their vicinity. A high proportion of these are multidisciplinary, with interests in other topics than natural sciences.
- There is a group of museums devoted to other topics than natural sciences yet which still have a significant natural history heritage. This heritage is, in some cases, significantly underutilized.
- The museums of Barcelona City Council are distinguished by the volume of their collections (housing around 74% of the total natural history collections in the country), the scope of their activities and the fact that they have more specialist personnel than the other museums.

- As a whole, all the centres in the study, both large and small, share the general problem of a lack of resources, which causes significant difficulties in effectively executing their museum duties.
- There is a situation of isolation among the centres, with little coordination and collaboration between them.
- Only just over half the centres are registered with the Museums Registry, which means that a large proportion of them (especially the monographic museums) do not fulfil the minimum requirements established by the Museums Act.
- Of the opinions gathered, it can be confirmed that these centres hope that the future national museum structure will coordinate and strengthen the whole of the natural science museum offering in Catalonia.
- It can also be confirmed that there is a need and a broad demand for specialist technical support in natural sciences, something that is currently non-existent in the country's museum support organizations.

Current monographic museums on Natural Sciences in Catalonia*

*Information updated in 2013. Ordered chronologically by date of opening.

GEOLOGICAL MUSEUM OF THE SEMINARY OF BARCELONA

Barcelona. Opened in 1874. Seminary of Barcelona (Archbishopric of Barcelona).

Mission. The study of fossils, especially invertebrates.

Collections. Palaeontology (more than 70,000 items); it also has collections of minerals, rocks, vertebrates, microfauna and microflora and an important collection of present-day malacology.

There are notable collections from Guerin, Batailler, Via, Llopis, Crespell, Almirall, Thomas, Mañé, Llompart-Rosell, Viader, Gàsser, Juanpere, Gràcia Camprubí, Vanrell and Vilella. The museum has 678 holotypes and neotypes from over 80,900 taxa (2010).

Research. Review of the Cretaceous and Tertiary fauna of Catalonia, preparation of paleontological synopses of specific groups, creation of neotypes, cataloguing of Eocene and Cretaceous corals and review of trilobites from Morocco.

NATURAL SCIENCE MUSEUM OF BARCELONA

Barcelona. Opened in 1882. Consortium of the Barcelona City Council and the Government of Catalonia.

Mission. To generate and share knowledge on the diversity and evolution of the natural world with the aim of helping to conserve it and help create a more informed, connected and responsible society with regard to nature. It does so by preserving collections that are the material witness of the natural heritage of Catalonia, conducting research into biological and geological diversity, and organizing experiences that stimulate exploration, learning, appreciation, enjoyment, dialogue and participation amongst the broadest possible audience.

Collections. The collections comprise more than 3,000,000 natural history specimens, including plants, lichens, fungi, animals, soils, fossils, minerals and rocks, which have been collected and preserved over more than three centuries thanks to the efforts of scientists, naturalists, collectors, institutions and individuals. The collection features a very broad representation of the flora, fauna and geology of Catalonia and neighbouring regions, especially the Western Mediterranean.

Research. Scientific research has played a very important role in the Museum's activities since it was founded, with the aim of studying and in-

terpreting the diversity of life and the geological structures that support it, with a particular emphasis on Mediterranean environments. In its task, the Museum concentrates on research based both on its collections and on the study of species in their natural environment, and evaluates interactions between them and with their environment.

BARCELONA ZOO

Barcelona. Opened in 1892. Barcelona City Council.

Mission. To preserve the biodiversity of animal species through research, conservation and education.

Collections. A collection of living animals representing all the vertebrate groups: more than 2,200 specimens from 329 species. The Zoo is a participant in over 90 international breeding-in-captivity programmes of endangered species.

Research. Following the recommendations of the World Zoo and Aquarium Conservation Strategy, Barcelona Zoo, through its Foundation, rolls out a wide variety of conservation projects both *in situ* and *ex situ*. Notable amongst these are the reintroduction of the Dorcas gazelle (*Gazella dorcas neglecta*) in Senegal; the conservation of the lesser grey shrike (*Lanius minor*), the Komodo dragon (*Varanus komodoensis*), the Mediterranean tortoise (*Testudo hermanni*), the white-collared Mangabey (*Cercocebus atys lunulatus*) and the Montseny brook newt (*Calotriton arnoldi*); and the study of the populations of cetaceans in the Mediterranean (Catalan-Balearic area).

DARDER MUSEUM – LAKE INTERPRETATION CENTRE

Banyoles (Barcelona). Opened in 1916. Banyoles Town Council (management has now been passed to the Lake Banyoles Consortium).

Mission. To conserve, investigate and disseminate the natural science collections that form part of

the Museum's heritage. It provides an overview of natural sciences in the 19th century and the geology and biodiversity of such a unique location as Lake Banyoles.

Collections. The collections are made up of almost 20,000 natural science objects.

The origin of the Darder Museum was the collection donated by veterinarian and taxidermist Francesc Darder i Llimona (Barcelona, 1851-1918) which comprised natural science objects associated with his Barcelona-based profession. Later on new pieces were added, mostly through donations by individuals and organizations. A highlight of the exhibition is the stuffed animals from the mid-19th century, representing all kinds of species from around the world, and the collections of fauna, flora and geology of the county of Pla de l'Estany.

MARIMURTRA BOTANIC GARDENS

Blanes (Barcelona). Opened in 1921. Carl Faust Foundation.

Mission. Botanical research and dissemination. The Gardens, which have been declared an Asset of National Interest, were the initiative of German businessman Carl Faust (1874-1952), a patron of biological science who devoted his fortune to the protection and promotion of Mediterranean biological studies, especially botany.

Collections. Botany: living plants, herbarium and germplasm bank. The gardens feature 3,000 species from five continents, mainly from Mediterranean habitats, and are geared towards studying the conservation of rare, endemic or endangered species. It also houses a historic library, which belonged to the founder, and a technical library.

Research. The evolutionary processes responsible for the formation and evolution of the biological diversity of the Mediterranean, using molecular markers based on DNA.

ALCOVER MUSEUM

Alcover (Tarragona). Opened in 1967. Alcover Town Council.

Mission. The aim of the Alcover Museum is to exhibit and disseminate the history of Alcover, as a collective heritage asset, to preserve the objects related to it and to strengthen local people's sense of identification with local history.

Collections. Archaeology, ethnography and palaeontology. The diversity of species in the collection has made it one of the most representative ones for understanding the marine fauna of the Triassic period. The Museum houses 383 fossils from the Alcover-Mont-ral archaeological site and more than 1,777 inventoried pieces from other geographical locations and geological periods. A representative selection of the palaeontology collection is exhibited to the public.

Research. Since October 2009, the Alcover Museum has had an agreement with the Catalan Institute of Palaeontology and the Natural History Centre of Conca de Barberà to promote the research and dissemination of the paleontological heritage of the Alcover-Mont-ral-el Pinetell archaeological sites.

VALENTÍ MASACHS MUSEUM OF GEOLOGY (UPC)

Manresa (Barcelona). Opened in 1980. Polytechnic University of Catalonia.

Mission. To provide a public classroom on minerals, rocks and fossils, to make its collections available both physically and digitally, and to disseminate the research carried out by the UPC.

Collections. The collections of geology and palaeontology originate mainly from samples taken in the Catalan regions. These are rounded off by a collection of meteorites and another of minerals, fossils and fluorescent and phosphorescent rocks.

Research. Educational geological research, seeking the most appealing and interesting ways of

teaching geology for every level, whether at the Museum itself, in classrooms or on the internet. The technical geological research concentrates on the preparation and inventory of the different sites of minerals, rocks and places of geological interest in the different communities and regions of Spain.

COSMOCAIXA

Barcelona. Opened in 1981 and remodelled in 2004. "La Caixa" Community Services.

Mission. To present a permanent museum offering featuring a selection of fragments of reality: experiments, objects, animals, plants... brought together to provide visitors with a stimulating and emotional experience that fosters an interest in science.

Collections. The collection comprises 11,916 specimens and includes Stone Age tools from the Sahara, palaeontology, gemmology, entomology (with a large collection of insects preserved in amber), osteology and botany.

MUSEUM OF TERRES DE L'EBRE

Amposta (Tarragona). Opened in 1984. Consortium of the Museum of Terres de l'Ebre.

Mission. To foster knowledge and incentivize community development through the research, management and conservation of the cultural and natural heritage of Terres de l'Ebre, and to promote its revaluation and dissemination in accordance with the social and regional nature of the Museum.

Collections. Archaeology (12,172 items), ethnology (4,301 items) and natural sciences (11,903 items) from Terres de l'Ebre. The natural collection is made up of 4,190 vertebrates, 804 invertebrates, 6,654 records of higher and lower plants and 255 paleontological pieces (figures from 2013). The palaeontology collections of J.M. Valls in the town of Santa Bàrbara are also affiliated to the Museum, and exhibited in other venues, as is Joan

Brunet's collection of malacology in Sant Carles de la Ràpita.

Research. Research focuses on the Odonata of Terres de l'Ebre, most notably the discovery of rare and endangered species in Catalonia.

GRANOLLERS MUSEUM OF NATURAL SCIENCES

Granollers (Barcelona). Opened in 1987. Granollers Town Council.

Mission. Conservation, research and dissemination of natural sciences.

Collections. Zoology, palaeontology and geology originating from research and private donations. Highlights include the natural history collection of Frederic Travé Alfonso (1938-1982), one of the founders of the SEO; the collections of butterflies and moths of Dolors Callol Chevalier (1886-1940), David Adelantado Romero (1907-2003) and Jaume Anfruns Janer (1919-2009) and, more recently, that of Francesc Pou i Nadal, and those of geology and palaeontology of Jordi Febré Costa (†) and Joan Maria Viader Gari-Montllor (1915-2001).

Research. The Catalan Butterfly Monitoring Scheme (CBMS) is the most important project coordinated by the Museum under an agreement with the Government of Catalonia, which has almost one hundred stations for monitoring the phenology of butterflies across the whole country as well as in Andorra and the Balearic Islands.

MUSEUM OF ARENYS DE MAR, MOLLFULLEDA MUSEUM OF MINERALOGY

Arenys de Mar (Barcelona). Opened in 1988. Arenys de Mar Town Council.

Mission. To conserve and disseminate the collection of minerals housed in the Mollfulleda Mineralogy Museum through ongoing research and making scientific knowledge associated with mineralogy available to the general public.

Collections. The collection of minerals and earth sciences was initially made up of the donations made by Joaquim Mollfulleda i Borrell to the town of Arenys de Mar in 1988. Since then, the Museum has added to the collection with donations from different mineralogy enthusiasts and other acquisitions. The collection comprises a selection of minerals from Catalonia, systematized by county, covering almost the whole of Catalan mineralogy, and another section on minerals of the world which features a representation of the most important sites where the most noteworthy and spectacular minerals have been found.

VOLCANO MUSEUM

Olot (Girona). Opened in 1989. Olot Town Council.

Mission. To showcase the natural environment of the county of La Garrotxa and, on a broader scale, its volcano heritage; to disseminate the heritage features stewarded by the institution by emphasising the importance of conservation, documentation and dissemination; and to serve as a link between visitors and the true natural science museum of the country, which is Nature herself.

Collections. Geology, botany and zoology. Notable features of the geology collection, which is made up of some 400 items, are the collections dating from the early 20th century of volcanic rocks and minerals donated by Josep Gelabert and those of the fossils discovered by Francesc and Ramon de Bolòs. The zoology collection has some 900 vertebrates and 5,300 invertebrates. The botany collection is made up of a herbarium with more than 800 specimens and the historic herbaria of Ramon de Bolòs, Enric Danés and Jaume Tenas.

MUSEUM OF CONCA DELLÀ

Isona (Lleida). Opened in 1995. OAL of Isona Town Council and Conca Dellà.

Mission. This is the welcome centre for the Cretaceous Park and gives visitors an insight into its paleontological sites, archaeological remains,

historic and artistic buildings and natural surroundings.

Collections. Archaeology from Roman times and palaeontology from the late Cretaceous period. The paleontological collection comprises fossils (bones, eggs and ichnites), vertebrates and plant remains from the late Cretaceous period (between 65 and 70 million years ago). These remains come from the numerous sites across the south-eastern part of the county of Pallars Jussà and make up one of the most important paleontological collections in Europe. The Museum also manages some of the sites that can be visited in the area.

Research. Research of the paleontological sites of the Cretaceous-Paleogene transit in the Catalan Pre-Pyrenees: systematic, paleoecology and paleobiogeographic implications. Study of the continental paleoecology of the Late Cretaceous period of three Catalan counties: Pallars Jussà, Berguedà and Alt Urgell, in conjunction with the Catalan Institute of Palaeontology and the Autonomous University of Barcelona.

MUSEUM OF THE MINES OF CERCs

Cercs (Barcelona). Opened in 1999. Municipal council.

Mission. To conserve, restore, study and disseminate the mining heritage of the municipality of Cercs. The museum is a centre of reference for the conservation, research and dissemination of the industrial mining heritage of Catalonia.

Collections. Coal mining: 1,018 items. It also houses the paleontological remains of the Fumanya Sud site.

Research. With the aim of preserving and disseminating our mining heritage, the architectural and urban features of the mining community of Sant Corneli have been restored (the squares, streets, church and cinema/theatre) and the upper floor of the MMCERCs has been fitted out to serve as an archive and repository of mining heritage documents.

BUTTERFLY MUSEUM OF CATALONIA

Pujalt – Sort (Lleida). Opened in 2002. Sort Town Council.

Mission. To showcase the diversity of butterflies and other insects in Catalonia and how they relate to the environment.

Collections. The Museum's collections are the result of a biogeographic study of the populations of butterflies in Catalonia carried out for the last forty years by the founders and sponsors of the Museum, Alfons Dolsa and Maria Teresa Albarrán. The exhibition area is devoted to showcasing the diversity of these organisms in Catalonia and explaining the natural processes of the insects and their importance to the preservation of biodiversity.

Research. Biogeographic research of the past and present situation of butterflies in Catalonia. Distribution mapping and creation of a database of current and historical information based on the research work on these insects in Catalonia.

MEDITERRANEAN RIVERS STUDY CENTRE – TER INDUSTRIAL MUSEUM

Manlleu (Barcelona). Opened in 2003. Private foundation of the Ter Industrial Museum.

Mission. The Mediterranean Rivers Study Centre is the environmental wing of the Ter Industrial Museum whose purpose is to study, disseminate and conserve the cultural and natural heritage of the River Ter and, by extension, other Mediterranean river basins. Its main activities are conservation and environmental restoration, environmental education, raising public awareness and scientific research on rivers and lakes.

Collections. The Museum houses more than 2,500 objects (as of April 2014), most of which are aquatic macro-vertebrates and fish from Mediterranean rivers, mainly in Catalonia. Some of these objects are the result of donations, such as the 750 specimens donated by the former Natural Science Office of the Vic Seminary in the mid-19th century.

Research. The centre works on evaluating the state of the environment and biodiversity of rivers and wet zones in terms of the quality of habitats and riverside vegetation, and the populations of aquatic macro-vertebrates and fish. It also studies fish migrations and investigates solutions for facilitating their movement through dams and locks.

MIQUEL CRUSAFONT CATALAN INSTITUTE OF PALAEOLOGY

Sabadell (Barcelona). Opened in 2006. CERCA Programme, Government of Catalonia.

Mission. The research, conservation and dissemination of human and vertebrate palaeontology in Catalonia.

Collections. A paleontological collection of 200,000 vertebrates, dating from between 240 million and 10,000 years ago, regarded as one of the most important fossil collections in Europe. The sources of these objects are quite diverse: mainly from Catalonia, but also from the Valencian Community, the Balearic Islands and various sites in Andalusia, Murcia, Madrid and Aragon. The institute has more than 200 type specimens.

Research. The centre's work is based on five areas of research: paleobiology; fauna from the Mesozoic period; fauna from the Neogene and Quaternary periods; paleoprimateology and human palaeontology, and virtual palaeontology. The centre's most representative field of research is the one started by M. Crusafont in the mid-20th century, the study of the fauna of the Neogene period in the Iberian Peninsula.

THE NATURAL SCIENCE MUSEUM OF BARCELONA: ITS PAST AND PRESENT

The Natural Science Museum of Barcelona is an institution with a long trajectory, having been founded towards the end of the 19th century, and was the first public museum in Barcelona (known

at that time as the Martorell Museum). During the first third of the 20th century, the collections were separated thematically into the Zoology Museum, the Geology Museum and the Botanic Institute. Thanks to the support and efforts of the Natural Sciences Trust, in 1917 the Natural Science Museum of Catalonia was finally established, the first approximation of a national natural history museum.

Until quite recently the image of the Museum has been strongly associated with this history – with tradition, scientific work, important collections and unique buildings in the Ciutadella Park. Despite the efforts made in the last few years within the framework of public planning to modernize it and open it up to the general public, the Museum urgently needed a profound renovation to really be considered a 21st century entity. In just a few years, the Museum has been immersed in a far-reaching process of transformation. Firstly, it has undergone institutional growth as a result of the organizational restructuring implemented in 2008 by the Institute of Culture with the aim of better integrating and coordinating municipal natural science centres. In addition, with the opening in 2011 of the Blau Museum as the headquarters of public programmes, it has expanded physically and its reference exhibition has been completely updated in a transformation of scale that has made it one of the city's premier museums. In 2012 the Consortium was established, with the participation of the Government of Catalonia, to manage the Museum and drive forward the process to achieve its recognition as a national museum.

The Natural Sciences Museum of Barcelona is an institution with several headquarters which can be found in three strategic areas in the city: the Ciutadella Park (the Nature Laboratory and the Martorell Museum); in Montjuïc (the new Botanical Gardens, the historic Botanical Gardens and the Botanical Institute of Barcelona, the mixed research centre comprising the CSIC and Barcelona City Council), and the Forum Park (the Blau Museum).

In the coming years, the Museum will have the opportunity to become the long-awaited National Natural Science Museum of Catalonia and serve as the spearhead for a regional network of natural science museums.