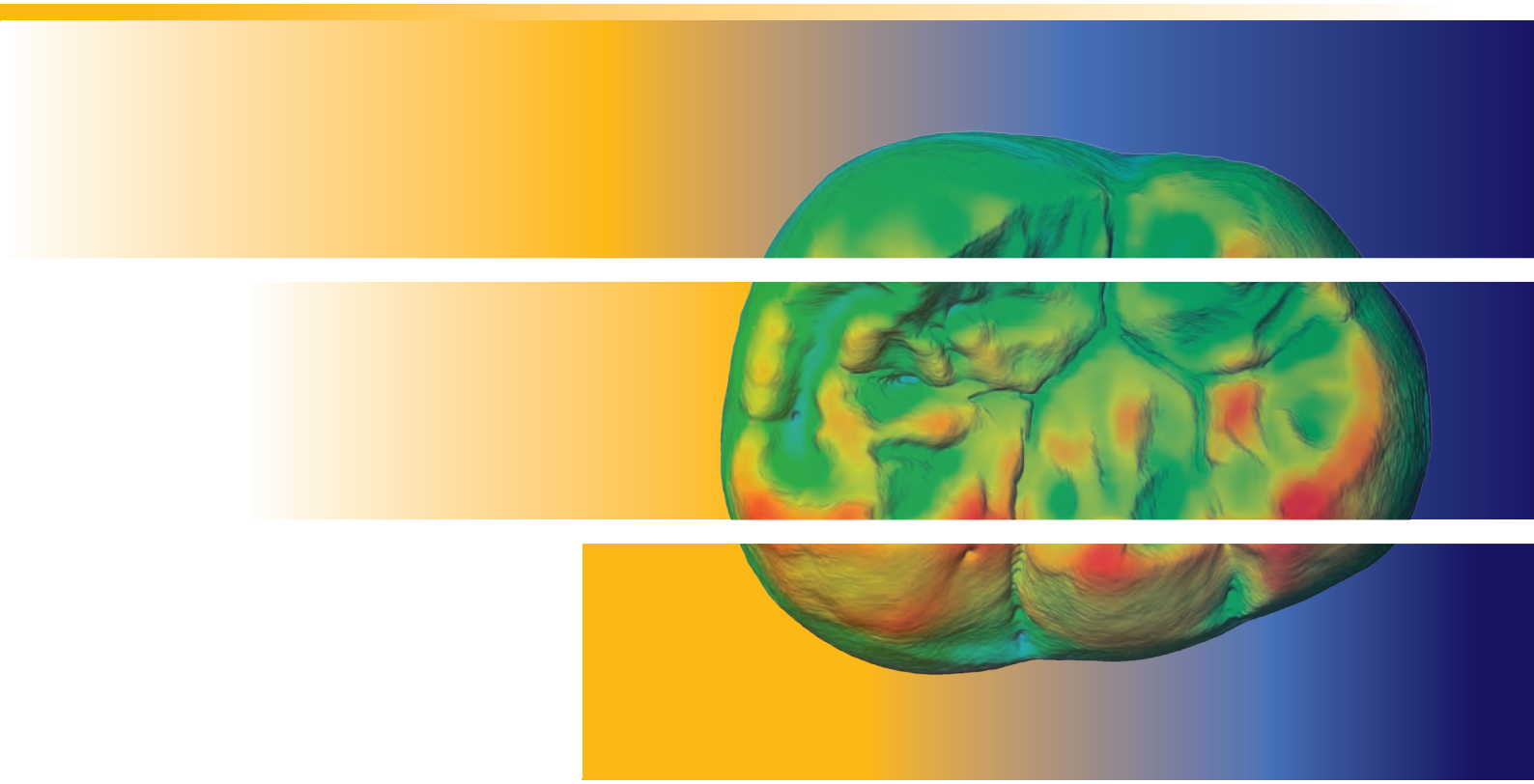
11’



Annual Report 2011

Institut Català de Paleontologia Miquel Crusafont

Institut Català de Paleontologia
Miquel Crusafont

Edition and coordination:
R.Maria Pérez i Pereira

Graphic design:
Marta Palmero

Photography:
Fons fotogràfic ICP

Printed:
Gràfiques Masanas

Legal Deposit: B.7202-2013

Contents

Institut Català de Paleontologia Miquel Crusafont

1

The ICP was created in November 2006, its mission being to investigate the rich Catalan palaeontological heritage and work on national and international projects of special significance and scientific interest. The ICP aspires to be an international reference centre in the fields of vertebrate and human palaeontology as well as in the application of new technologies to palaeontological research. The ICP is a member of the network of centres in the CERCA programme of the government of Catalonia.

THE AIMS OF THE ICP: INNOVATIVE, HIGH QUALITY INTERNATIONAL PALAEONTOLOGICAL RESEARCH

1. To become a **centre of excellence for research, conservation and dissemination of human and vertebrate palaeontology** on the international stage.

2. To provide a **biological focus on palaeontology** enabling participation in current debate on the patterns, rhythms and mechanisms of evolution.

3. To have an impact in areas apparently distant from palaeontology, such as **evolutionary medicine, theories on ageing and climate change.**

4. To contribute to **innovative** palaeontological **research through the use of new technologies and high resolution tomography.**

5. To promote the **conservation of Catalan palaeontological heritage and the expansion of the palaeontological collections** that we conserve.

6. To promote **training and teaching at university level, transfer of knowledge to the general public and scientific dissemination** through the media.

THE ICP: RESEARCH, INNOVATION, DISSEMINATION AND TRAINING - MORE THAN JUST A RESEARCH CENTRE.

Welcome to ICP

Salvador Moyà-Solà

Director

ICP: RESEARCH WITH A FUTURE

In 2011, the Institut Català de Paleontologia Miquel Crusafont (ICP) once again demonstrated that, despite the difficulties of the current situation for research and society in general, it is one of the 47 CERCA centres capable of increasing its excellent research results and complying with one of its principal challenges: to develop cutting-edge research focused on scientific impact.

The numbers speak for themselves: in 2011, the ICP published a total of 143 pieces of work, 49 of which were papers released in journals with a SCI impact, with a further 17 in SCI proceedings, *i.e.*, an average of 4.4 SCI publications per researcher (3.2 SCI papers if proceedings are not included).

Moreover, since 2006, the ICP has grown in all senses: it has become a highly internationalised centre thanks to the constant mobility of its researchers, plus cooperation and scientific exchange with other centres around the world; it has welcomed the new technologies of 3D imaging, Computed Tomography, Laser Scanning and Photogrammetry as well as engineering techniques such as Finite Element Analysis, a set of innovative tools for obtaining high quality data which are allowing palaeontology to explore fields hitherto unimaginable; it is investigating and reconstructing the biology of extinct vertebrates through the combination of palaeohistology with "*Life-History*", a conceptual area of biology which provides an evolutionary perspective on today's hot topics such as conservation biology.

However, in addition to research, also characteristic of the ICP is the conservation of palaeontological heritage, restoration and the transferring of knowledge on palaeontology to society. To this end it is necessary to highlight the great job of dissemination constantly carried out by the ICP Museum and research team, through courses, workshops, conferences and cultural activities for schools, families and researchers from other centres.

We are convinced that strengthening research and culture enriches society in a way that cannot be measured: the greater the investment in science, the greater the benefits for everyone in the long run. At the ICP we are very aware that the funding from our patrons, the government of Catalonia and the Autonomous University of Barcelona (UAB), made it possible for the ICP to obtain such excellent results in 2011.

For this reason we believe the involvement of the economic sectors in research cannot decline. The stronger the scientific structure in Catalonia and the rest of the country, the more tools will be available to face these difficult times, to move towards a more dynamic, advanced and stable society and system.

Salvador Moyà-Solà

Director

ICP Highlights 2011

Salvador Moyà receives the international Fabio Frassetto award

The President of the Italian Republic Giorgio Napolitano, in the closing ceremony for the academic year of the *Accademia Nazionale dei Lincei* in Rome, **presented the Fabio Frassetto Award to Salvador Moyà, director of the ICP**. This prize is given in recognition of a research career in the field of physical anthropology.

The ICP organises the *XXVII JORNADAS DE LA SOCIEDAD ESPAÑOLA DE PALEONTOLOGÍA*, in commemoration of the centenary of the birth of the Catalan scientist Miquel Crusafont and as the closing act of the year bearing his name

The meeting brought together **130 palaeontologists from all over the country, as well as Portugal, France, Italy, the UK, Argentina and Mexico.** Under the title "*Palaeobiology: new concepts and methods*", the ICP took **palaeobiology** as the **main theme of this edition.**

The ICP holds the *First International Symposium on Palaeohistology,* the first international conference on palaeohistology bringing together experts in the field from the entire scientific community

This pioneering conference in palaeohistology brought together scientists from around the world and led the way for **the creation of the International Palaeohistology Society**, with the aim of creating a joint database of scientific information from the field and holding a biennial palaeohistology symposium.

The 2nd Conservation Workshop on Natural Sciences, organised by the ICP Preparation and Conservation Department is a complete success

This second edition included the **participation of more than 50 experts from around the world.** The aim of the *Workshop* is the **creation of a forum to train professionals in the preparation, conservation and restoration of natural science collections** and share experiences from within the field.

The ICP runs tailor-made course for work on the exhumed remains of Don Simón Bolívar

In 2011, the Conservation and Preparation Laboratory at the **ICP** designed and ran the ***"Course on Conservation and Restoration of Exhumed Remains"*** to evaluate and **train** a delegation of **forensic doctors** from Venezuela which this year were working on the **exhumed remains** of Don **Simón Bolívar.**

The ICP restores the whale from the *Museu Blau*

The whale *Balaenoptera physalus*, an emblematic specimen which hang for more than 30 years in the old Natural History Museum (Parc de la Ciutadella) **has been restored by the ICP preparation and conservation team** in 2011, because of damage suffered during the dismantling of the old exhibition.

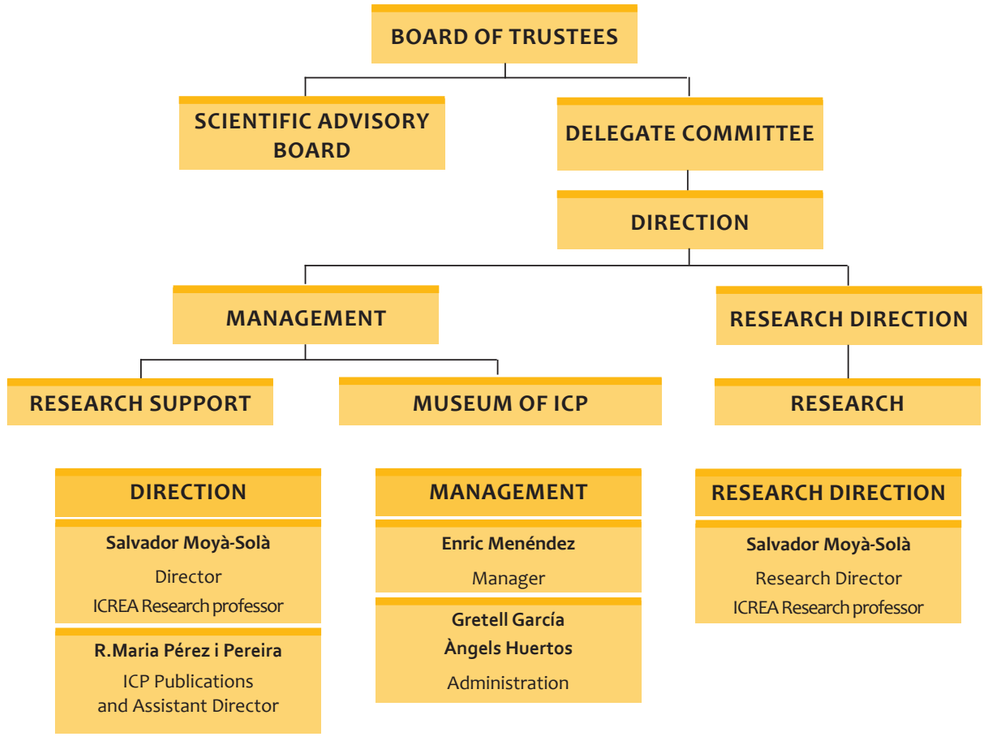
Record number of visits to the ICP Museum: a total of 18,865 visitors during 2011

The ICP Museum organises and promotes dissemination activities on the science of palaeontology for both children and adults, through interactive exhibitions, videos, workshops and other family and school events. Hundreds of families, students and children enjoyed the ICP facilities in 2011.

Paleonturología 10 award for the study of *Myotragus* carried out at the ICP

The researchers Meike Köhler and Salvador Moyà from the Institut Català de Paleontologia, have won the '**Paleonturología 10**' award for the article "*Physiological and life history strategies of a fossil large mammal in a resource-limited environment*" published in the prestigious journal ***Proceedings of the National Academy of Science, PNAS,*** in 2009, in the USA. The star of the study was the bovid *Myotragus balearicus,* endemic to the Balearic Islands.

Organizational chart



DIRECTION

Salvador Moyà-Solà
Director
ICREA Research professor

R.Maria Pérez i Pereira
ICP Publications and Assistant Director

MANAGEMENT

Enric Menéndez
Manager

Gretell García
Àngels Huertos
Administration

RESEARCH DIRECTION

Salvador Moyà-Solà
Research Director
ICREA Research professor

THE ICP MUSEUM

Laura Celià
Coordinator

Archives and Documentation

Teresa Esquirol
Head of department

Teresa Requena
Archivist and Documentalist

Collections Management

Laura Celià
Head of department

Marta March
Collections Management technician

Xavier Oller
Collaborator

Educational and Dissemination Activities

Jordi Balaguer
Head of department

Mònica Cucurella
Maria Pereira
Reception and shop

RESEARCH SUPPORT

Fieldwork and Maintenance

Manel Llenas
Manel Méndez
Technicians

Preparation and Conservation

Sandra Val
Head of department

Carolina Cancelo
Núria Guerrero
Domingo López
Marta Valls
Preparators / Curators

Paleontological Depository and Outcrops

Jordi Galindo
Head of department

Communication and Scientific Dissemination

Sílvia Bravo
Head of department

Projects

Laila Pilgren
Head of department

RESEARCH

Mesozoic Faunas

Àngel Galobart
Head of group

Fabio Dalla Vecchia
Researcher

Bernat Vlla
Postdocs

Joan Cartanyà
Nikolaus Malchus
Josep Marmi
Marco Petruzzelli
Research associate

Arnau Bolet
Josep Fortuny
Albert Garcia
Novella Razzolini
Alba Vicente
Predocs

Neogene and Quaternary Faunas

Salvador Moyà-Solà
Head of group
ICREA Research professor

Jan Van-Dam
Researcher

Isaac Casanovas
Juan de la Cierva Researcher

Massimo Delfino
Antonio Sánchez
Research associate

Daniel DeMiguel
Marc Furió
Joan Madurell
Postdocs

Josep Aurell
Àngel Luján
Sílvia Pineda
Guillem Pons
Josep M.Robles
Cheyenn Rotgers
Collaborators

Palaeoprimatology and Human Palaeontology

Salvador Moyà-Solà
Head of group
ICREA Research professor

David M. Alba
Ramón y Cajal Researcher

Sergio Almécija
Research associate

Raef Minwer-Barakat
Postdoc

Judit Marigó
Miriam Pérez de los Ríos
Marta Pina
Imma Roig
Predocs

Marta Palmero
Scientific illustrator

Ivette Susanna
Collaborator

Palaeobiology

Meike Köhler
Head of group
ICREA Research professor

Gabriele Macho
Researcher

Xavier Jordana
Juan de la Cierva Researcher

Soledad de Esteban Cayetana Martínez
Research associate

Nekane Marín
Blanca Moncunill
Predocs

Laura Fernández
Rubén García
Laboratory technicians

Virtual Palaeontology

Josep Fortuny
Coordinator

Trustees

TRUSTEES

Mr. Andreu Mas-Colell
Minister for Economy and Knowledge
(President)

Mrs. Anna Ripoll i Aracil
Rector of the Autonomous University
of Barcelona

DELEGATE COMMITTEE

Mr. Antoni Castellà i Clavé
Secretary General of Universities and Research

Mr. Josep Maria Martorell i Rodon
Director General of Research

Mr. Carles Jaime Cardiel
Vice Rector for Strategic Projects at the UAB

Scientific Advisory Board

This is the assessing body of the Trustees concerned with the scientific direction of the ICP and the entity which evaluates the activities of the centre. It is made up of the following internationally renowned and prestigious members from the field of palaeontology:

Prof. Jaume Truyols Santonja
Universidad de Oviedo
Spain

Prof. Michel Brunet Directeur
Poitiers University
France

Prof. Brian McNab
University of Florida
Florida, USA

Prof. David Pilbeam
Harvard University
USA

Prof. Lorenzo Rook
Università di Firenze
Itàlia

Prof. José Luis Sanz
Universidad Autónoma de Madrid
Spain

Prof. Elisabeth Vrba
Yale University
USA

Prof. Jorge Morales Romero
Museo Nacional de Ciencias Naturales
Madrid, Spain

ORGANISATION OF THE RESEARCH CENTRE

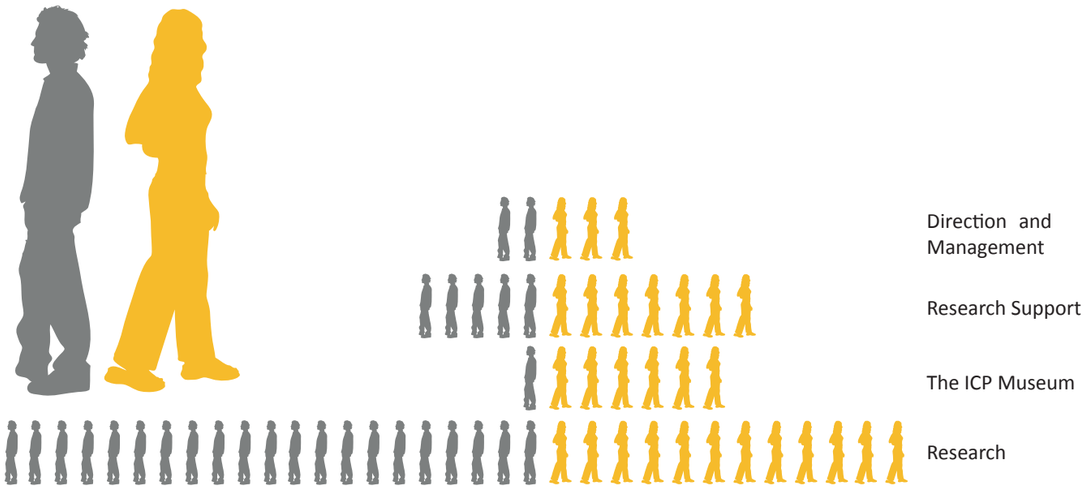
The ICP relies on the work of qualified professionals and research groups, all of them committed to the aims of the foundation. The centre is divided into the Direction and Management bodies and three other areas: Research, Research Support and the museum of the Institut Català de Paleontologia Miquel Crusafont (ICP).

The ICP **Direction** guides the criteria and fundamental operations of the centre to optimally organise the research activity. To this end, the director works together with the **Management**, which provides the best possible staff configuration and material for research based on the guidelines established by the Direction.

The **Research Area** directly answers directly to the research director and is divided into **five research groups** based on the transdisciplinary work of the researchers, interns and other collaborators which comprise them.

The technical staff of the ICP depends directly on the management and is organised into departments which together make up the **Research Support Area** and the **ICP Museum**. The latter is composed of the museum space, the ICP Collections and the Archive.

The ICP, a centre of equality



Activity Summary

The Financial Motor of the ICP

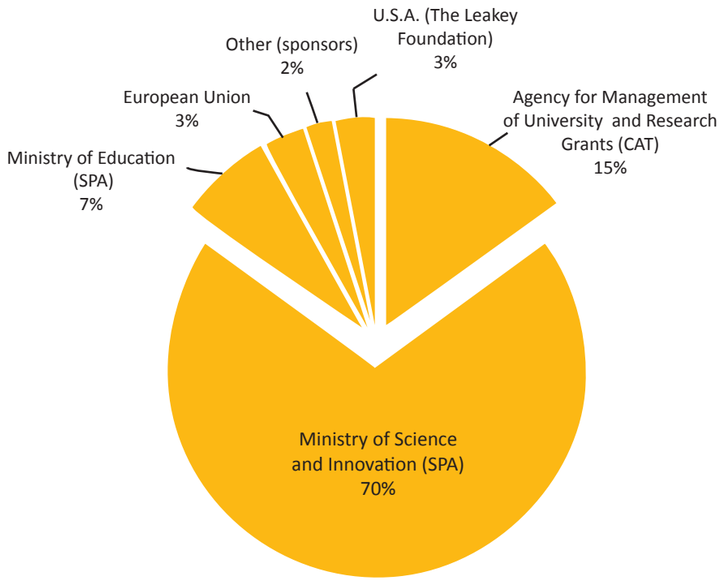
In a difficult year for research, in 2011 the ICP managed to win numerous competitive grants. These include **4 research projects from the National Plan for R&D led by researchers from our centre**. Each of them is for 3 years, **ensuring the continuity of the current ongoing research.**

Also during 2011, **the ICP incorporated one doctoral and two pre-doctoral students thanks to a *Juan de la Cierva* grant** (Ministry of Science and Innovation) **and FPU and FI awards** (Ministry of Education), a fact which **significantly increased the number of scientific publications in top SCI journals.**

Other grants (mobility, PAS, BE, AIRE-CTP and Synthesys) have enabled ICP researchers to undertake stays at international research centres, **boosting collaboration with several centres of excellence.**

But not everything at the ICP is research: **dissemination of science to the general public is very important at the centre.** An ACDC Grant from the Department of Economics and Knowledge is enabling the design of the **"Catalonian Fossil Bestiary" project,** a web platform designed to present the palaeontological deposits of Catalonia. We have also created the informative exhibit: "*Stand up! Get to know your history from fossil primates*" thanks to the contribution of the Unnim *Obra social.*

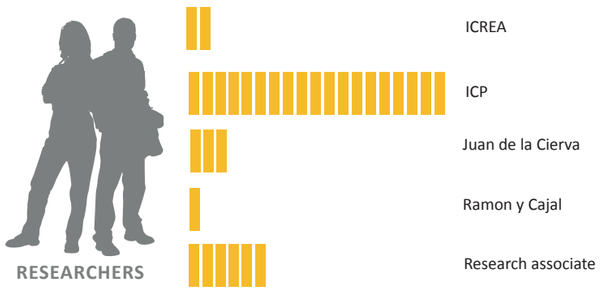
Finally, it is necessary to mention the donations of private sponsors such as Biometa, SA and Leica Microsystems SLU which have enabled us to hold the conferences the ***First International Symposium on Palaeohistology (ISPH)*** and the ***XXVII Jornadas de la Sociedad Española de Paleontología (SEP)***.



The ICP: Research with a future

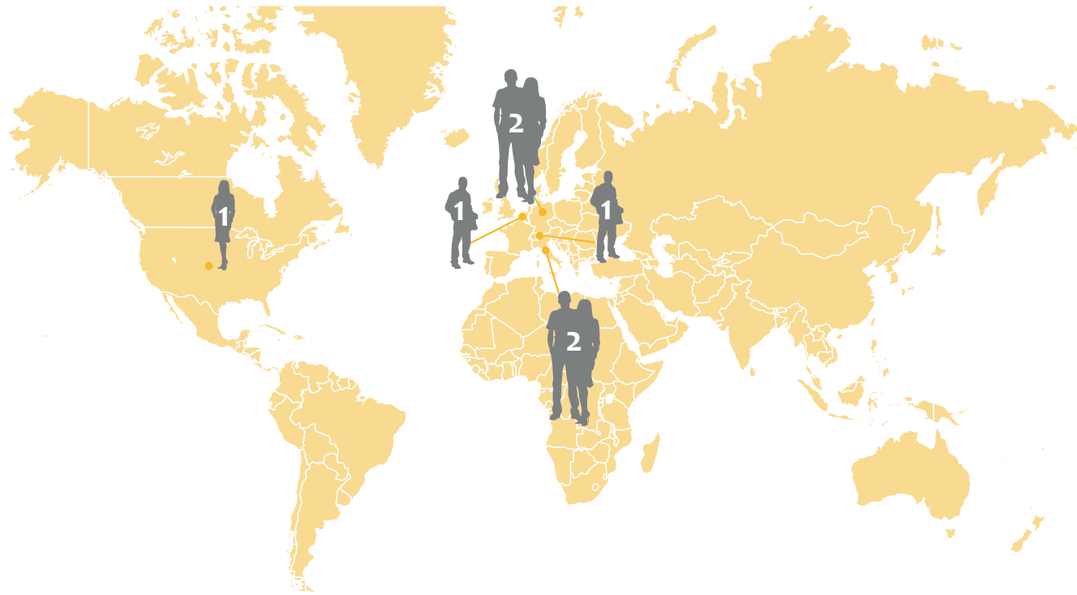
Competitive national research resources in 2011

In 2011 the scientific production of the ICP increased spectacularly compared with previous years



Around the world researchers

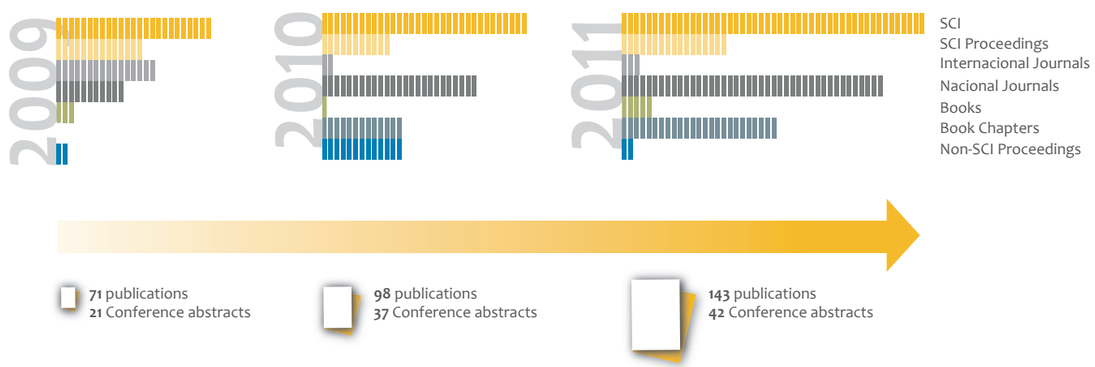
ICP researchers have working relationships with institutions and universities from around the world



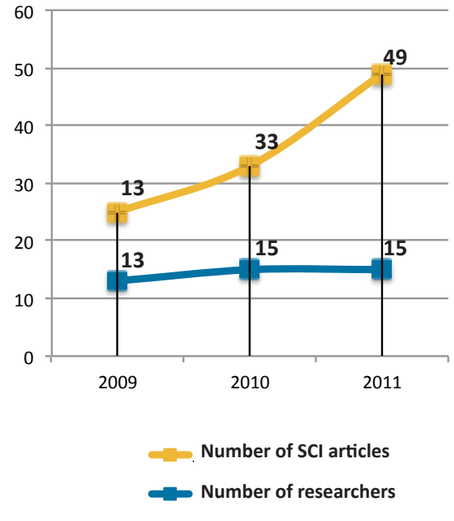
Scientific Production

In 2011 the scientific production of the ICP increased spectacularly compared with previous years

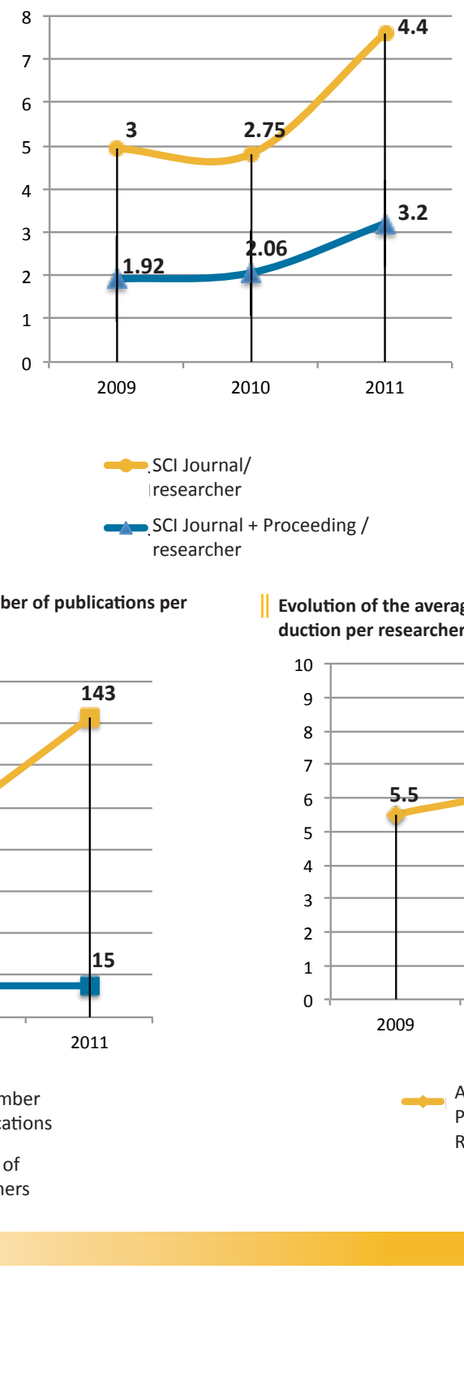
In 2011 the ICP published a total of 49 articles in Science Citation Index (SCI) journals and 17 SCI proceedings. The average is 2.9 SCI Journals per researcher, or 3.9 SCI + SCI proceedings per researcher. In total, the overall scientific production reached a total of 142 publications + 42 conference abstracts.



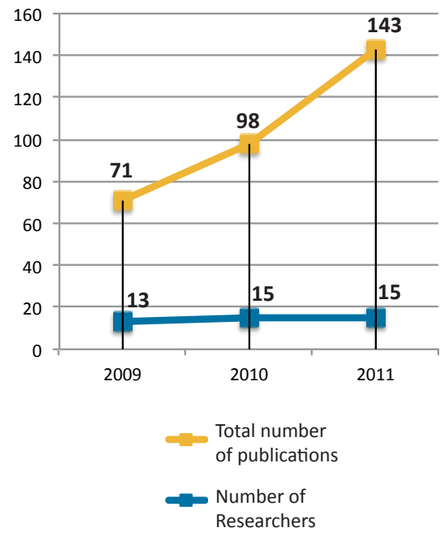
Relationship between total number of SCI articles, no. of researchers and year



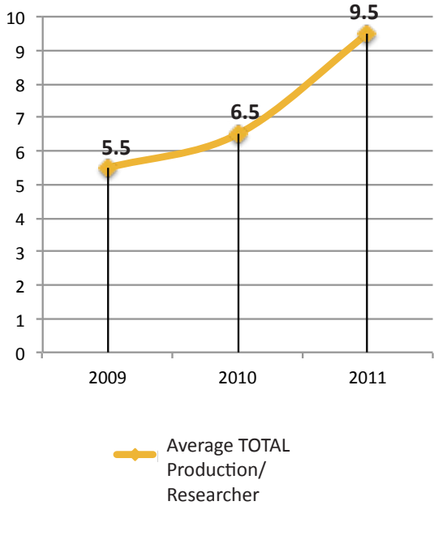
Average SCI Production per researcher and year



Relationship between TOTAL number of publications per researcher and year



Evolution of the average of TOTAL scientific production per researcher and year

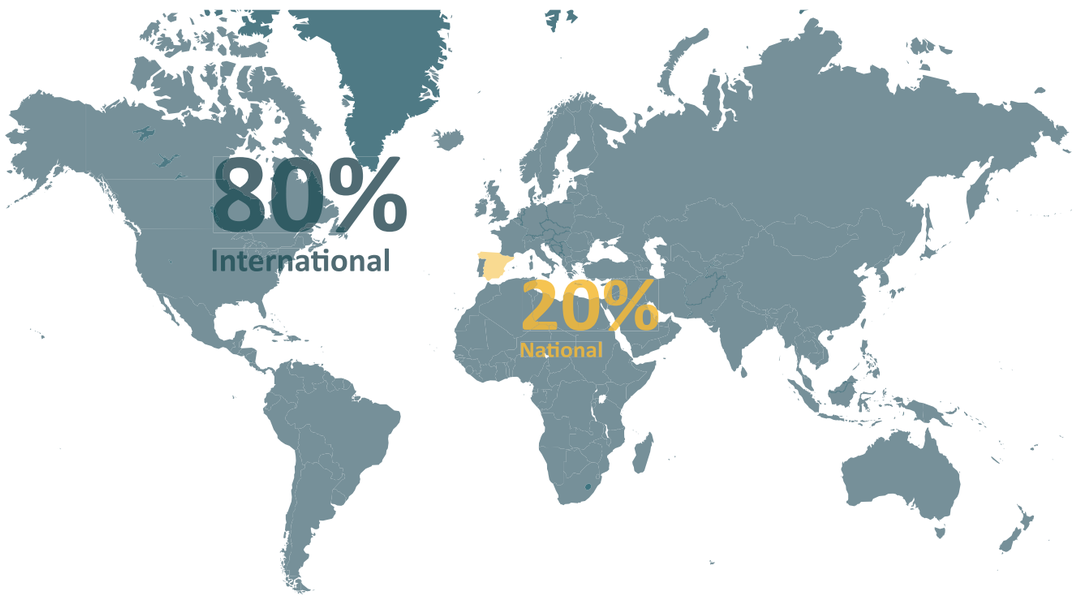


The ICP convened the *First International Symposium on Palaeohistology,* the first global conference on palaeohistology bringing together experts in the field from the whole scientific community

In addition to research, the **ICP has an outstanding tradition of participating in and organising conferences.** This enables the ICP to understand and exchange points of view and experiences with the international scientific community.

In 2011, the **ICP organised**, at a national level, the ***XXVII JORNADAS DE LA SOCIEDAD ESPAÑOLA DE PALEONTOLOGÍA***, in commemoration of Dr. Crusafont and as the closing event of the year bearing his name. At an international level, the centre held the **FIRST INTERNATIONAL SYMPOSIUM ON PALAEOHISTOLOGY**, a pioneering conference in palaeohistology that brought together scientists from around the world and which led the way for the creation of the **International Palaeohistology Society**, with the aim of creating a common database of scientific information in the field, and holding a biennial symposium on palaeohistology.

Extensive participation in conferences strengthens the dissemination of ICP research throughout the world and provides links to other international scientific institutions of excellence



In 2011, the ICP presence at conferences was the following:

International Conferences 2011

- 71st Annual Meeting, Society of Vertebrate Paleontology. Paris Las Vegas, Las Vegas, Nevada (USA).

- Dinosaur Track Symposium 2011, Obernkirchen, (Germany).

- Hominid-Carnivore Interactions International Congress. Salou, Tarragona (Spain).

- International Hadrosaur Symposium at the Royal Tyrrell Museum of Palaeontology, Drumheller (Canada).

- 17th International Cave Bear Symposium. Einhornhöhle (Unicorn Cave), Harz (Germany).

- XXVIII INQUA-Conference: Quaternary Sciences – the view from the mountains. Bern (Switzerland).

- I International Symposium on Palaeohistology. Sabadell (Spain).

- Eightieth Annual Meeting of the American Association of Physical Anthropologists. Minneapolis, Minesotta (USA).

National Conferences 2011

- XXVII *Jornadas Sociedad Española de Paleontología*: SEP 2011. Sabadell, October 5-8, 2011.

- IX *Encuentro de Jóvenes Investigadores en Paleontología*. Morella, May 11-14, 2011.

The ICP Research

2

The ICP research is organised within the Research Area. The Research Area answers directly to the ICP research director and is divided into five research groups made up of researchers, interns and collaborators who work in a transdisciplinary team. Joint participation in projects and the publications of joint work is taken as the basis for producing high-quality international research.

Mesozoic Faunas

Àngel Galobart
Head of Group

Fabio Dalla Vecchia
Researcher

Bernat Vila
Postdoc

Joan Cartanyà
Nikolaus Malchus
Josep Marmi
Marco Petruzzelli
Research associate

Arnau Bolet
Josep Fortuny
Albert Garcia
Novella Razzolini
Alba Vicente
Predocs

The Mesozoic Faunas Research Group is recognised as a *Grup de Recerca Singular* (Unique Research Group) by the Agency for Administration of University and Research Grants

The ICP studies two specific moments in the evolution of Mesozoic fauna and ecosystems: the Triassic and the late Cretaceous. The Mesozoic Faunas group principally focuses its research on **bones, eggs and trace fossil deposits of dinosaurs** that inhabited part **of the Iberian Peninsula**. Thanks to the **digital techniques that the ICP utilises** and the richness of the Catalan fossil record this group is able to accurately infer both how these animals lived and what the land they lived on was like.

In 2011, the group published, among others, **8 papers** in the major journals of the **Science Citation Index (SCI)** including *Cretaceous Research, The Journal of Evolutionary Biology, Acta Palaeontologica Polonica* and *Molecular Ecology*. In addition to research, the Mesozoic Fauna group has a long tradition of dissemination and is involved in **teaching** for the **Vertebrate Palaeontology Masters** at the Autonomous University of Barcelona (UAB) and on the **Vertebrate and Human Palaeobiology Module**, for doctoral students, at the UAB and University of Barcelona (UB).

Their **research results** have earned the Mesozoic Faunas group **recognition** by the Agency for Administration of University and Research Grants (AGAUR) and the title ***Grup de Recerca Singular* (Unique Research Group)**.

A new competitive project in the "National Plan for R&D: Fundamental Research Projects", of the Ministry of Science and Innovation (MICINN) supports the study of the most recent dinosaur faunas that existed on the planet

In 2011, the group obtained a **new R&D project** from the MICINN (now the Ministry of Economy and Competitiveness, MINECO) "The end of an era: the extinction of the dinosaurs from a European perspective", with €96,800 of funding, which reinforces **the work of the Mesozoic Faunas Research Group in their study of the last dinosaurs** to exist on the planet and **which are found in the Pyrenees**. Now, the group is going even further and proposing a model of succession for faunas from the latest Mesozoic from the **Catalan basins as a reference for the study and dating of** similarly-aged **deposits scattered across Europe**.

The group also obtained **grants from the Ministry of Culture** for the biennium 2010-2011 and the Institut d'Estudis Ilerdencs **to ensure continuity in the excavation of deposits in the Catalan pre-Pyrenees.**

At the same time, the group has continued their research with competitive funding won in previous years, as is the case of the MICINN project "The evolution of Dinosaurs in Eastern Iberia, and their environment, during the Cretaceous: Systematics and palaeobiological and palaeontological inferences.", 2009-2011, and projects of the Catalan government's Ministry of Culture "Triassic outcrops containing vertebrate fauna in Catalonia" and "Transitional Cretaceous-Palaeogene palaeontological deposits from the Catalan pre-Pyrenees: Systematics, palaeoecology and palaeobiogeographical implications". The principal investigator (PI) for all of these projects is the leader of the Mesozoic Faunas group.

The Mesozoic Faunas group has described a new genus and species of Triassic capitosaur, *Calmasuchus acri,* and revealed how the Catalan and Pyrenean Basins were inhabited by amphibians, fish and reptiles during the Permian and Triassic

The paper "A new capitosaur from the Middle Triassic of Spain and the relationships within the Capitosauria", published in the SCI journal ***Acta Paleontologica Polonica*** describes the **first species of temnospondyl amphibian from the Iberian Peninsula,** positioning the Triassic deposits of Catalonia at the forefront of research in Europe. The study concludes that **the characteristics of the Montseny capitosaur,** the only one collected from the Iberian Peninsula and the oldest fossil amphibian from Catalonia**, do not coincide with those of any species capitosaur currently known**. Consequently, the Mesozoic group has erected a new genus and species, *Calmasuchus acri*.

For this geological period, the article "New insights on the Permian and Triassic vertebrates from the Iberian Peninsula with emphasis on the Pyrenean and Catalonian basins", published in the ***Journal of Iberian Geology*** for the first time provides **full information on the vertebrate fossils found in the Catalan and Pyrenean basins from the Permian and Triassic. The results of the study reveal that, contrary to popular belief, these basins were inhabited by a fauna including fish, amphibians and reptiles from continental and marine environments.**

The results of this study have been presented at various **national and international conferences** including the conference of the **Society of Vertebrate Paleontology** (Las Vegas, USA) and the international symposia **Dinosaur Track Symposium 2011**, held in Obernkirchen (Germany) and the **International Hadrosaur Symposium**, held at the Royal Tyrrell Museum of Palaeontology in Drumheller (Canada).

The Mesozoic faunas group also participated in the "**Introductory Course on Conservation and Preparation Techniques in Palaeontology**" run by the ICP's Department of Preparation and Conservation, for students from around the country. The subjects they presented were: "Cretaceous Faunas", "Dinosaur egg-bearing deposits" and "3D modelling in the study of dinosaur eggs and footprints".

The Catalan dinosaurs together with researchers from the ICP starred in an episode of the *National Geographic*'s "CSI Dinosaurs"

The Mesozoic Faunas group participated in the episode "**Walking like a dinosaur**" of the series **CSI Dinosaurs**, which explains how dinosaurs lived and raises new questions about these animals. The participation of the **ICP** was also reported in the national media including on *TVE*, in the newspaper *Ara* and *3cat24.cat*.

The Fumanya (Berguedà) **ichnite site**, with more than **3,000 fossil dinosaur footprints**, is one of the most important deposits in the world for the study of dinosaur locomotion. A team from the **University of Manchester**, led by palaeontologist Phil Manning, went out to the area and created a **3D map of the terrain using a scanning method**.

"Dinosaurs of Eastern Iberia" authored by the ICP and published by prestigious publishing house *Indiana University Press*

In 2008, the Mesozoic Faunas group, with the participation of other Spanish researchers, published the book "***Dinosaurios del Levante Peninsular***" with the aim of showing the general public the richness and diversity of the dinosaurs of Catalonia and the east of the peninsula. The high quality of the illustrations and the entertaining and informative style meant that in 2011 the American publishing house released the book in English to enable it to reach an international audience.

Other dissemination activities the group has been involved in 2011, include the filming of the science programme ***Tres14*** for ***TVE***, dedicated to the dinosaurs of the Iberian Peninsula, as well as an episode of the series ***Sota Terra***, for ***TV3*,** about the dinosaurs of the Pyrenees. In addition, they organised and participated in several radio interviews (***COM.Ràdio, Ràdio de Sabadell, Ràdio Terrassa***), wrote articles for various newspapers (***Ara, Diari de Sabadell***) and spoke at **many national and international conferences**.

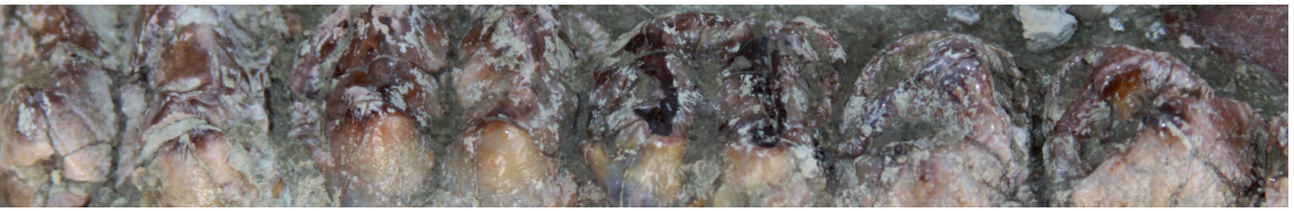
The group works with international institutions on the study of Triassic fauna and dinosaur footprints

Since 2005, the Mesozoic Faunas group has been collaborating with the **University of Manchester** on various ichnite scanning projects in deposits from Catalonia, as well as from the rest of Spain and Portugal. The result of this collaboration was an episode of the series "**CSI Dinosaurs" (*National Geographic*)** broadcast in 2011 and called "Walking like a Dinosaur".

In 2011, the group established various collaboration agreements, among which is "Research on Cretaceous Dinosaurs" undertaken with the Geology and Geophysics department of the ***Università degli Studi di Bari "Aldo Moro"***, and thanks to which a new researcher in training joined the ICP, as well as the collaboration agreement with the ***Museo Friulano di Storia Naturale***, for the study of Triassic faunas from the Friuli-Venezia-Julia localities in Italy.

Finally, it is necessary to mention the group's collaboration with the UAB, the *Consorcio Ruta Minera* and the Archaeology and Palaeontology Service of the Catalan government, thanks to which the ICP can achieve even better research on dinosaurs and their footprints.

Neogen and Quaternary Faunas



Salvador Moyà-Solà
Head of Group

Jan Van Dam
Researcher

Isaac Casanovas
Juan de la Cierva Researcher

Massimo Delfino
Antonio Sánchez
Research associate

Daniel DeMiguel
Marc Furió
Joan Madurell
Postdocs

Josep Aurell
Àngel Luján
Sílvia Pineda
Guillem pons
Josep M.Robles
Cheyenn Rotgers
Collaborators

The Neogene and Quaternary Faunas Group studies fossil vertebrates from the last 23 million years

The last 23 million years of Earth's history is divided into two periods, the Neogene and the Quaternary. **The study of the faunal changes that occurred during this time interval**, in relation to global climate changes, **provides valuable information for understanding the role that biotic and abiotic factors play in the evolution of organisms**. For this reason, the ICP Neogene and Quaternary Faunas Group has researchers specialised in various groups of terrestrial vertebrates, including amphibians and reptiles, birds and, especially, large mammals (*e.g.*, carnivorans, artiodactyls and perissodactyls) as well as small mammals (*e.g.,* rodents and insectivores).

The research carried out by the different members of the group includes all the steps of palaeontological research, starting with fieldwork (excavation and sampling) and the classical palaeontological approaches (biostratigraphy and taxonomy), but also including **several palaeobiological approaches that focus on the biology and evolution of extinct vertebrate species**. These aim to provide an increased knowledge of the history of life on Earth, as well as a **better understanding of the mechanisms and interactions determining or influencing the course of evolution over millions of years**.

In 2011 **the group published more than 30 papers**, of which **21** are **articles in international journals of the *Science Citation Index* (SCI)** –of these, 14 papers were led by members of the group– including the ***Proceedings of the National Academy of Sciences USA***, ***Journal of Human Evolution, Journal of Vertebrate Paleontology***, ***Evolution*** and ***Geobios***. In addition, contributions to international meetings have been made, among which was the **annual conference of the *Society of Vertebrate Paleontology*** (the annual meeting point for vertebrate palaeontologists from around the world).

The Neogene and Quaternary Faunas Group also participated in various scientific popularizing and teaching activities, and conducted numerous excavations that enabled the recovery of new fossil vertebrate remains from Catalonia and adjacent areas.

Two projects of the "National Plan for R&D: Fundamental Research Projects" of the Ministry of Science and Innovation (MICINN, currently MINECO) support research on the evolution and palaeobiology of Miocene fossils from the Iberian Peninsula.

The results of the research carried out by the researchers of the ICP Neogene and Quaternary Faunas Group in 2011 reached a remarkable international notoriety, thanks to both publications and contributions in international meetings. **In 2011 research was carried out within the framework of two projects funded by the current Ministry of Economy and Competitiveness: "The Miocene great apes (Hominoidea) of the Mediterranean region: origin, evolution and palaeobiology"** (PI Salvador Moyà-Solà), which ended this year, and **"Bringing fossils back to life: a multidisciplinary approach to the palaeobiology of Miocene small mammals from the Iberian Peninsula"** (PI Isaac Casanovas-Vilar), for the period 2011-2013.

Despite the current conjunctural shortage of resources for scientific research, this year funding was awarded by the Ministry for a **new project: "Evolution of terrestrial ecosystems in western Europe during the Neogene and Quaternary based on the vertebrate fossil record from the Vallès-Penedès Basin"** (PI David M. Alba), which will be led by this group and which **will bring together several researchers from the ICP and foreign universities, all specialists in different groups of vertebrates** (amphibians, reptiles, birds and mammals) that are recorded in the Neogene of Catalonia. In addition to this important act of recognition, in 2011 further grants were awarded from public organisations (**the Catalan government's Department of Culture**) and private entities (***National Geographic* Foundation**) to undertake the excavation projects in which this group participates. Finally, it should be highlighted that one of the researchers from the group, Daniel DeMiguel, was awarded a *Juan de la Cierva* research contract from the Ministry of Economy and Competitiveness.

As regards teaching, in addition to giving classes on the **Vertebrate and Human Palaeobiology Module of the interuniversity Master of Palaeontology (UAB/UB**), group members have supervised **several master theses** and have continued co-supervising **PhD dissertations** that are currently under way. Finally, **it should be highlighted the direction of several palaeontological excavations of Neogene and Quaternary sites**. These include programmed excavations at Can Llobateres (Late Miocene), Incarcal (Early Pleistocene), Daroca (Middle Miocene) and Nombrevilla (Late Miocene), as well as surveys started in Early Miocene localities of the Vallès-Penedès Basin, and collaboration in the supervision of excavations with heavy machinery at Abocador de Can Mata (Middle Miocene). This field work has allowed the recovery of important new fossil remains, which will be reflected in high-impact international publications over the coming years.

A study published in the prestigious journal *Proceedings of the National Academy of Sciences USA* concludes that ape evolution toward erect trunk postures occurred independently in Europe and Africa during the Miocene

The paper entitled "***Updated chronology for the Miocene hominoid radiation in Western Eurasia***" (Casanovas-Vilar and co-authors) has **revised the dating of hominoid-bearing sites from western Eurasia that lived between 23 and 5 million years ago.**

Hominoids, a group that includes all apes (gibbons, orangutans, gorillas and chimpanzees), arose in Africa about 23 million years ago, from where they progressively expanded into Europe and Asia. According to the study**, the hominoids discovered in European sites and particularly in Catalonia** -which lived between 12 and 9 million years ago- **have advanced features such as adaptations for climbing trees whilst maintaining an torso posture** or for hanging from trees using only their arms, something that is still maintained by extant hominids (great apes) such as the pongines (orangutans) and hominines (gorillas, chimpanzees and humans). **The new datings thus enable the reordering of a set of important evolutionary events and suggest that the change in body plan from the quadruped model to the modern structure seen in these great apes may have occurred in the Mediterranean area or else evolved independently in pongines, which are currently found in Southeast Asia, and hominines, which live in Africa.**

Also of note are the **palaeoecological works** carried out based on the study of various aspects of fossil mammals, be that **dental wear in ruminants** (DeMiguel and collaborators) or **insectivore faunas** (Furió and collaborators), published, in both cases, in the journal *Palaeogeography, Palaeoclimatology, Palaeoecology*. The collaboration of John Madurell-Malapeira in a **paper on the fossil DNA of lynxes**, published in ***Molecular Ecology***, also deserves a mention. Last to be highlighted are the numerous **studies of a more taxonomic nature on Neogene and Quaternary vertebrates**, led by Isaac Casanovas-Vilar (**rodents**), Mark Furió (**insectivores**), Massimo Delfino (**reptiles**), Daniel DeMiguel (**artiodactyls**), Joan Madurell-Malapeira (**carnivorans**) and Cheyenn Rotgers (**perissodactyls**), which this year have been published in journals such as the *Journal of Vertebrate Paleontology, Journal of Human Evolution, Evolution* and *Geobios*, among others.

Special mention is due to the descriptions of new taxa including ***Hispanomeryx andrewsi***, ***Dorcatherium naui meini***, and ***Anchitherium nievei***, the latter of which is dedicated to the late Nieves López Martínez, a palaeontologist who was a member of the ICP Scientific Advisory Board.

The coming year **heralds a new phase, with the entry into force of the new Ministry project focused on the terrestrial vertebrate fauna of the Vallès-Penedès Basin,** as well as in the future change in the group leader in 2012, as Salvador Moyà-Solà steps down to be replaced by the *Ramón y Cajal* researcher David M. Alba. The aim is to continue and consolidate the ongoing research lines dealing with mammals, but also boost the research on other fossil vertebrates (amphibians, reptiles and birds), as well as **the use of new technologies and techniques applied to the study of fossil vertebrates, and the international collaborative links with European and American palaeontologists.**

Paleoprimatology and Human Palaeontology

Salvador Moyà-Solà
Head of group

David M.Alba
Ramón y Cajal Researcher

Sergio Almécija
Research associate

Raef Minwer-Barakat
Postdoc

Judit Marigó
Míriam Pérez de los Ríos
Marta Pina
Imma Roig
Predocs

Marta Palmero
Scientific illustrator

Ivette Susanna
Collaborator

The Palaeoprimatology and Human Palaeontology Group studies the evolutionary history of humans and primates through the remains found in the fossil record, focused on the evolution of locomotor adaptations, changes in physiological traits, maturation processes and longevity as well as cognitive abilities based on brain volume. The results of this **research have led, over recent years, to some 70 publications in top SCI journals, including one article in *Science* and two in *Nature***.

In 2011, the group obtained a **new R&D Project** from the Ministry of Science and Innovation (MICINN, currently the Ministry of Economy and Competitiveness, MINECO) entitled "**Evolutionary History of the Primates from the Palaeogene and Neogene of the Iberian Peninsula**" with funding of €205,700, and continued to lead the project "(*Hominoidea*) of the Miocene Mediterranean area: origin, palaeobiology and evolution. HOPE", for the period 2008-2011.

The group published **8 papers** in major **SCI** journals, including the ***Proceedings of the National Academy of Sciences USA*, the Journal *of Human Evolution,*** the ***Journal of Vertebrate Paleontology*** and the ***American Journal of Physical Anthropology***, among others. In addition to research, the group taught on the **Masters of Vertebrate Palaeontology** at the UAB and the **Vertebrate and Human Palaeobiology module** for doctoral students from the UAB and UB.

It should be noted that in 2011 the group leader and director of the ICP, **Salvador Moyà-Solà, received the international Fabio Frassetto award from the President of the Italian Republic,** Giorgio Napolitano, **in recognition of his research on the evolution of the apes and hominids from the Miocene of Eurasia**. The Fabio Frassetto award is offered annually and recognises research careers in the field of physical anthropology. The *Accademia Nazionale dei Lincei*, founded in 1609, is the oldest scientific academy in the world. In fact, Galileo Galilei himself was a research fellow. It is currently considered the most important cultural institution of the Italian Republic.

A study by the Palaeoprimatology and Human Palaeontology Research Group solves the mystery of the origin of the tarsal elongation in primate feet

To jump or not to jump, that is the question!

A highlight of 2011 was the publication in the ***Swiss Journal of Palaeontology*** of a study entitled *Calcaneal proportions in primates and locomotor inferences in* Anchomomys *and other Palaeogene Euprimates*. The paper proposes a new view, based on allometric analysis, of the adaptations of the musculoskeletal system of the first primates, focused on the proportions of the calcaneus (tarsus of the foot).

Traditionally, the fact that primates have a relatively longer distal calcaneus than other mammals (in relation to both the total length of the tarsus and body mass) was interpreted as an adaptation for leaping. In contrast, the Palaeoprimatology and Human Palaeontology Group at the ICP propose that **the elongation of the tarsus, in addition to being common to all primates (as in the case of lorises and orangutans, that do not jump), it is the only possible mechanism to compensate for a prehensile-adjusted foot structure.** The foot of vertebrates functions as a second-degree lever, in which the point of support (the fulcrum) moves the weight of the animal forward. A prehensile foot brings about a change in the position of the fulcrum, moving it backwards; this would lead to a dramatic reduction in speed and, consequently, to a disadvantage against potential predators. Thus, the group concludes that, to allow the lever arm of the foot to remain prehensile, the only mechanically feasible alternative in primates was to extend the part of the foot to the rear of the fulcrum, *i.e.*, to extend the tarsus.

A paper published in the *American Journal of Physical Anthropology* describes a new genus of pliopithecid primate from the Miocene: *Barberapithecus huerzeleri*

The work, entitled "*A new pliopithecid genus (Primates: Pliopithecoidea) from Castell de Barberà (Vallès-Penedès Basin, Catalonia, Spain)*" describes a **new genus of primate from approximately 11 million years ago, *Barberapithecus huerzeleri*, from 15 teeth found in the Castell de Barberà deposit** belonging to a single female. The study also took into account a premolar from a further individual. The pliopithecids have only two premolars, a fact common to all catarrhini. The most relevant feature of pliopithecid dental morphology is the so-called "pliopitecine triangle" of the lower molars, a type of relief or ridge on the surface of the tooth.

The pliopithecids were a group of ancestral catarrhini that diverged before the group split into the two current superfamilies: the cercopithecoids (Old World monkeys) and hominoids (apes and humans), the pliopithecids were the first catarrhini to spread from Africa to Eurasia in the Lower and Upper Miocene (between 23.5 and 5.3 million years ago). In the Iberian Peninsula pliopithecids have only been found in the Vallès-Penedès Basin, represented by pliopithecines and crouzelines. It is believed that in a first stage, the pliopitecines and crouzelines radiated to Asia (during the Lower Miocene) before spreading to Europe (Middle Miocene).

The extraordinary fossil record of hominoids in Catalonia becomes essential for understanding the evolution of the hominids

An article published in the journal ***Proceedings of the National Academy of Sciences (PNAS)*** entitled "Updated chronology for the Miocene hominoid radiation in Western Eurasia", has improved the dating of all of the Miocene hominoids of western Eurasia and reveals that the majority of the hominoids discovered in the Catalan deposits belong to the extinct dryopithecine group. Some of the dryopithecines of Catalonia have a number of advanced characteristics that they share with the great apes, the present-day pongines (modern orangutans) and hominins (chimpanzees, gorillas and humans): adaptations to climb the trees whilst maintaining an upright torso posture, as well as others for hanging from trees using only the arms.

The study concludes that it is highly likely that these adaptations evolved independently in dryopithecines and hominins: once in Europe, in the group that would give rise to orangutans, and again in Africa, in the kenyapithecines, the group from which gorillas, chimpanzees and humans originated.

The importance of the Catalan fossil record cannot be stressed enough as it is crucial for studying hominid evolution, and of the thirteen species of Miocene hominoids described from Eurasia (between 23 and 5 million years ago) five were found in the Vallès-Penedès Basin, including the unique partial skeletons found in Eurasia.

The ICP has described a new species of primate, *Anchomomys frontanyensis*, from more than 200 fossil dental specimens found in Sant Jaume de Frontanyà (Berguedà).

A study entitled "New *Anchomomys* (Adapoidea, Primates) from the Robiacian (Middle Eocene) of north-eastern Spain. Taxonomic and evolutionary implications" and published in the ***Journal of Human Evolution***, presents a new species of prosimian, ***Anchomomys frontanyensis,*** belonging to the adapiform group. This prosimian became extinct about 20 million years ago, was similar in appearance to today's lemurs and weighed between 110 and 150 grammes. The availability, for the first time, of all the teeth enabled in-depth phylogenetic analysis. It had been speculated that *Anchomomys* could be related to modern **strepsirrhines** and, therefore, would be a sister group to all the present-day non-tarsier prosimians. This study refutes this idea and suggests instead that *Anchomomys* might be related to Asian Asiadapinae groups.

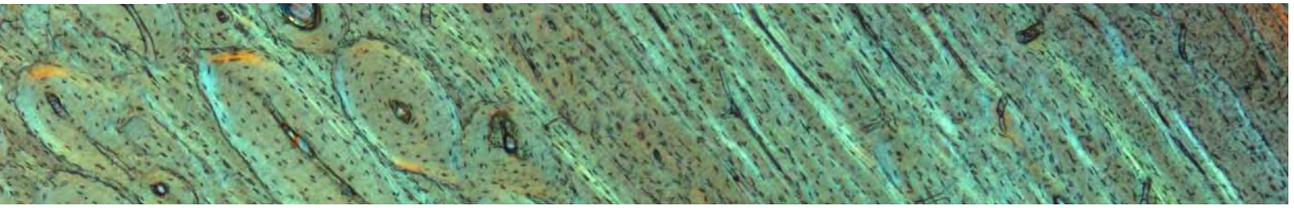
The finding was made possible thanks to the discovery of more than 200 fossil dental remains, averaging approximately 1 mm in size, in Sant Jaume de Frontanyà. This 40.5 million year old (Middle Eocene) record is currently the world's richest regarding remains of these small prosimians. In fact, in 2010 Sant Jaume de Frontanyà gave up the remains of another new species named *Pseudoloris pyrenaicus* and described in a paper published by the same researchers in the *American Journal of Physical Anthropology.*

Scientific Illustration

The ICP Illustration, included within Palaeoprimatology and Human Palaeontology, aims to produce scientific drawings to be included in the Institute's research work and publications.

The illustrations are very useful as they describe in precise and minute detail the anatomy of the fossils observed, putting emphasis on important diagnostic characteristics. At the same time they allow three-dimensional aspects of the specimens to be highlighted which a photograph could not show.

Palaeobiology



Meike Köhler
Head of Group

Gabriele Macho
Researcher

Xavier Jordana
Juan de la Cierva Researcher

Soledad de Esteban
Cayetana Martínez
Research associate

Nekane Marín
Blanca Moncunill
Predocs

Laura Fernàndez
Rubén García
Laboratory technicians

The Palaeobiology Research Group at the ICP is one of the international reference groups in palaeohistology for the study of island fossils and large vertebrates

Paleobiology is the part of biological sciences that deals with life in the past. The general aim of the ICP Palaeobiology Group is to study the effects of energy availability as a key selective pressure in mammalian evolution. Special attention is paid to the evolution of physiological and life-history traits in environments with low resource levels such as islands or deserts.

One of the main tools of the ICP Palaeobiology Group is the histological analysis of hard tissues (teeth and bones). Histology provides valuable insights into aspects of the life histories of mammals such as the age of weaning and sexual maturity, longevity and growth rates. This, in turn, allows reconstruction of evolutionary trends in the demography of populations, which has direct implications for **the prediction of extinction risks for present-day species**.

In 2011, the group developed a **database of the bone histology of wild ungulates** from Africa and Europe. The importance of this resource of research data, unique in the world, is that it contains a high number of samples which include **ecological and physiological data on the original individuals**.

In 2011, the competitive projects of the "National Plan for R&D: Fundamental Research Projects", from the Ministry of Science and Innovation (MICINN), have made progress in the study of the influence of limited environments and seasonal factors on mammal evolution and dietary strategies that evolved to overcome seasonal resource limitations in the course of the life cycle

In 2011 the group was awarded the MICINN project "Evolution of mammalian life histories in energy-limited environments: a palaeobiological approach", as well as international funding for the project "Dietary ecology of Cross River gorillas from stable isotopes in hair and faeces -potential as a referential model for hominin ecology and life history evolution" from the **Leakey Foundation**. In addition, the Palaeobiology Group continued working on the projects running in 2011: "The evolution of life history patterns in fossil and recent insular and continental mammals: a comparative approach" and "Life-history strategies in primates: effects of diet and seasonality on ontogenic morphological changes and functional efficiency in sympatric apes and hominids".

A study demonstrates that *Myotragus balearicus* needed twice as long to reach maturity as a modern-day goats

One of the most significant species in palaeobiology is the goat *Myotragus balearicus*, a paradigm in the field of science. It is a mammal of the subfamily *Caprinae* which was very common in the Balearic Islands and which became extinct 5000 years ago. This goat had certain unique characteristics as a result of a long process of insular evolution.

An article entitled "Enamel microstructure in the fossil bovid *Myotragus balearicus* (Majorca, Spain): Implications for life-history evolution of dwarf mammals in insular ecosystems", published in the journal ***Palaeogeography, Palaeoclimatology, Palaeoecology*** reveals that the molars of the island goat *Myotragus balearicus* grew at a much slower rate than those of present-day caprines of similar body size. These results suggest that the selective pressures of the isolated environment produced an evolutionary tendency towards a slower life cycle.

This is consistent with results obtained from a histological study of the bones published in 2009 in the paper "Physiological and life history strategies of a fossil large mammal in a resource-limited environment", in the ***Proceedings of the National Academy of Sciences***. This article in the journal *PNAS* has received many national and international acts of recognition, including being **awarded** the ***'Paleonturología 10'* prize** by the Fundación Conjunto Paleontological Dinópolis Teruel, Teruel Foundation Siglo XXI and Dinópolis and the **UAB Prize for Excellence in Research 2010 which was awarded to Meike Köhler.**

It is also necessary to mention the publication "**Myotragus: energetic economy in evolution",** disseminated through ¡*Fundamental*! by the Fundación Conjunto Paleontological de Teurel - Dinópolis and written by Meike Köhler and Salvador Moyà.

***Nuralagus rex*, the giant rabbit of Menorca, weighed 10 times more than a modern rabbit, it could not jump and moved with the palms of its hands flat on the ground**

According to the study "*Nuralagus rex, gen. et sp. nov.,* an endemic insular giant rabbit from the Neogene of Minorca (Balearic Islands, Spain)", published in the ***Journal of Vertebrate Paleontology***, the giant rabbit of Minorca lived about 5 million years ago, **weighed between 12 and 15 kg**, had small eyes and brain and **moved with the palms of the hands flat on the ground, a characteristic of plantigrade animals** like the bear and certain primates. In addition, the ears of *Nuralagus rex* were small external auditory canals, suggesting that its hearing was not very good, as is the case in domestic rabbits, and that it lived in a much safer environment than the continental rabbits.

Such an important size increase **allowed this leporid to improve its energy budget**, because it confers an increased capacity to deposit fat as a resource for times of food shortage, a longer intestine allowing more efficient extraction of nutrients from raw food, and made larger individuals more competitive within the same species.

The work describing *Nuralagus rex* has been highlighted in the journal ***Nature*** and even reached the international media, including **Discovery News, National Geographic, USA Today** and **Fox** in Chicago, among others. Nationally, the giant rabbit has starred in ***La Vanguardia, Público, RTVE.es and ABC***, and on a humorous note, this scientific story was also mentioned in the TV show ***Buenafuente* on *La Sexta***.

The ICP Palaeobiology Group has developed a new mathematical formula to calculate the body mass of bovids

The paper "New equations for body mass estimations in bovids: testing some procedures when constructing regression functions", published in ***Mammalian Biology,*** presents a new mathematical formula for calculating the body mass of a bovid from two parameters in both extinct and extant animals: the thoracic perimeter and the length of head and body. This new formula corrects for some of the difficulties and inexactitudes of previous methods.

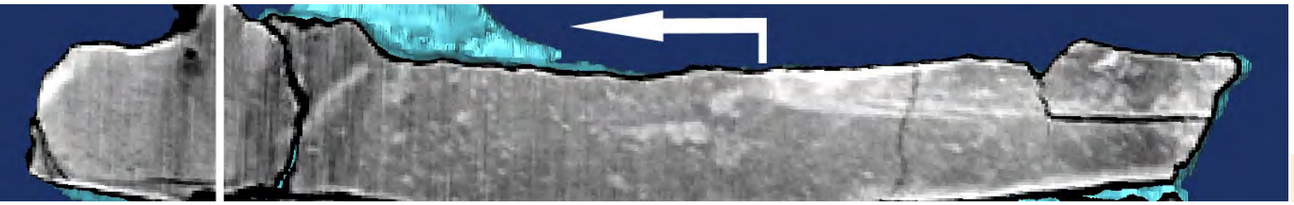
The body mass of extinct vertebrate species helps to uncover information on their palaeobiology and spatial distribution as well as **evolutionary and genetic relationships.**

In present-day wild species, the body mass helps to **understanding the needs of a population and its short-term fluctuations**, such as, for example, deducing the area necessary to maintain a viable population of an endangered species.

The First International Symposium on Palaeohistology, organised by the ICP, brings together, for the first time, the international scientific community in the field of palaeohistology

In July 2011, the Palaeobiology Group organised the *First International Symposium on Palaeohistology* (ISPH 2011) at Sabadell. This was the first conference to **bring together the most important international groups in the field as well as a hundred researchers in the field of the palaeohistology** of fossilised hard tissues **from around the world**.

Virtual Palaeontology



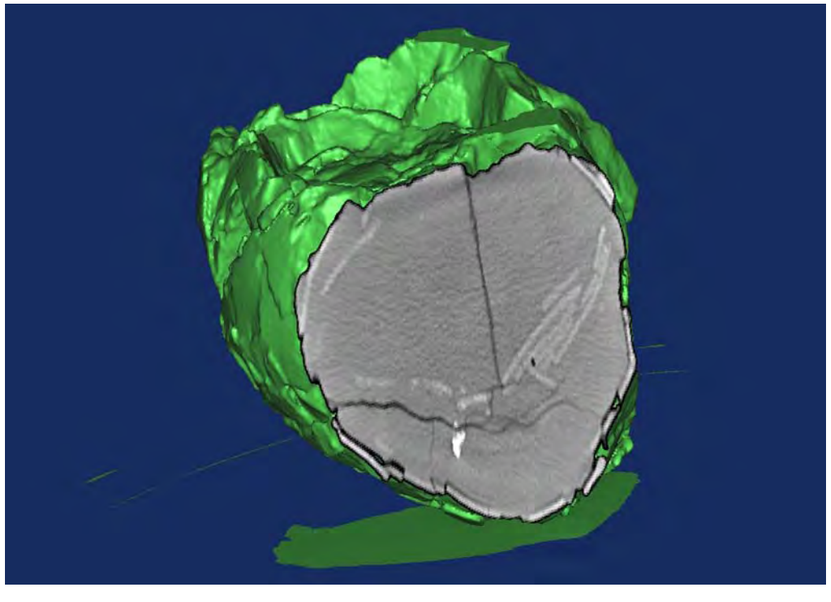
Josep Fortuny
Coordinator

Virtual palaeontology: a reference for ICP research

The **Virtual Palaeontology** Research Group applies **scanning techniques** to palaeontology, principally **laser systems and Computed tomography (CT),** which allow more precise and unprecedented results to be obtained from fossil specimens. These techniques, which come from the fields of **medicine and engineering**, are enabling a new dimension in palaeontological research while at the same time improving systems of fossil representation.

The tools of virtual palaeontology process large volumes of information from fossil specimens without causing them to be altered in a physical way as these are **non-invasive techniques**. The Virtual Palaeontology Group works principally with **bi- and tri-dimensional** fossil models, which reveal the internal and external morphology of the specimen and histological (tissue) features. From the biometric data generated by the digital analysis, surfaces or volumes can be measured both from the external and internal regions of fossils without causing any physical alteration.

Another possibility offered by virtual palaeontology is the creation of **virtual models**, which form the basis for computer simulations, and which include the **Finite Element Method** (FEM), from which the biomechanical capabilities of fossil organisms can be studied.



The ICP works with universities and institutions in the fields of engineering, physics and metallurgy

In 2011, the Virtual Palaeontology Group maintained their constant and permanent research with the Particle Physics Department of **Santiago de Compostela University** and the **AIMEN Technology Centre** in the field of industrial computed tomography. The team has been working on the setting up of industrial tomography equipment in the ICP facilities in 2012. This equipment will mean that at a national level the **ICP will be the palaeontological centre of reference for digitalisation and industrial tomography** with many possible applications, both in the public and private sectors.

In 2011 the group also continued to work with the Laboratory for the Technological Innovation of Structures and Materials (LITEM) at **BarcelonaTech (UPC)**. They generated bi- and tri-dimensional models using techniques such as computed tomography to make biomechanical simulations of fossil taxa and increase related palaeobiological knowledge.

Methods from the field of engineering are increasing the scientific production of the ICP

The scientific results obtained have been presented at various **national and international conferences,** not only in the field of palaeontology, but also civil engineering. Notable among these was the Conference of the **Society of Vertebrate Paleontology** (Las Vegas, USA) as well as the **International Conference on Civil, Structural and Environmental Engineering Computing** in Stirlingshire (UK).

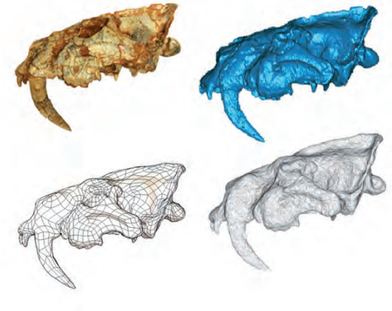
The Virtual Palaeontology Group also participated in the "Introductory Course on Conservation and Preparation Techniques in Palaeontology", run by the ICP Preparation and Conservation department **for students from around the country**. They presented the unit "**New technologies applied to research**".

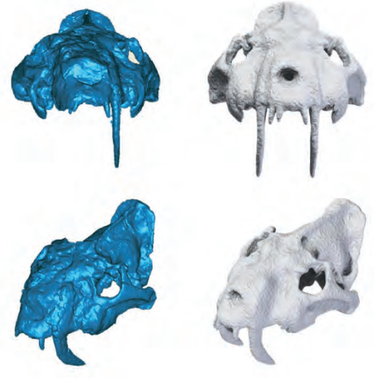
In 2011 this research group produced 10 scientific articles, including **3 SCI papers** in the top quartile for palaeontology and ecology. This research was possible thanks to digital techniques.

Of particular note is an article published in the ***Journal of Evolutionary Biology*** entitled "Temnospondyli bite club: Ecomorphological patterns of the most diverse group of early tetrapods", in which collaborative work with engineers at the UPC used finite element analysis (FEA) to **increase our understanding of the feeding ecology of the first tetrapods**, a group of animals which abandoned the aquatic medium and began the conquest of the land.

In addition, two **papers were published on results obtained using computed tomography techniques**. The first work, entitled "A new capitosaur from the Middle Triassic of Spain and the relationships within the Capitosauria", and published in the journal ***Acta Palaeontologica Polonica*** enabled the **digital reconstruction of the cranium of a capitosaur from Montseny** and a very detailed description of its anatomical features.

The second article, entitled "MicroCT-scans of fossil micromammal teeth: re-defining hypsodonty and enamel proportion using true volume" and published in ***Palaeogeography, Palaeoclimatology, Palaeoecology,*** describes a **new, non-invasive method** to increase the understanding of the **relationship between enamel and dentine** in the **teeth of small rodents**, allowing **palaeoecological inferences** to be made.





The ICP Museum

3

The ICP Museum

Dissemination from the ICP: 18,865 people visited the ICP Museum in 2011

Laura Celià
Coordinator

Jordi Balaguer
Educational and Dissemination Activities

Teresa Esquirol
Head of Archives and Documentation

Teresa Requena
Archivist and Documentalist

Mònica Cucurella
Maria Pereira
Reception and Shop

Located in Sabadell, **the ICP Museum organises and promotes palaeontology dissemination activities,** allowing the **general public, children and adults, to get up close to palaeontology through interactive exhibitions, videos, workshops and other family and school activities**. Hundreds of families, students and children, mainly of primary and secondary age, enjoyed the facilities during 2011.

For this reason, it can be said that the ICP is much more than just a research centre, as it **disseminates and encourages scientific culture in the community in general.**

- **18,865 people visited the ICP in 2011.**
- **The ICP Museum: committed to everyone** (contact with **ONCE** for the review of materials for the blind).
- The **exhibition "Original or replica?"**, a challenge for families and schools: to discover which fossils are original and which are reproductions.
- **Interactive Miquel Crusafont: bringing together tradition and technology** (game developed by the Directorate General for Research and the UPC).
- **Temporary exhibition**: a **journey** through all the apes found in Catalonia, sponsored by **UNNIM**.
- The ICP also promoted the **Paleontological Film Series: discussion, film and culture** for all ages.
- The **ICP ramblers:** excursion through the surroundings of Sabadell, organised by the Sabadell Ramblers Union and guided by ICP staff.

The ICP Museum has collaborated with various institutions to disseminate science

- Exhibition "Living Planet", at the Museu Blau.
- Exhibition "Made in Sabadell", at the Museus de Sabadell.
- Participation in several meetings for the project "*Terra de dinosaures*".

The ICP Museum activities: uniting learning and dissemination

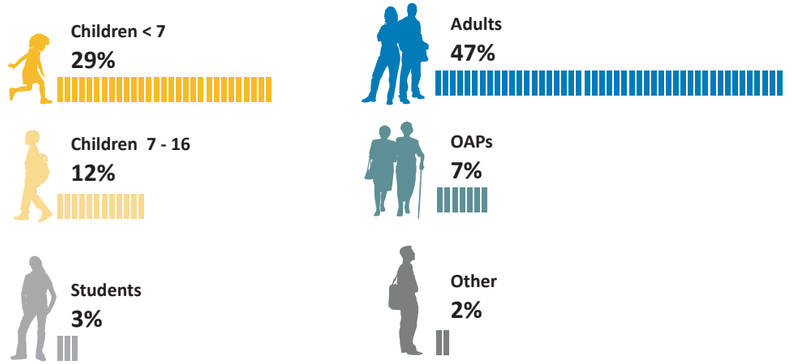
- Guided tours (schools and weekends).
- How did dinosaurs live? Workshop for pre- and primary school children.
- The dinosaurs of the Pyrenees. Workshop for primary and secondary schools.
- Long canines: how do we study carnivores from the past? Workshop for students from intermediate and upper primary, secondary and further education.
- Today we're at the ICP, but... where did we come from? Workshop for secondary schools.
- Where did we come from? Apes. Workshop for further education and training courses.
- The fauna of Hostalets de Pierola. Workshop for secondary and further education.
- The smallest of all. Workshop for pre-school and lower primary students and families. Adapted for the blind.
- The "why" of shape. Workshop for further education and training courses
- Tiny goats and giant rabbits. Workshop for further education and training courses.
- Claws, nails and hooves. Workshop for pre- and primary school.
- Christmas, Easter and summer clubs. For children of all ages.
- Many (millions of) happy returns of the day! To celebrate the anniversary of the Museum.

Table of total visits in 2011

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schools	875	950	907	703	892	597	0	0	0	354	548	344	**6.170**
Specific Activities	26	25	20	0	71	0	189	0	0	0	0	0	**331**
Exhibition	1554	1280	1414	1177	939	598	917	0	1580	693	647	745	**11.544**
Weekend	108	140	81	93	80	97	0	0	34	37	63	87	**820**
Total	**2563**	**2395**	**2422**	**1973**	**1982**	**1292**	**1106**	**0**	**1614**	**1084**	**1258**	**1176**	**18.865**

Everyone visits the ICP Museum!

Parents and children: the stars of the Museum



The Catalan apes: future renewal of the ICP Museum exhibits

This project proposes a **journey through the evolutionary history of the diversity of hominoids and other primates found in the Vallès-Penedès basin**, to explain the origin of our family. The renewal of the first floor exhibition, which is valued at €90,000, has a €10,000 grant from the Unnim *Obra Social*.

Research Support

4

The ICP is more than just a research centre: it works in various technical fields which, thanks to the high level of professional expertise, offer a set of services to other public and private organisations and **training to researchers, cultural heritage managers and specialist palaeontological restorers.**

THE ICP PREPARES PALAEONTOLOGICAL SPECIMENS AND UNDERTAKES OSTEOLOGICAL MATERIAL IN GENERAL

The ICP workshop specialised in the preparation and conservation of palaeontological specimens and osteological material in general is the most important in Spain and one of the most important in Europe. This service offers the possibility of restoring and preserving these materials, with the aim of collaborating in the preservation of the palaeontological heritage of this country.

THE ICP CONSERVES COLLECTIONS

The Conservation of Collections department is, within Spain, innovative and at the forefront of the conservation of natural and cultural heritage, as is evidenced by the “First Conservation Workshop: Finding global solutions for Natural History Collections”, 2009.

This department has introduced techniques and procedures into Spain that were previously not used in this country, and currently offers evaluation in the field of the conservation of natural sciences collections.

THE ICP ORGANISES PALAEONTOLOGICAL ACTION

Our experience with palaeontological activities – prospecting, excavating and sampling of microfauna, geological mapping, *etc.*– allow us to offer our human team as a resource for carrying out any kind of palaeontological activity related to public or private work.

THE ICP WORKS WITH VIRTUAL PALAEONTOLOGY AND IMAGE ANALYSIS

The research of the Virtual Palaeontology department crosscuts that of the other ICP departments and at the same time offers services to external institutions and companies through its computerised tomography equipment.

There is currently no industrial computed tomography equipment Catalonia. The launch of two sets of tomography equipment (industrial CT and microtomography) at our centre will redress this shortcoming and enable other institutions and companies to have access to this equipment for their own use. Diverse industrial sectors (*e.g.,* construction, metallurgy, engineering and automotive) could potentially use these machines for the x-ray inspection of their products and quality verification without causing any damage. Industrial radiography for the evaluation of merchandise is becoming an increasingly important tool for industry.

Preparation and Conservation Department

This department continues to position the ICP as a global reference for palaentological prepartaion and conservation.

Sandra Val
Head of department

Carolina Cancelo
Núria Guerrero
Domingo López
Marta Valls
Preparators / Curators

The ICP Preparation and Conservation Department prepares, restores and conserves scientific and cultural collections, particularly from palaeontology and the natural sciences.

At the same time, and in keeping with **the centre's tradition of dissemination**, the preparation laboratory undertook **several school visits and filming** with the aim of showing the work of curators and preparers to the general public.

Making of casts and copies: indispensible for researchers and dissemination

Palaeontological copies avoid the constant handling of original fossils by researchers. In this respect, replicas are a **tool to exchange with other research centres and are also the basis of the teaching exhibits in the ICP Museum**.

In 2011, the department prepared more than **900 fossil remains** and **actively collaborated with the Natural History Museum of Barcelona (MCNB) on the:**

- preparation of content for the exhibition "The World of Fossils", an interactive area with a replica of the hand of Jordi (***Hispanopithecus laietanus***).
- restoration of palaeontological specimens.
- preparation of a copy of the skull and jaw of ***Myotragus balearicus*** for the recently inaugurated Museu Blau.

The preparation and conservation staff of the ICP: at the forefront of new techniques and a reference for centres around the world

The ICP Preparation and Conservation department **stays up-to-date** so that it can reincorporate new advances for specific problematic and complex preparations, **in order to guarantee good future conservation** of the fossil remains. There is constant **contact with palaeontological preparation laboratories in other countries to exchange information and learn about new techniques.**

In 2011 highlights were:

- the preparation of Triassic fossil remains, including from a matrix which was particularly difficult to eliminate.
- the preparation of dinosaur egg shells for electron microscopy studies.
- new reproduction materials for electron microscopy studies of dentition.
- the development of new wrapping techniques for very delicate and large pieces. The incorporation of new materials made other systems obsolete. The new wrapping will be much more respectful of the ICP collection.

The ICP is the only centre in Spain which trains professionals in the field of palaeontological preparation and conservation

In 2011, the Conservation and Preparation Department continued to offer **practicals** for **Conservation and Restoration students** from the **Escola Superior de Conservació Restauració de Béns Culturals de Catalunya** and the **Faculty of Fine Arts at the University of Barcelona (UB)**. Palaeontological conservation and preparation is a field in which there is no training in Spain. The **ICP** has become **the only centre that offers this training possibility for professionals**.

In 2011 the team ran the ICP "**Introductory Course on Conservation and Preparation Techniques in Palaeontology"**, taught by the department's preparation staff. The course covers mechanical and chemical preparation techniques, systems for reproduction and preventive conservation of a collection with the production of support for fossil remains. The **success** of the course, which involved **students from all over the country**, means that **the course will be rerun in 2012**.

The Museu Blau whale: a complex and laborious restoration undertaken by the ICP

The whale *Balaenoptera physalus*, an emblematic specimen which for more than 30 years hung in the old Natural History Museum in Ciutadella Park, **was restored by the ICP's conservation and preparation team** in 2011, following damage suffered during the dismantling of the old exhibition.

The restoration involved the **removal of the paint layer, degreasing, and the cleaning and strengthening of the entire skeleton**. The **skull was completely rebuilt**.

The ICP provides a tailor-made course for work on the exhumed remains of Don Simón Bolívar

In 2011 the **ICP** Conservation and Preparation Department designed and ran the "**Course on Conservation and Restoration of exhumed Remains**" to advise and train a delegation of Venezuelan **forensic doctors** who, during 2011, worked on the exhumed remains of Don **Simón Bolívar**

This course, requested from the ICP by the Vice-President of the Venezuelan government, was part theory and part practical and ran from May 1-6, 2011.

The conference *"II CONSERVATION WORKSHOP - Natural History Collections"*: a unique working area "made in the ICP" for conservation and preparation staff from around the world

In 2011 the **2nd edition** of this **conference created by the ICP Conservation and Preparation Department** was held. Through lectures, workshops and fieldtrips, **professionals from different international institutions were able to exchange knowledge and working methods** in this exceptional event.

The ICP team presented two papers: one on the **restoration of the skeleton of the elephant "Avi", the first *Elephas maximus* in Barcelona**, and the second on the **preparation of the largest clutch of dinosaur eggs from Europe.**

Other courses and conferences in which the department participated include:

"Recovery, treatment and conservation, of bone and ivory" a training course co-organised by the **Palència Museum** and the **government of Castilla y León**. The **ICP** team gave a presentation entitled "**Reproduction techniques for bones and teeth**".

Collections Management Department

The diversity of our fossils is fundamental for research

Laura Celià
Head of department

Marta March
Collections Management technician

Xavier Oller
Collaborator

The Collections Management Department preserves natural and cultural heritage using the most cutting-edge technologies in the country. Thanks to the work of technicians and volunteers in-training, the department continues to **manage the growing number of specimens in the collection and participates in conferences to present any new technology incorporated** in their daily work.

The **expertise of the professionals** who manage the ICP collection and the incorporation of avant-garde techniques make the **ICP a leading centre** in the field. At the same time, they allow the centre **to transmit knowledge to other centres and professionals**.

Members of the department ran two parts of the **"Palaeontological Heritage" course,** on the UB's **Masters in Cultural Heritage Management**. They also collaborated in the subjects "Project Design" and "Analysis of Heritage Institutions" on this Masters.

Identification by Radiofrequency: latest-generation technology in the ICP Collections

In 2011, the Collections Management department began to collaborate with the company Saident, a **pioneer in RFID technology, to incorporate radiofrequency into the inventorying and control of the collection.** This project has not been introduced into any other museum or cultural institution in Spain, and therefore any deficiencies in the collection that can be improved by radiofrequency have had to be defined, and subsequently the software has been adapted to make this fully functional.

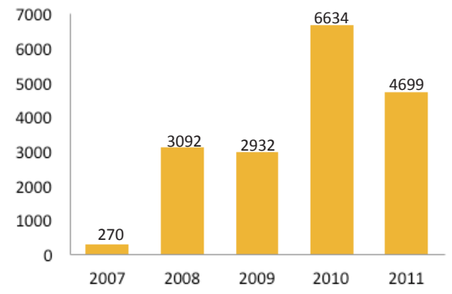
Radiofrequency works with radio waves that transmit the identity of each specimen through devices attached to the object, in response to requests from a RFID radio transmitter-receiver. Therefore, at the same time as making inventories of the collection, the **PDA detects all the fossils that incorporate RFID and the specific location of a fossil in the stores**. This optimises the resources of the department (time and personnel), and allows **searches to be made quickly and safely**.

The department has written about this new technology in the article "***How to find a needle in a haystack? Implementation of RFID as an improvement in the management of a scientific collection: the case of Institut Català de Paleontologia",*** at the European Registrars Conference, Amsterdam.

With the aim of disseminating its activity and the application of innovative tools in the field of collections, the department organised the "***II Conservation Workshop. Finding Global Solutions for Natural History Collections: From the site to the storage"*** addressed at other collections management professionals.

The ICP collection now has a total of 60,381 entries

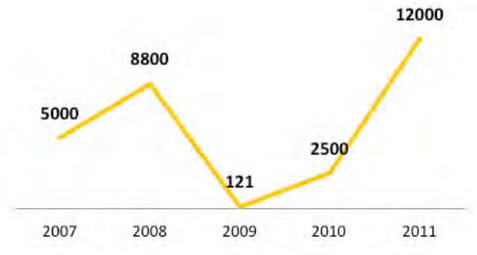
The logging and registering of fossils is the basis of our collections management; record books are the tools that allow each specimen to be controlled. Of the total 60,381 entries in the ICP collection, about 40,000 are on ***Museumplus***, the database that the Catalan government provides museums to unify the documentation of their collections.



Record of consultations to the ICP collection: 12,000 fossil consults

2011 saw the reopening of the collection to researchers as it had remained closed due to the remodelling of stores. During the year **92 requests have been responded to**, which have involved the consultation of more than 12,000 fossils. This is **the highest frequency of queries in the history of the centre, highlighting once again the importance of the ICP collection**.

ICP fossil consultations increased spectacularly during 2011



The ICP has loaned out 120 fossil specimens for study and 26 for exhibitions

In 2011 some fossils left the centre to be the objects of study or for exhibitions. A total of 120 specimens were loaned out for research purposes. 26 pieces were also lent for exhibitions in:

- "Made in Sabadell" exhibition**,** organised by the **Sabadell Museums.**
- "*T. rex*, the killing question" exhibition, organised by the **Science Park** in **Granada**.
- "Living planet" exhibition, organised by the **Museu Blau**.

The importance of preventative conservation of fossils: new wrapping at the ICP

In 2011 the ICP activated its own wrapping protocol with the Conservation and Preparation department. Convinced of the importance of preventative conservation, it been working **with new materials and procedures** and training staff from the department **to create new protection systems**.

The new compact ICP: some of the most modern and complete facilities in Catalonia

With the new building, the ICP has a modern and integrated space for the storage of natural science collections. This is one of the best places in Catalonia for keeping this kind of collection. Once the work and the installation of new compact cabinets was finished, **it was necessary to rethink the distribution of nearly 150,000 fossils, looking for the most appropriate organisation for both scientific criteria (deposits and taxa) and preventive conservation (size and fragility of the pieces).** As each fossil is relocated, its entry in the records and Museumplus must be modified.

Paleontological Depository and Outcrops

The Palaentological Depository and Outcrops Department contributes to the ICP's involvement in the territory, defence and knowledge of the catalan palaentological deposits

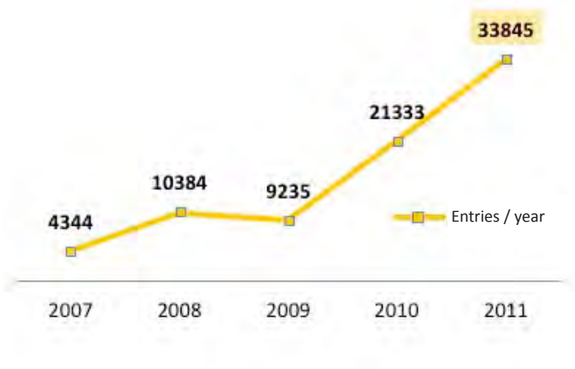
Jordi Galindo
Head of department

The main aim of the Palaentological Depository and Outcrops Department is to manage the entry of fossils from the palaeontological activities of the ICP into a provisional repository for study.

In 2011 the ICP added a total of **33,845 specimens** from palaeontological activities, a figure which represents an increase of 63% compared with the previous year. Since 2007, **79,141** examples have entered into the provisional repository, meaning that the total number of elements making up the collections now stands at around **250,000 specimens** (248, 947 individual examples).

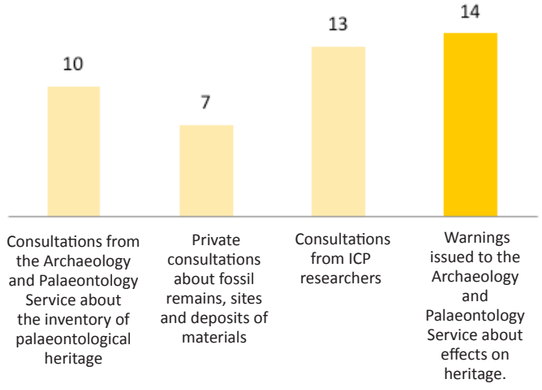
In terms of losses from the ICP collections, 154 **dinosaur fossils remains have gone to create the definitive repository of the Cercs Mining Museum**. These specimens were found around the towns of Cercs, Fígols, Vallcebre and Saldes.

In 2011 the ICP recorded the largest ever intake of fossil remains with a total of 33,845 specimens



Another **purpose of this department is to ensure and protect our heritage and prevent its destruction in construction or engineering work with no paleontological control.** To this end, the department issues warnings about possible effects on vertebrate fossil deposits and deals with inquiries about the inventorying of these sites.

In 2011, a total of 30 consultations were given and 14 warnings were issued about the protection of palaeontological heritage



The ICP teaches museum creation and the management of palaeontological deposits on Masters and other courses

In 2011, the Palaentological Depository and Outcrops Department **taught various parts** of the *Palaeontological Heritage* subject for students on the **UB's Masters in Cultural Heritage Management**. This Masters provides theoretical and practical knowledge of heritage management and tools to develop projects of museographic and heritage development projects.

The department has also brought its expertise on this subject to the **Masters of Vertebrate and Human Palaeobiology of the inter-university Palaeontology Masters**. An introductory class on palaeontology was also given on the "**Introductory Course on Conservation and Preparation Techniques in Palaeontology**" created by the ICP Conservation and Preparation Department for students from all over the country, and the ***II Conservation Workshop***, in which the Palaentological Depository and Outcrops Department moderated two roundtable discussions, one on **"Extraction systems and removal from palaeontological sites"** and another on **"The conservation of palaeontological deposits".**

The ICP collaborated with various institutions and town halls to promote the conservation of deposits and the improvement of museums

In 2011, the town hall of Hostalets de Pierola (Anoia) and the ICP began to **collaborate** with the aim of promoting and disseminating information about the 200 Miocene deposits registered in this area. The future Hostalets Palaeontological Centre will **aim to attract palaeontological tourism and publicise the history and evolution of this set of internationally interesting scientific and heritage sites**. It is necessary to remember that the fossil remains of ***Pierolapithecus catalaunicus*, popularly known as Pau,** were discovered in one of these sites. Pau, at 12 million years of age, is considered to be the common ancestor of humans and present-day great apes.

The ICP will be the scientific adviser for the exhibition content and the educational activities, linking them to the research conducted by the centre. The agreement between the ICP and the town hall of Hostalets de Pierola should serve to promote **the town with regards to the future *Palaeontological Centre of Hostalets.***

Other management and advisory activities included **the Conca Dellà Museum** (Isona i Conca Dellà) and the **Palaeontology and Environment Consortium** (Coll de Nargó). The ICP has submitted proposals to the respective councils for the **improvement of the museography and conservation of deposits** (such as the dinosaur deposits from **Coll de Nargó**). Currently, this town hall is considering the future possibility that the ICP becomes part of the Palaeontology and Environment Consortium.

The agreement between the **ICP, the IDAPA**, the **Conca Dellà, *Ruta Minera* Consortium and the town hall of Coll de Nargó promotes research on, and the conservation and dissemination of the Dinosaurs of the Pyrenees,** with the involvement of the provincial councils of Lleida and Barcelona

Finally, mention must be made of the exhibition "*Tyrannosaurus rex, ¿hunter or carrion eater?"* at **the Science Park of Granada**, to which the ICP provided palaeontological material via a collaboration agreement.

The ICP: committed to dissemination on the palaeontological deposits of Catalonia

The Palaentological Depository and Outcrops Department, in addition to providing scientific and technical services on sites and dating with palaeontological methods, has actively participated in the Wikipedia "*Viquiprojecte:PaleoCat"* project, creating **an inventory of the major fossil vertebrate deposits found in 60 Catalan municipalities,** grouped by county, and with the aim of providing the best possible representation of the territory. The "***Paleocat"*** project is **aimed at creating and disseminating quality palaeontology content on the Wikipedia platform**.

In a similar way, the department participated in the **selection of 17 of the most representative palaeontological deposits** and content for the explanatory sheets on the sites for the educational project, the "**Catalonian Fossil Bestiary"**, which explains the wealth of the Catalan fossil record.

Communication and Scientific Dissemination Department

Sílvia Bravo
Head of department

The ICP Communication and Scientific Dissemination department (DC2) has the following objectives:

- To provide information about the ICP as a centre of reference in Catalonia for palaeontological research, conservation and dissemination.
- To support the positioning of the ICP in the international scientific community.
- Provide communication and dissemination support to the various scientific, educational and technical ICP projects.

To achieve this, the DC2 has designed a communication and promotion strategy based on **diversification of formats, channels and audience**.

The ICP in the headlines

Communication in the media

The research and technical activities of the ICP continuously generate scientific and communication articles, important fossil finds and new techniques which make it a pioneering institute in palaeontology on the world stage.

Additionally, in the excavation associated with this discipline, the ICP works on the country's most important deposits.To publicise all of this activity, the DC2 **writes and distributes press releases and is in contact with journalists and other science communication professionals** to ensure the promotion of current ICP news in the various, predominantly state and Catalan, media.

In 2011, the ICP generated 79 new articles, ten or so of which were sent as press releases. In addition, in the cases of around sixty of these news articles, action was taken to communicate the information on a more local or specialised level. **All of this has led to the ICP and its research being broadcast in news articles and TV and radio programmes in almost a hundred different media channels**. These include the Catalan and Spanish press as well as local and international media. Also remarkable, and constantly growing, is the diffusion through social media, blogs and other digital channels.

A particular highlight was the impact of the article describing the giant Mallorcan rabbit *Nuralagus rex,* which was picked up by about twenty Catalan and Spanish news agencies, as well as a similar number of international media channels.

Every Monday, some 11,000 listeners follow "The Time Traveller" section on the Ràdio Sabadell programme "A Bona Hora". Additionally, the contents can be listened to à la carte ***on*** ***http://www.radiosabadell.fm***

In the autumn of 2011, the ICP began a **weekly collaboration with the Radio Sabadell programme** "***A Bona Hora"***, in the section called "The time traveller". Every Monday at 11:30 am for about twenty minutes, an ICP researcher talks to the presenter of the show about a topic in palaeontology. According to the "Communication Barometer", Radio Sabadell has an average of around 22,000 listeners, about 11,000 of which listen at the time this morning magazine programme goes out.

The ICP is open to everyone

The ICP webpage and bulletin

The ICP news, as well as details about its team and the different projects it is participating in, are gathered together in its digital channels: the **webpage and bulletin.**

From the home page of the website, one can get to know everything that is happening at the centre and in each of the sections you can find out more about the people and projects.

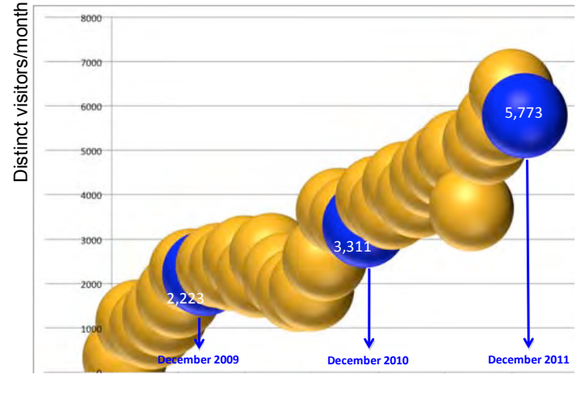
In 2011 the ICP webpage saw an 80% increase in the number of visitors with respect to 2010. This increase is due to more regular updating of the content, particularly news items, as well as to mini-sites for three events organised by the ICP: the Second Conservation Workshop, the First International Symposium on Palaeohistology (http://www.icp.cat/ISPH2011) and the conference of the *Sociedad Española de Paleontología* (http://www.icp.cat/SEP2011).

The ICP webpage received more than 5,000 monthly visits, with an average growth of 81% compared to visits in 2010

The readers of the ICP webpage come from around the world, but particularly important are the visitors from the **USA, Germany and Italy.**

Every month the DC2 publishes the ICP Bulletin which contains the most important news from the preceding weeks. In December 2011 this bulletin reached a total of 586 subscribers for the Catalan edition with a further 90 in Spanish.

The number of subscribers has increased 46% during 2011.



The ICP on the lips of all

Diffusion via the Web 2.0

In 2011 the ICP increased its presence on the internet, consolidating its Facebook page, opening a new Twitter account and redefining its strategies on YouTube and Flickr.

Communication on Facebook is in Catalan and in December 2011 the ICP page had 2353 followers, an increase of almost 60% over December 2010, when it had 1,500 fans.

The new Twitter channel was launched in October 2011 and is in English. The goal is to reach a specialised audience, both palaeontologists from around the world and specialist journalists from the national and international media. It is still too early to make a clear assessment, but the number of followers increases every week, and they seem to be fairly much from the intended the target audience.

In 2011 the ICP YouTube channel was redesigned to fit the ICP brand and become a multilingual channel to support the DC2 strategy for the public. By December 2011, the number of views had already reached 126, half being from Spain, but importantly with more than 10% of visits being from the U.S.A., UK and France.

The ICP has improved its Web 2.0 strategy, diversifying its followers and formats, but always under the institutional umbrella and as a support tool for communication and dissemination from the centre.

The ICP in other formats

Catalonian Fossil Bestiary

Beyond direct communication, to announce specific research, projects or activities, the ICP directs palaeontology dissemination projects on the internet aimed at explaining research results in an attractive manner and making use of new formats.

The ICP project, the "Catalonian Fossil Bestiary" is the creation of an interactive web-based digital product, to provide information on the palaeontological deposits in Catalonia through research results obtained during their excavation and study: the vertebrate fossils found in these sites and what we have learnt about the climate and vegetation of Catalonia at different geological times. This project has funding from the government of Catalonia, though the 2011 ACDC call.

This project is currently being developed and its publication and distribution on the internet is planned for April 2012.

The Catalonian Fossil Bestiary gathers together detailed information from 17 deposits and more than 100 taxa, which are representative of the wealth of the Catalan fossil record.

The ICP Volunteers: participating and learning through ICP-organised activities

The ICP volunteers came about as a response to the many requests to participate in the various activities of the centre. It is a programme which allows learning while at the same time providing interesting experiences related to the world of palaeontological research, conservation and dissemination.

Formal registration to be part of the **ICP volunteers programme takes place via a small contract between the institution and the person who wishes to participate in the project, with a two-fold objective**. Firstly, it is **the volunteer themselves who decides** how many hours they can commit to the ICP, and secondly, it ensures the institutional **recognition** of this collaboration. In addition, all of the volunteers join the **Members of the ICP** programme which gives them the right to visit the museum for free and as many times as they wish, discounts in the museum shop, invitations to events and activities organised by the ICP, such as talks, excavation visits, *etc.,* and a subscription to the monthly electronic bulletin, amongst other things.

In 2011, 13 volunteers formalised their commitment to this programme, collaborating for between 3 and 12 months. The volunteers **participated in the management of the museum collections, in excavations and the selection and cleaning of sediments subsequent to fieldwork, as well as in Web 2.0 communication projects.**

Projects Department

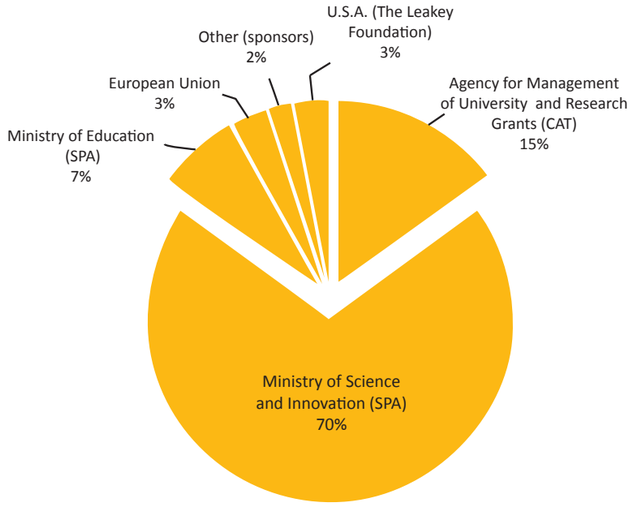
Laila Pilgren
Head of department

In a difficult year for research, in 2011 the ICP managed to win numerous competitive grants. These include **4 research projects from the National Plan for R&D led by researchers from our centre**. Each of them is for 3 years, **ensuring the continuity of the current ongoing research.**

Also during 2011, **the ICP incorporated one doctoral and two pre-doctoral students thanks to a *Juan de la Cierva* grant** (Ministry of Science and Innovation) **and FPU and FI awards** (Ministry of Education), a fact which **significantly increased the number of scientific publications in top SCI journals.**

Other grants (mobility, PAS, BE, AIRE-CTP and Synthesys) have enabled ICP researchers to undertake stays at international research centres, **boosting collaboration with several centres of excellence.**

In 2011, 70% of funding for ICP research projects came from the Ministry of Science and Innovation (MICINN)



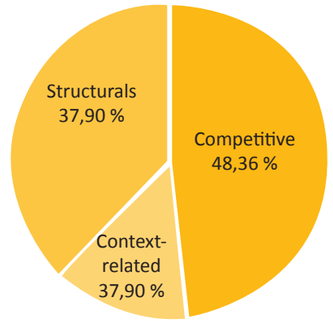
Contracts and service provision in 2011

Shops sales	29,403.96
Payments by schools	12,247.63
Conference organisation	29,713.47
Forensic Training Course in Venezuela	11,850.00
ICNB whale restoration	51,225.00
Provision of services to the Institut Estudis Ilerdencs	6,779.66
Other restoration services	2,149.30

The expertise of the preparation and conservation technicians allows the **ICP to obtain further resources from the provision of services externally and to other institutions.**

Examples of this include the **restoration of the ICNB whale** and the **course on** the conservation and **restoration of the exhumed remains of Don Simón Bolívar** (training given to a delegation of forensic doctors from Venezuela).

Despite the recession, 50% of the ICP's global resources are competitive



Projects from the Ministry of Science and Innovation (MICINN, now the Ministry of Economy and Competitiveness, MINECO) awarded in 2011

MICINN	Non-guided fundamental research projects	History of the Evolution of the Palaeogene and Neogene Primates from the Iberian Peninsula. PI: **Salvador Moyà-Solà.**	205,700€
MICINN	Non-guided fundamental research projects	Evolution of terrestrial ecosystems in Western Europe during the Neogene and Quaternary based on the vertebrate fossil record from the Vallés-Penedés Basin. PI: **David M. Alba.**	108,900€
MICINN	Non-guided fundamental research projects	End of an era: the extinction of the dinosaurs, a European perspective. PI: **Àngel Galobart.**	96,800€
MICINN	Non-guided fundamental research projects	Evolution of mammalian life histories in energy-limited environments: a palaeobiological approach. PI: **Meike Köhler.**	14,520€

Projects from the Ministry of Science and Innovation (MICINN, now the Ministry of Economy and Competitiveness, MINECO) ongoing in the ICP (previous to 2011)

National R&D Programme: Fundamental Research Projects, CGL2010-21672, awarded to **Isaac Casanovas and Daniel de Miguel**, for the project "Bringing fossils back to life: a multidisciplinary approach to the palaeobiology of Miocene small mammals from the Iberian Peninsula". Amount awarded: 121,000 euros.

National R&D Programme: Fundamental Research Projects, CGL2010-20868, awarded to **Gabrielle Macho and Xavi Jordana**, for the project "Life-history strategies in primates: effects of diet and seasonality on ontogenetic morphological changes and functional efficiency in sympatric apes and hominids". Amount awarded: 193,600 euros.

National Plan 2008-2011. CGL2008-00325, awarded to **Salvador Moyà-Solà**, for the project "*(Hominoidea) of the Miocene Mediterranean area: origin, paleobiology and evolution. HOPE.*" Amount awarded: 121,000 euros.

National Plan 2008-2011. CGL2008-0620, awarded to **Meike Köhler** for the project *"The evolution of life history patterns in fossil and recent, island and continental mammals: a comparative approach."* Amount awarded: 96,800 euros.

National Plan 2008-2011. CGL2008-06533-C03-01, awarded to **Àngel Galobart**, for the project "Evolution of the dinosaurs and their environment in eastern Iberia during the Cretaceous: systematics and palaeobiological and palaeoecological inferences." Amount awarded: 70,180 euros.

GRANTS

I. Grants from the Ministry of Science and Innovation (MICINN, now the Ministry of Economy and Competitiveness, MINECO) awarded in 2011

JUAN DE LA CIERVA

MICINN Ministry of Science and Innovation	***Juan de la Cierva*** Sub programme for the Training of Research Personnel	**Daniel de Miguel** 3-year contract	96,000€

FPU

Ministry of Education	**FPU** Programme for the Training of University	**Marta Pina** 24-month contract	55,560€
Ministry of Education	**FPU** Programme for the Training of University	**Blanca Moncunill** 24-month contract	55,560€

II. Grants from the Department of Economy and Knowledge (Government of Catalonia) awarded in 2011

AGAUR *- Agency for Management of University and Research Grants*

AGAUR	BE: Grants for research abroad.	Comparative study of the dentition between current (Lemuriforms and Lorisiforms) and fossil (Adapiforms) Strepsirrhines. Awarded to **Judit Marigó**. Stay at the MNHN, Paris.	1,432€
AGAUR	BE: Grants for research abroad.	Cercopitecoideus fossils from the Neogene and Quaternary of the Iberian Peninsula: taxonomy and functional morphology. Awarded to **David M. Alba.** 1 month and 15 days at the AMNH (Delson).	4,158€
AGAUR	AIRE – CTP: Grants for cooperative action as part of the *Comunitat de Treball dels Pirineus*.	Comparative study of the dentition of fossil primates of the Palaeogene from the collections in the University of Montpellier with those from the Institut Català de Paleontologia. Awarded to **Judit Marigó**. 20 days in Montpellier.	1,098€

Other AGAUR grants

AGAUR	PAS: Mobility grants for administrative and service staff from the university and research sector.	Structure and organisation of the Health and Safety department, both inside and outside the research centre. Awarded to **Gretell Garcia**. 1 month at the AMNH.	3,215€
AGAUR	ACDC: Grants to support action in the field of scientific dissemination	"Catalonian Fossil Bestiary". Awarded for educative action on the fossils of Catalonia.	5,000 €

III. Grants from the European Union

SYNTHESYS GRANT

Synthesys Integrated Activities grant	"Phylogenetic relationships between fossil and extant strepsirrhines." Awarded to **Judit Marigó**.	20 days in France
Synthesys Integrated Activities grant	"Armadillo's skull shape: shaped by phylogeny or ecology?" Awarded to **Soledad de Esteban.**	9 days in Germany
Synthesys Integrated Activities grant	"Armadillo´s skull shape: shaped by phylogeny or ecology?" Awarded to **Soledad de Esteban.**	5 days in France
Synthesys. Integrated Activities grant	"Morphology and phylogeny of *Allodaposuchus nopcsa,* 1928 (Crocodylia, Eusuchia): the Hungarian remains from Iharkút (Santonian, Csehbánya Formation)." Awarded to **Massimo Delfino**.	11 days in Hungary
Synthesys. Integrated Activities grant	"A reassessment of the morphology and phylogenetic relationships of *Varanus marathonensis* Weithofer, 1888 based on the remains from the Late Miocene of Cerro de los Batallones." Awarded to **Massimo Delfino**.	11 days in Madrid

IV. International Grants

The Leakey Foundation	"Dietary ecology of Cross River gorillas from stable isotopes in hair and faeces -potential as a reference model for hominin ecology and life history evolution", Awarded to **Gabrielle Macho.**	$19,000

VI. Other: private sponsorship and donations

UNNIM	*Obra Social*	Exhibit "Stand up!" Get to know your history through primate fossils.	10,000€
BIOMETA, S.A.	Private sponsorship	First International Symposium on Palaeohistology	300€
Leica Microsystems S.L.U.	Private sponsorship	First International Symposium on Palaeohistology	3,000€

Scientific Production

5

ICP PUBLICATIONS AND RESEARCH RESULTS, 2011

Science Citation Index (SCI) 2011

Abel, R. & Macho, G. A. (2011). Ontogenetic changes in the internal and external morphology of the ilium in modern humans. Journal of Anatomy, 324 -335.

Agustí, J., Santos-Cubedo, A., Furió, M., De Marfá, R., Blain, H.-A., Oms, O. & Sevilla, P. (2011). The late Neogene-early Quaternary small vertebrate succession from the Almenara-Casablanca karstic complex (Castellón, Eastern Spain). Chronologic and paleoclimatic context. Quaternary International 243(1): 183-191

Alba, D. M., Carlos Calero, J.A., Mancheño, M.Á., Montoya, P., Morales, J. & Rook, L. (2011). Fossil remains of Macaca sylvanus florentina (Cocchi, 1872) (Primates, Cercopithecidae) from the Early Pleistocene of Quibas (Murcia, Spain). Journal of Human Evolution 61: 703-718.

Alba, D.M., Moyà-Solà, S. & Almécija, S. (2011). A partial hominoid humerus from the middle Miocene of Castell de Barberà (Vallès-Penedès Basin, Catalonia, Spain). American Journal of Physical Anthropology 144: 365-381.

Alba, D.M., Moyà-Solà, S., Robles, J.M., Casanovas-Vilar, I., Rotgers, C., Carmona, R. & Galindo, J. (2011). Middle Miocene tragulid remains from Abocador de Can Mata: the earliest record of Dorcatherium naui from Western Europe. Geobios 44: 135-150.

Bolet, A. & Evans, S.E. (2011). New material of the enigmatic Scandensia, an Early Cretaceous lizard from the Iberian Peninsula. Special Papers in Palaeontology 86: 99-108.

Casanovas-Vilar, I. & Alba, D.M. (2011). The never-ending problem of Miocene beaver taxonomy. Acta Palaeontologica Polonica, 56(1): 217-220.

Casanovas-Vilar, I., Alba, D. M., Garcés, M., Robles, J. M. & Moyà-Solà, S. (2011). Updated chronology for the Miocene hominoid radiation in Western Eurasia. Proceedings of the National Academy of Sciences USA 108: 5554-5559.

Casanovas-Vilar, I., Van Dam, J. A., Moyà-Solà, S. & Rook, L. (2011). Late Miocene insular mice from the Tusco-Sardinian palaeobioprovince provide new insights on the palaeoecology of the Oreopithecus faunas. Journal of Human Evoution 61: 42-49.

Casanovas-Vilar, I., Van Dam, J. A., Trebini, L. & Rook, L. (2011). The rodents from the Late Miocene Oreopithecus-bearing site of Fiume Santo (Sardinia, Italy). Geobios 44: 173-187.

Dalla Vecchia, F.M. & Carnevale, G. (2011). Ceratodontoid (Dipnoi) calvarial bones from the Triassic of Fusea, Carnic Alps: The first Italian lungfish. Italian journal of Geosciences, 130: 128-135.

Dalla Vecchia, F.M. & Cau, A. (2011). First record of a Notosuchian crocodyliform from Italy. Rivista Italiana di paleontologia e Stratigrafia 117(2): 309-321.

Delfino, M., Pitruzzella, G. & Bailon, S. (2011). The Late Pliocene amphibians and reptiles from "Capo Mannu D1 Local Fauna" (Mandriola, Sardinia, Italy). Geodiversitas 33(2): 357-382.

DeMiguel, D., Azanza, B. & Morales, J. (2011). Paleoenvironments and paleoclimate of the Middle Miocene of central Spain: A reconstruction from dental wear of ruminants. Palaeogeography, Palaeoclimatology, Palaeoecology, 302: 452-463.

De Esteban-Trivigno, S. (2011). Ecomorfología de xenartros extintos: análisis de la mandíbula con métodos de morfometría geométrica. Ameghiniana 48: 381-398.

De Esteban-Trivigno & Meike Köhler. (2011). New equations for body mass estimation in bovids: testing some procedures when constructing regression functions. Mammalian Biology 76: 755-761.

De Esteban-Trivigno, S. (2011). Buscando patrones ecomorfológicos comunes entre ungulados actuales y xenartros extintos. Ameghiniana 48: 177-188.

Finlayson, C., Carrión, J., Browna, K., Finlayson, G., Sánchez-Marco, A., Fa, D., Rodríguez-Vidal, J., Fernández, S., Fierro, E., Bernal-Gómez, M. & Giles-Pacheco, F. (2011). The Homo habitat niche: Using the avian fossil record to depict ecological characteristics of Palaeolithic Eurasian hominins. Quaternary Science Reviews30: 1525-1532.

Fortuny, J., Bolet, A., Sellés, A.G., Cartanyà, J. & Galobart, À. (2011). New insights on the Permian and Triassic vertebrates from the Iberian Peninsula with emphasis on the Pyrenean and Catalonian basins. Journal of Iberian Geology 37(1): 65-86.

Fortuny, J., Galobart, À. & De Santisteban, C. (2011). A new capitosaur from the Middle Triassic of Spain and the relationships within the Capitosauria. Acta Palaentologica Polonica 56(3): 553-566.

Fortuny, J. Marcé-Nogué, J., De Esteban-Trivigno, S., Gil, Ll. & Galobart, À. (2011). Temnospondyli bite club: Ecomorphological patterns of the most diverse group of early tetrapods. Journal of Evolutionary Biology 24: 2040-2054.

Furió, M., Casanovas-Vilar, I. & Van den Hoek Ostende, L.W. (2011). Predictable structure of Miocene insectivore (Lipotyphla) faunas in Western Europe along a latitudinal gradient. Palaeogeography, Palaeoclimatology, Palaeoecology 304: 219-229.

Furió, M., Casanovas-Vilar, I., Moyà-Solà, S., Köhler, M., Galindo, J. & Alba, D.M. (2011). Insectivores (Eulipotyplha; Mammalia) from the Middle Miocene of Barranc de Can Vila 1 (Vallès-Penedès Basin, Catalonia, Spain). Geobios 44: 199-213.

García-Alix, A., Furió, M., Minwer-Barakat, R.Martín-Suárez, E. & Freudenthal, M. (2011). Environmental control on the biogeographical distribution of Desmanella (Soricomorpha, Mammalia) in the Miocene of the Iberian Peninsula. Palaeontology, 54:4, 753–762.

García Martínez, R., Marín-Moratalla, N., Jordana, X. & Köhler, M. (2011). The ontogeny of bone growth in two species of dormice: reconstructing life history traits. Comptes Rendus Palevol 10(5-6): 489-498.

Jordana, X. & Köhler, M. (2011). Enamel microstructure in the fossil bovid Myotragus balearicus (Majorca, Spain): Implications for life-history evolution of dwarf mammals in insular ecosystems. Palaeogeography, Palaeoclimatology, Palaeoecology 300: 59-66.

López-Guerrero, P., García-Paredes, I., van den Hoek Ostende, L.W., van Dam, J.A., Álvarez-Sierra, M.À., Hernández-Ballarín, V., van der Meulen, A.J., Oliver, A. & Paláez-Campomanes. (2011). Cañada: a new micromammal succession from the lower Vallesian and Turolian of the Daroca area (Calatayud- Montalbán basin, Spain). Estudios geológicos 67(2): 443-453.

Macho, G.A., Spears, I.R., Leakey, M.G., McColl, D.J., Jiang, Y., Abel, R., Nakatsukasa, M. & Kunimatsu, Y. (2011) An Exploratory Study on the combined effects of external and internal morphology on load dissipation in Primate Capitates: its potential for understanding of the positional and locomotor repertoire of early hominins. Folia Primatologica 81: 292-304.

Madurell-Malapeira, J., Alba, D.M., Marmi, J., Aurell, J. & Moyà-Solà, S. (2011). The taxonomic status of European Plio-Pleistocene badgers. Journal of Vertebrate Paleontology 31(4) 885-894.

Madurell-Malapeira, J., Martínez-Navarro, B., Ros-Montoya, S., Espigares, M.P., Toro, I., Palmqvist, P. (2011). The earliest European badger (Meles meles), from the Late Villafranchian site of Fuente Nueva-3 (Orce, Granada, SE Iberian Peninsula). Comptes Rendus Palevol 10: 609–615.

Marigó, J., Minwer-Barakat, R. & Moyà-Solà, S. (2011) New Anchomomys (Adapoidea, Primates) from the Robiacian (Middle Eocene) of northeastern Spain. Taxonomic and evolutionary implications. Journal of Human Evolution, 60: 665-672.

Marín-Moratalla, N., Jordana, X., García-Martínez, R. & Köhler, M. (2011). Tracing the evolution of fitness components in fossil bovids under different selective regimes. Comptes Rendus Palevol 10(5-6): 469-478.

Minwer-Barakat, R., Madurell-Malapeira, J., Alba, D. M., Aurell-Garrido, J., De Esteban-Trivigno, S. & Moyà-Solà, S. (2011). Pleistocene rodents from the Torrent de Vallparadís section (Terrassa, northeastern Spain) and biochronological implications. Journal of Vertebrate Paleontology, 31(4): 849-865.

Minwer-Barakat, R., García-Alix, A. & Martín Suárez, E. (2011). Validation of the species Stephanomys progressus, a murid (Rodentia) from the Early Pleistocene of Spain. Journal of Paleontology, 85(2): 392-394.

Paredes, U.M., Bubb, V.J., Haddley, K., Macho, G.A. & Quinn, J.P. (2011). An evolutionary conserved region (ECR) in the human dopamine receptor D4 gene supports reporter gene expression in primary cultures derived from the rat cortex. BMC Neuroscience 2011, 12: 46.

Paredes U., Bubb V.J., Haddley K., Macho G.A. & Quinn J.P. (2011). Intronic tandem repeat in the Serotonin transporter gene in Old World Monkeys: a new transcriptional regulator? Journal of Molecular Neuroscience DOI 10.1007/s12031-011-9664-6.

Petruzzelli, M., Razzolini, N. & Francescangeli, R. (2011). Proposal for an uniform data standard for ichnological 3D tracking and post-processing. Rivista Italiana di Paleontologia e Stratigrafia 117(3): 521 -530.

Pina, M., Salesa, M.J., Antón, M. & Pastor, J.F. (2011). Functional anatomy of the calcaneus and talus in Cercopithecinae (Mammalia, Primates, Cercopithecidae). Estudios Geológicos 67(2): 385-394.

Piras, P., Salvi, D., Ferrara, G., Maiorino, L., Delfino, M., Pedde, L. & Kotsakis, T. (2011). The role of post-natal ontogeny in the evolution of phenotypic diversity in Podarcis lizards. Journal of Evolutionary Biology 24(12): 2705-2720.

Quintana, J., Köhler, M. & Moyà, S. (2011). Nuralagus Rex, Gen. et Sp. Nov., an endemic insular giant rabbit from the Neogene of Minorca (Balearic Islands, Spain) . Journal of Vertebrate Paleontology 31(2):1-10.

Rodríguez, R., Ramírez, O., Valdiosera, C.E., García, N., Alda, F., Madurell-Malapeira, J., Marmi, J., Doadrio, I., Willerslev, E., Götherström, A., Arsuaga, J.L., Thomas, M.G., Lalueza-Fox, C. & Dalén, L. (2011). 50,000 years of genetic uniformity in the critically endangered Iberian lynx. Molecular Ecology 20: 3785-3795.

Rotgers, C., Alba, D.M., Robles, J.M., Casanovas-Vilar, I., Galindo, J., Bertó, J.V. & Moyà-Solà, S. (2011). A new species of Anchitherium (Equidae: Anchitheriinae) from the Middle Miocene of Abocador de Can Mata (Vallès-Penedès Basin, NE Iberian Peninsula). Comptes Rendus Palevol 10: 567-576.

Salesa, M., Sanchez, I., Azanza, B, DeMiguel, D. & Morales, J. (2011). Systematics and taxonomy of the spanish anchitheriinae and their relationship with regional climate changes: a comment on eronen et al. Evolution 65-5: 1506–1510.

Sánchez, I. M., DeMiguel, D., Quiralte, V. & Morales,J. (2011). The first known Asian Hispanomeryx (Mammalia, Ruminantia, Moschidae). Journal of Vertebrate Paleontology 31(6): 1397-1403.

Simón, M., Jordana, X., Armentano, N., Santos, C., Díaz, N., Solórzano, E., López, J.B., González-Ruiz, M. & Malgosa, A. (2011). The presence of nuclear families in prehistoric collective burials revisited. The Bronze Age burial of Montanisell Cave (Spain) in the light of aDNA. American Journal of Physical Anthropology 146: 406–413.

van Dam, J.A. (2011). Scanning the fossil record: stratophenomics and the generation of primary evolutionary-ecological data. Evolutionary Ecology.

van Dam, J.A., Fortuny, J. & van Ruijven, L.J. (2011). MicroCT-scans of fossil micromammal teeth: Re-defining hypsodonty and enamel proportion using true volume. Palaeogeography, Palaeoclimatology, Palaeoecology 311: 303-310.

van Dam, J. A., van den Hoek Ostende, L.W. & Reumer, J.W.F. (2011). A new short-snouted shrew from the Miocene of Spain. Geobios 44: 299-307.

Vila, B., Riera, V., Bravo, A. M., Oms, O., Vicens, E., Estrada, R. & Galobart, À. (2011). The chronology of dinosaur oospecies in south-western Europe: refinements from the Maastrichtian succession of the Eastern Pyrenees. Cretaceous Research 32: 378-386.

SCI Proceedings, 2011

Alba, D.M., Almécija, S., Moyà-Solà, S., Casanovas-Vilar, I. & Méndez, J.M. (2011). A new partial skeleton of the fossil great ape Hispanopithecus (Primates: Hominidae) from the Late Miocene of Can Feu (Vallès-Penedès Basin, NE Iberian Peninsula). Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 60.

Alba, D.M., Casanovas-Vilar, I., Almécija, S., Robles, J.M., Arias-Martorell, J. & Moyà-Solà, S. (in press). New dental hominoid remains from the Late Miocene locality of Can Llobateres 1 (Vallès-Penedès Basin, Catalonia, Spain) [Abstract]. American Journal of Physical Anthropology.

Alba, D.M.,Casanovas-Vilar, I., Moyà-Solà, S., Almécija, S., Robles, J.M. & Marmi, J.M. (2011). New excavations at the Late Miocene hominoid-bearing locality of Can Llobateres 1 (Vallès-Penedès Basin, Catalonia, Spain): preliminary results. American Journal of Physical Anthropology, 144 Suppl. 52: 73.

Almécija, S., Alba, D.M. & Moyà-Solà, S. (2011). Large-hominoid remains from the Middle Miocene locality of Castell de Barberà (Vallès-Penedès Basin, Catalonia, Spain). American Journal of Physical Anthropology, 144 Suppl. 52: 73.

Almécija, S., Tallman, M., Alba, D.M. & Moyà-Solà, S. (2011). Proximal femoral affinities of Miocene apes and early hominins on the basis of 3D geometric morphometrics analyses. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 61.

Casanovas-Vilar, I., J. A. van Dam. 2011. Assessing the effects of size, ecology and phylogeny on mandible shape in squirrels (Sciuridae, Rodentia). Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011, p. 85.

Delfino, M., Alba, D.M., Carmona, R., Luján, À.H. & Robles, J.M. (2011). European monitor lizards (Anguimorpha, Varanidae, Varanus): New materials and new perspectives. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. Pp. 97-98.

DeMiguel, Alba, D.M. & Moyà-Solà, S. (2011). Dietary reconstruction of Miocene apes (Primates: Hominidae) from Catalonia (NE Spain) based on dental microwear [Abstract]. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 98.

DeMiguel, D., Alba, D.M. & Fortuny, J. (in press). Paleodietary implications of the Pliopithecidae from dental microwear and relative enamel thickness of two Iberian taxa [Abstract]. American Journal of Physical Anthropology.

Furió, M., Alba, D.M., Carmona, R. & Rifà, E. (2011). New fossil remains of Lantanotherium (Erinaceidae, Mammalia) from the Vallesian (Late Miocene) of Viladecavalls (NE Spain). Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 113.

Luján, À.H., Alba, D.M., Delfino, M., Fortuny, J. & Carmona, R. (2011). Cranial remains of Cheirogaster (Testudines: Testudinidae) from the Late Miocene of Ecoparc de Can Mata (Vallès-Penedès Basin, NE Iberian Peninsula): Taxonomic and phylogenetic implications. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 148.

Minwer-Barakat, R., Marigó, J., Badiola, A., Moyà-Solà, S. (2011). New discoveries of microchoerines (Omomyidae, Primates) from the Eocene of the Iberian Peninsula. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 159.

Pérez de los Ríos, M., Moyà-Solà, S., Alba, D. & Fortuny, J. (2011). Computed-Tomography scan analysis of the internal facial anatomy of the Middle Miocene ape Pierolapithecus catalaunicus (Primates: Hominidae): Phylogenetic implications. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 173.

Pina, M., Alba, D.M., Almécija, S., Fortuny, J. & Moyà-Solà, S. (in press). Locomotor inferences in Hispanopithecus laietanus on the basis of its femoral neck cortical thickness [Abstract]. American Journal of Physical Anthropology.

Pina, M., Moyà-Solà, S. & Fortuny, J. (2011). Inferring locomotion in Miocene apes: the femur of Hispanopithecus laietanus. Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 175.

Robles, J., Alba, D., Fortuny, J., Rotgers, C. & Moyà-Solà, S. (2011). New craniodental remains of the false sabertooth Sansanosmilus jourdani from the Miocene of the Vallès-Penedès basin (NW Iberian Peninsula) and the phylogeny of the Barbourofelidae (Carnivora). Abstracts of SVP 71th Annual Meeting. Supplement to the online Journal of Vertebrate Paleontology, p. 180.

Susanna, I., Alba, D.M., Almécija, S. & Moyà-Solà, S. (2011). The vertebral remains of the Late Miocene ape Hispanopithecus laietanus (Primates: Hominidae). Journal of Vertebrate Paleontology, 71st Annual Meeting Society of Vertebrate Paleontology – Paris Las Vegas, Las Vegas, Nevada, USA, November 2-5, 2011. p. 202.

International non-SCI journals, 2011

Jordana, X., García, C., Armentano, N., Malgosa, A., Cunha, E. & Lima, M. (In press) Estudio paleodemográfico de la necrópolis del Convento de São Gonçalo (Angra do Heroísmo, Terceira, Açores). Revista de Demografía Histórica.

Moyà-Solà, S. (2011). Reconstructing the History of Life. Public Service Review: European Science & Technology 11: 125.

Moyà-Solà, S., Köhler, M., Alba, D.M. & Roig, I. (2011, published on line). Calcaneal proportions in primates and locomotor inferences in Anchomomys and other Palaeogene Euprimates. Swiss Journal of Palaeontology 130: DOI 10.1007/s13358-011-0032-5.

National non-SCI journals, 2011

Alba, D.M. (2011). Manuel Vilella Tejedo, in memoriam. Spira, 4(1–2), 77–80.

Alba, D.M., Casanovas-Vilar, I., Robles, J.M. & Moyà-Solà, S. (2011). Parada 3. El Aragoniense superior y la transición con el Vallesiense: Can Mata y la exposición paleontological de els Hostalets de Pierola. In: Pérez de los Ríos, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), Guía de Campo de las XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, mem. espec. núm. 6: 95-109.

Alba, D.M., Casanovas-Vilar, I., Moyà-Solà, S. & Robles, J.M. (2011). Parada 4. El Vallesiense inferior y su transición con el Vallesiense superior: Can Llobateres. In: Pérez de los Ríos, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), Guía de Campo de las XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, mem. espec. núm. 6: 111-123.

Alba, D.M., Fortuny, J. & DeMiguel, D. (2011). Preliminary paleodietary inferences in two pliopithecid primates from the Vallès-Penedès basin (NE Iberian Peninsula) based on relative enamel thickness as compared to microwear analyses. In First International Symposium on Paleohistology (Köhler, Jordana & Marín Moratalla eds). Paleontologia i Evolució, (juliol 2011), p. 47.

Alba, D. M., Tarruella, A., Prats, L., Guillén, G. & Corbella, J. (2011). Nova llista actualitzada dels mol·luscos continentals de Catalunya. Spira, 4(1–2), 39–69.

Bolet, A. & Evans, S. (2011). Tupinambis sp. from the Quaternary of Argentina: undescribed specimens from old collections. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 51-54.

Cartanyà, J., Fortuny, J., Sellés, A. G., Bolet, A., Petruzzelli, M., Solà, E., Sagarra, A. & Galobart, À. (2011). Preliminary report on the vertebrate assemblage of the Odèn outcrops (Carnian, late Triassic) of the Pyrenean basin, Catalonia. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 59-61.

Casanovas-Vilar, I., Alba, D.M. & Moyà-Solà, S. (2011). Parada 1. Panorámica general de la cuenca y yacimiento de Els Casots (Subirats): una fauna de vertebrados del Aragoniense inferior. In: Pérez de los Ríos, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), Guía de Campo de las XXVII Jornadas de la Sociedad Española de Paleontología. Pa-

leontologia i Evolució, mem. espec. núm. 6: 81-88.

Casanovas-Vilar, I., Alba, D.M., Robles, J.M. & Moyà-Solà, S. (2011). Registro paleontológico continental del Mioceno de la cuenca del Vallès-Penedès. In: Pérez de los Ríos, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), Guía de Campo de las XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, mem. espec. núm. 6: 55-80.

Celià-Gelabert, L., et al. (2011). "Avui investigues tu!", la proposta del nou Museu de l'Institut Català de Paleontologia. Mnemòsine, número 6, pp. 125-135.

Corbella, J., Guillén, G., Prats, L., Tarruella, A. & Alba, D.M. (2011). Els moitessièrids de la Font de Sant Cristòfol (Santa Eulàlia de Ronçana, el Vallès Oriental, Catalunya, Espanya). Spira, 4(1–2), 25–38.

De Esteban-Trivigno, S., DeMiguel, D., Fortuny, J. & Marcé-Nogué, J. (2011). The shape of bovid jaw and its relationship with phylogeny and biomechanical Factors. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 93-96.

De Esteban-Trivigno, S., Fortuny, J. & Köhler, M. (2011). Development of primary olfactive neocortical area in the small-brained fossil insular bovid Myotragus balearicus. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 97-100.

DeMiguel, D., De Esteban-Trivigno, S., Fortuny, J. & Marcé-Nogué, J. (2011). El análisis de elementos finitos como método de inferencia dietética en bóvidos. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 125-128.

Fortuny, J., Galobart À., Marmi J.M., Gaete R. & Lopez-Garcia A. (2011). Els primers amfibis fòssils de Catalunya al jaciment paleontològic de La Mora (Tagamanent, Vallès Oriental) i la seva reconstrucció digital. Tribuna d'Arqueologia 2009, 11-28.

Galobart, À., Acosta, C. & Vila, B. (2011). Patrocinio y mecenazgo en paleontología de vertebrados: Crusafont, Hürzeler y Can Llobateres, diez años de una colaboración inacabada. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5:151-156.

Galobart, À., Oms, O., Gaete, R., Vila, B., Marmi, J., Riera, V. & Sellés, A. G. (2011). Diez años de intervenciones geológicas y paleontológicas en los yacimientos maastrichtienses del Pirineo catalán. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 157-161.

García-Martínez, R., Marín-Moratalla, N., Jordana, X. & Köhler M. First results from bone histology of the giant fossil dormouse Hypnomys. In: Köhler, M., Jordana, X. & Marín-Moratalla, N. (eds.), First International Symposium on Paleohistology. Paleontologia i Evolució 1: 78.

Jiménez Guijarro, J., Sánchez Marco, A. & García Díez, M. (2011). Nuevo examen de los grabados paleolíticos de El Pendo (Cantabria, España). Consideraciones sobre las aves en el arte Paleolítico de la Península Ibérica. Trabajos de Prehistoria 68(1): 147-158.

Jordana, X., Köhler, M. & Marín-Moratalla, N. (2011). Evidence of Exceptional Longevity in a fósil insular mammal from dental histology. In: Köhler, M., Jordana, X. & Marín-Moratalla, N. (eds.), First International Symposium on Paleohistology. Paleontologia i Evolució 1: 55.

Jordana, J., Marín-Moratalla, N. & Köhler, M. (2011). Hipsodoncia en mamíferos insulares y longevidad. Testando la hipótesis a partir de la paleohistología dental. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 189-192.

Köhler, M., Marín-Moratalla, N. & Jordana X. (2011). On the significance of fibrolamellar bone in bovids. In: Köhler, M., Jordana, X. & Marín-Moratalla, N. (eds.), First International Symposium on Paleohistology. Paleontologia i Evolució 1: 54

Köhler, M., Riyahi, S., Marín-Moratalla, N., Jordana, X. & Quintana, J. (2011). Comparative long bone histology of insular and continental leporids: reconstructing life history traits of Nuralagus rex. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 193-496.

Llenas, M., Madurell-Malapeira, J., Nebot, M., González-Mateos, J., Susanna, I., Hernández-Ruiz, T., Pladevall, C., Ferrandiz-Rovira, M. & Hernández-Martínez, R. (2011). La Grotte de Vida Tripa: A new Middle Pleistocene locality in Southeastern France. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 197-199.

Madurell-Malapeira, J., Alba, D.M., Aurell-Garrido, J. & Moyà-Solà, S. (2011). Early steps towards the cave bear lineage: late Early Pleistocene remains of Ursus deningeri from the Vallparadís Section (Terrassa, Vallès-Penedès Basin, NE Iberian Peninsula). In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 207-210.

Marcé-Nogué, J., Fortuny, J., Gil., L. & Galobart, À. (2011). Contribution of computational mechanics in vertebrate paleontology using reverse engineering. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 215-218.

Marigó, J., Minwer-Barakat, R. & Moyà-Solà, S. (2011). Estado actual del conocimiento sobre los primates del Paleógeno de la Península Ibérica. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., DeMiguel, D. & Bolet, A. (eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 219-222.

Marín-Moratalla, N., Köhler, M. & Jordana, X. (2011). Bone histology in extant and fossil bovids and cervids. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 223-226.

Marín-Moratalla, N., Köhler, M., Jordana, X. & Kaiser T. (2011). Preliminary report on bone histology in an ontogenetic series of Addax nasomaculatus. In: Köhler, M., Jordana, X. & Marín-Moratalla, N. (eds.), First International Symposium on Paleohistology. Paleontologia i Evolució 1: 76.

Marmi, J. & Vila, B. (2011). Rajades fossils de l'Alt Bergueda: testimonis d 'un passat proper al mar. L'Erol, 107: 8-11.

Minwer-Barakat, R., García-Alix, A., Martín Suárez, E. & Freudenthal, M. (2011). Nuevos datos sobre la distribución de micromamíferos en el Mioceno Superior-Pleistoceno Inferior de la cuenca de Guadix (Sureste de España). En: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., DeMiguel, D. & Bolet, A. (eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 243-248.

Minwer-Barakat, R., Madurell-Malapeira. J., Alba, D. M., Aurell-Garrido, J., De Esteban-Trivigno, S. & Moyà-Solà, S. (2011). Datación de los niveles de la sección de Torrent de Vallparadís (Pleistoceno Inferior-Medio, Terrassa, Barcelona) mediante el estudio de roedores. En: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., DeMiguel, D. & Bolet, A. (eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 249-253.

Minwer-Barakat, R., Marigó, J. & Moyà-Solà, S. (2011). El excepcional registro de primates del Eoceno Medio de Sant Jaume de Frontanyà (Pirineos Orientales, Noreste de España). En: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., DeMiguel, D. & Bolet, A. (eds.), XXVII Jornadas de la Sociedad Española de Paleontología y Simposios de los Proyectos PICG 587 y 596. Paleontologia i Evolució, Memòria Especial 5: 255-258.

Pérez de los Ríos, M., Alba, D.M. & Moyà-Solà, S. (2011). Ventajas del uso de tomografía computerizada en el estudio de la anatomía craneal interna en hominoideos. In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, Memòria Especial 5: 295-298.

Pina, M., Alba, D.M., Almécija, S. & Moyà-Solà, S. (2011). Is the cortical thickness of the femoral neck a diagnostic trait for inferring bipedalism? In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, Memòria Especial 5: 313-317.

Riyahi, S., Köhler, M., Marín-Moratalla, N., Jordana, J. & Quintana J. (2011). Bone histology of the giant fósil rabit Nuralagus: The trade-off between growth and reproduction. In: Köhler, M., Jordana, X. & Marín-Moratalla, N. (eds.), First International Symposium on Paleohistology. Paleontologia i Evolució 1: 77.

Santos-Cubedo, A., Furió, M., Blain, H.-A., Agustí, J., Sevilla, P. & De Marfà, R. (2011). Nuevas aportaciones de los microvertebrados del complejo cárstico de Almenara-Casablanca (Castellón, España). In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología.

Paleontologia i Evolució, Memòria Especial 5: 361-365.

Susanna, I., Alba, D.M., Almécija, S. & Moyà-Solà, S. (2011). Vertebral remains of Hispanopithecus laietanus (Primates: Hominidae) from the Late Miocene of Can Llobateres 2 (Catalonia, NE Iberian Peninsula). In: Marigó, J., Pérez de los Ríos, M., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, Memòria Especial 5: 383-386.

van Dam, J., Fortuny, J. & van Ruijven, L. (2011). Micro-CT scans of fossil micromammal teeth and the definition of volume-based indices of hypsodonty and enamel amount. In First International Symposium on Paleohistology ISPH (Köhler, Jordana & Marín Moratalla eds). Paleontologia i Evolució, (juliol 2011), 33.

Vila, B. (In press, 2011). Resultats de la recerca paleontològica al Cretaci final del Pirineu català: el cas de la diversitat, icnologia i reproducció dels dinosaures sauròpodes. Mnemòsine.

Vila, B., Oms, O., Marmi, J., Galobart, À., Riera, V., Estrada, R. & Malchus, N. (2011).

Parada 1. Geología y registro paleontológico del Sinclinal de Vallcebre. In: Pérez de los Ríos, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), Guía de Campo de las XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, mem. espec. núm. 6: 11-26

Vila, B., Sellés, A. G. & Galobart, À. (2011). Parada 2. El área de nidificación de Coll de Nargó. In: Pérez de los Ríos, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (Eds.), Guía de Campo de las XXVII Jornadas de la Sociedad Española de Paleontología. Paleontologia i Evolució, mem. espec. núm. 6: 27-33.

Non-SCI Proceedings, 2011

Galtés, I., Prats-Muñoz, G., Cos, M., Armentano, N., Isidre, A., Fernández, P.L., Borondo, J.C., Jordana, X. & Malgosa, A. (2011). Resultados de la autopsia del Rey Pere el Gran. In: Capasso (ed.), XI Congreso Nacional de Paleopatología. Journal of Paleopathology 22: 36.

Ibáñez-Gimeno, P., Jordana, X., de Esteban-Trivigno, S., Manyosa, J., Malgosa, A. & Galtés, I. (2011). Extremidad superior: marcadores musculoesqueléticos, rigidez humeral y forma diafisaria. In: Capasso (ed.), XI Congreso Nacional de Paleopatología. Journal of Paleopathology 22: 36.

Books, 2011

Galobart, A., Suñer, M. & Poza, B. (eds) (2011)., Dinosaurs of Eastern Iberia. Life of the Past Series, Indiana University Press, Bloomington: 322 pp.

Köhler, M., Jordana, X. & Marín-Moratalla, N. (eds) (2011). First International Symposium on Paleohistology. Paleontologia i Evolució, vol. 1: 83 pp.

Köhler, M. & Moyà-Solà, S. (2011). Myotragus: la economía energética en la evolución. ¡Fundamental!. 19: 45 pp.

Marigó, J., Pérez de los Rios, M., Minwer-Barakat, R., DeMiguel, D. & Bolet, A. (eds) (2011). XXVII Jornadas de la Sociedad Española de Paleontologia. Paleontologia i Evolució, Memòria especial, 5: 442 pp.

Pérez de los Rios, M., Marigó, J., Minwer-Barakat, R., Bolet, A. & DeMiguel, D. (eds) (2011). Guia de Campo. XXVII Jornadas de la Sociedad Española de Paleontologia. Paleontologia i Evolució, Memòria especial, 6: 123 pp.

Book chapters, 2011

Alba, D.M., Casanovas-Vilar, I., Robles, J.M., Marmi, J. & Moyà-Solà, S. (2011). New paleontological excavations at the Late Miocene site of Can Llobateres 1 (Vallès-Pendès Basin, NE Iberian Peninsula): preliminary results of the 2010 campaign. In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 35 -43.

Alcalá, L., Luque, L., van Dam, J.A. & Rubio, J.C. (2011). Cuenca de Teruel y Fosa del Jiloca, in L. Alcalá, J. P. Calvo, J. L. Simón, (eds.) Geología de Teruel. Instituto de Estudios Turolenses.

Carmona, R., Alba, D.M., Casanovas-Vilar, I., Furió, M., Garcés, M., Bertó-Mengual, J.V., Galindo, J. & Luján, A.H. (2011). Intervención paleontológica en la serie del Mioceno Superior del Ecoparc de Can Mata (cuenca del Vallès-Penedès, NE de la península Ibérica). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 65-74.

Casanovas-Vilar, I., DeMiguel, D., Galindo, J., Robles, J.M., Garcés, M. & Cabrera, L. (2011). The continental Burdigalian (Early Miocene) of the Vallès-Penedès Basin (Catalonia, Spain). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp.93-100.

Delfino, M. (2011). Palaeontology. In: Corti C., Capula M., Luiselli L., Razzetti E. & Sindaco R. (eds.). Fauna d'Italia, Vol. XLV, Reptilia. Calderini, Bologna: 49-56.

Delfino, M. (2011). Fossil Reptiles from Italy. In: Corti C., Capula M., Luiselli L., Razzetti E. & Sindaco R. (eds.). Fauna d'Italia, Vol. XLV, Reptilia. Calderini, Bologna: 57-66.

Evans, S.E. & Bolet, A. (In Press). Chapter 17: Squamata (Poyato-Ariza, Buscalioni and Fregenal-Martínez eds.) Las Hoyas: A Cretaceous wetland. A multidisciplinary synthesis after 25 years of research on an exceptional fossil deposit from Spain. Honoring Prof. Dr J.L. Sanz. Pfeil Verlag, Munich.

Fortuny, J., Vila, B., Furió, M. & de Santisteban, C. (2011). Global Distribution and Dinosaur Environments of Eastern Iberia. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Life of the Past Series, Indiana University Press, Bloomington: 225-252.

Furió, M. & Alba, D.M. (2011). Aspectos problemáticos del género Lantanotherium (Galericinae, Erinaceidae, Mammalia). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 123 -130.

Galobart, À., Santos-Cubedo, A., Suñer, M. & Canudo, J. I. (2011). Paleontological Discoveries and Studies. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Life of the Past Series, Indiana University Press, Bloomington: 1-23.

Hilgen, F.J., Lourens, L. & van Dam, J.A. (2011). The Neogene Period, in Gradstein, F. M., Ogg, J.G., Schmitz, M.D. & Ogg, G. (eds) A geological time scale 2012.

Madurell-Malapeira,J., Alba, D.M., Aurell-Garrido, J. & Moyà-Solà, S. (2011). Taphonomic approach to the last Villafranchian faunas of Europe: Th e layer 7 of the Vallparadís Estació local section (Vallès-Penedès Basin, NE Iberian Peninsula). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 203-210.

Marmi, J., Martín-Closas, C., Delclós, X. & Poza, B. (2011). Fauna and Flora in the Age of Dinosaurs. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Life of the Past Series, Indiana University Press, Bloomington: 199-224.

Pineda-Muñoz, S., Casanovas-Vilar, I., Alba, D.M., Carmona, R. & Rifà, E. (2011). Cricetinae (Rodentia) from site B40OV/S5C (Vallès-Penedès Basin, NE Iberian Peninsula). Biostratigraphic implications. In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 289 -296.

Pons-Monjo, G., Furió, M., Minwer-Barakat, R. & Moyà-Solà, S. (2011). Nuevo material de nictitéridos del yacimiento clásico de Sossís (Eoceno Superior de Cataluña, Península Ibérica). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.), Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 315-321.

Robles, J.M., Alba, D.M., Casanovas-Vilar, I., Galindo, J., Cabrera, L., Carmona, R. & Moyà-Solà, S. (2011). On the age of the paleontological site of Can Missert (Terrassa, Vallès-Penedès Basin, NE Iberian Peninsula). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 339-346.

Rotgers, C. & Alba, D.M. (2011). The genus Anchitherium (Equidae: Anchitheriinae) in the Vallès-Penedès Basin (Catalonia, Spain). In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp. 347-354.

Sánchez Marco, A. (2011). Aves de la cueva de Cobrante: 101-106. In: Rasines, P. (dir.). Arqueología en la cueva de Cobrante (Cantabria, España). Sautuola, XV: 35-243.

Sánchez Marco, A. (2011). Las aves de la cueva de Benzú: 182-184. In J. Ramos, D. Bernal, A. Cabral, E. Vijande & J.J. Castillo (coord.). Benzú y los orígenes de Ceuta. Ciudad Autónoma de Ceuta, 217 pp.

Scheyer, T.M., Werneburg, I., Mitgutsch, C., Delfino, M. & Sánchez-Villagra, M.R. (in press). Three ways to tackle the turtle: integrating fossils, comparative embryology and microanatomy. In: Brinkman D.B., Holroyd P.A. & Gardner J.D. (editors), "Morphology and Evolution of Turtles: Origin and Early Diversification". Springer, Dordrecht.

Tomàs, M., Alba, D.M., Robles, J.M., Rotgers, C., Carmona, R., Galindo, J., Almécija, S., Bertó, J.V., Casanovas-Vilar, I., Balaguer, J. & Moyà-Solà, S. (2011). Small suoids from the Middle Miocene of Abocador de Can Mata (Vallès-Penedès Basin, NE Iberian Peninsula): A preliminary assessment. In: Pérez-García, A., Gascó, F., Gasulla, J. M. & Escaso, F. (eds.) Viajando a Mundos Pretéritos. Morella (Castellón), Ayuntamiento de Morella: pp.389-398.

Vila, B., Galobart, À., Gaete, R. & Santos-Cubedo, A. (2011). Mass Extinctions and the End of Dinosaurs. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Life of the Past Series, Indiana University Press, Bloomington: 253-270.

Vila, B., Furió, M. & Marmi, J. (2011). Origin and Diversity of Dinosaurs. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Life of the Past Series, Indiana University Press, Bloomington: 79-100.

Vila, B., Marmi, J. & Furió, M. (2011). History and Classification of Dinosaurs. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Indiana University Press, Bloomington: 56-78.

Vila, B., Suñer, M., Poza, B., Fortuny, J., Nieto, E. & Galobart, À. (2011). The Study of Dinosaur Fossils. In: Galobart, A., Suñer, M. & Poza, B. (eds)., Dinosaurs of Eastern Iberia, Life of the Past Series, Indiana University Press, Bloomington: 101-130.

Conference abstracts, 2011

Alba, D.M., Almécija, S., Moyà-Solà, S., Casanovas-Vilar, I. & Méndez, J.M. A new partial skeleton of the fossil great ape Hispanopithecus (Primates: Hominidae) from the Late Miocene of Can Feu (Vallès-Penedès Basin, NE Iberian Peninsula). (comunicació oral). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Alba, D.M.,Casanovas-Vilar, I., Moyà-Solà, S., Almécija, S., Robles, J.M. & Marmi, J.M. New excavations at the Late Miocene hominoid-bearing locality of Can Llobateres 1 (Vallès-Penedès Basin, Catalonia, Spain): preliminary results. (póster). In: Eightieth Annual Meeting of the American Association of Physical Anthropologists. (2011. Minneapolis, Minesotta. USA).

Alba, D.M., Casanovas-Vilar, I., Robles, J.M., Marmi, J. & Moyà-Solà, S. New paleontological excavations at the Late Miocene site of Can Llobateres 1 (Vallès-Penedès Basin, NE Iberian Peninsula): Preliminary results of the 2010 campaign. (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Alba, D.M., Fortuny, J. & DeMiguel, D. (2011). Preliminary paleodietary inferences in two pliopithecid primates from the Vallès-Penedès Basin (NE Iberian Peninsula) based on relative enamel thickness as compared to microwear analyses. (comunicació oral). In: I International Symposium on Paleohistology. (2011, Sabadell, Spain).

Almécija, S., Alba, D.M. & Moyà-Solà, S. Large hominoid remains from the Midd-

le Miocene locality of Castell de Barberà (Vallès-Penedès Basin, Catalonia, Spain). (póster). In: Eightieth Annual Meeting of the American Association of Physical Anthropologists. (Minneapolis, Minesotta. USA).

Almécija, S., Tallman, M., Alba, D.M. & Moyà-Solà, S. Proximal femoral affinities of Miocene apes and early hominins on the basis of 3D geometric morphometrics analyses. (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Bolet, A. Tupinambis sp. from the Quaternary of Argentina: undescribed specimens from old collections. (pòster). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Carmona, R., Alba, D.M., Casanovas-Vilar, I., Furió, M., Garcés, M., Bertó Mengual, J.V., Galindo, J. & Luján, À.H. Intervención paleontológica en la serie del Mioceno Superior del Ecoparc de Can Mata (cuenca del Vallès-Penedès, NE de la península Ibérica). (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Casanovas-Vilar I, Van Dam JA, De Esteban-Trivigno S. (2011). Mandible shape in squirrels and its relationship with size, ecology and phylogeny. In: 9th Annual Meeting of the European Association of Vertebrate Palaeontologists (2011, Heraklion, Crete, Greece). Programe and abstracts. Van der Geer A. & Athanassiou A. (eds.):17.

Company, J., De Esteban-Trivigno, S. & Dondas, A. (2011).Bone histology of an inmature Scelidotherium from the Lujanian of Argentine. In: 9th Annual Meeting of the European Association of Vertebrate Palaeontologists (2011, Heraklion, Crete, Greece). Programe and abstracts. Van der Geer A. & Athanassiou A. (eds.): 20.

De Esteban-Trivigno, S. & Fariña, F.A. (2011). Morphological variability in the lower jaw of armadillos: phylogeny or diet? In: 9th Annual Meeting of the European Association of Vertebrate Palaeontologists (2011, Heraklion, Crete, Greece). Programe and abstracts. Van der Geer A. & Athanassiou A. (eds.): 20.

Dalla Vecchia F. M., Gaete R., Riera V., Oms O., Prieto-Márquez A., Vila B., Garcia Sellés A., & Galobart, A. (2011). The hadrosaurid record in the Maastrichtian of the eastern Tremp Syncline (northern Spain). In: International Hadrosaur Symposium at the at the Royal Tyrrell Museum of Palaeontology (2011, Drumheller. Canadà). Braman D.R., Eberth D.A., Evans D.C, Taylor W. (eds). Abstract Book: 38-44.

Delfino, M., Alba, D.M., Carmona, R., Luján, À.H. & Robles, J.M. European monitor lizards (Anguimorpha, Varanidae, Varanus): New materials and new perspectives. (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Delfino, M., Rabi, M., Gemel, R., Chesi, F. & Scheyer, T.M. (2011). The type locality material of Psephophorus polygonus Meyer, 1847: whereabouts, gross morphology and histology. In: 9th Annual Meeting of the European Association of Vertebrate Palaeontologists (2011, Heraklion, Crete, Greece). Programe and abstracts. Van der Geer A. & Athanassiou A. (eds.): 22-23

Delfino, M. & Rossi M.A. (2011). Fossil crocodylids from Scontrone (Early Tortonian, Italy) and the Late Miocene Mediterranean crocodylid biogeography. In: Neogene Park – Vertebrate Migrations in the Mediterranean & Paratethys. (2011, Scontrone, L'Aquila. Italy). Abstract Book R.C.M.N.S. Carnevale G., Patacca E. & Scandone P. (eds): 28-31.

DeMiguel, Alba, D.M. & Moyà-Solà, S. Dietary reconstruction of Miocene apes (Primates: Hominidae) from Catalonia (NE Spain) based on dental microwear. (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

DeMiguel, D., De Esteban-Trivigno, S., Fortuny, J. & Marcé-Nogué, J. El análisis de elementos finitos como método de inferencia dietética en bóvidos.(Comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

De Esteban-Trivigno, S., DeMiguel, D., Fortuny, J. & Marcé-Nogué, J. The shape of bovid jaw and its relationship with phylogeny and biomechanical factors. (Comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

De Esteban-Trivigno, S., Fortuny, J. & Köhler, M. Development of primary olfactive neocortical area in the small-brained fossil insular bovid myotragus balearicus. (Poster). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

De Esteban-Trivigno, S. & Fariña, R.A. Morphological variability in the lower jaw of armadillos: phylogeny or diet?. (Poster). In: 9th Annual Meeting of the European Association of Vertebrate Palaeontologists. (2011, Heraklion, Greece).

Doglio, S., Seglie, D., Spilinga, C. & Delfino, M. (2011). New Amphibian and Reptile records in Morocco (2003-2010). In: Slimani T. (ed.), Abstract Book : 72.

Fortuny, J. Preliminary report on the vertebrate assemblage of the Odèn outcrops (Carnian, late Triassic) of the Pyrenean basin, Catalonia. (comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Furió, M. & Alba, D.M. Siete preguntas frecuentes sobre el género Lantanotherium (Galericinae, Erinaceidae, Mammalia). (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Furió, M., Alba, D.M., Carmona, R. & Rifà, E. New fossil remains of Lantanotherium (Erinaceidae, Mammalia) from the Vallesian (Late Miocene) of Viladecavalls (NE Spain). (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Galobart, À. Diez años de intervenciones geológicas y paleontológicas en los yacimientos maastrichtienses del Pirineo catalán. (comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Galtés, I., Prats-Muñoz, G., Cos, M., Armentano, N., Isidro, A., Fernández, P.L., Borondo, J.C., Jordana, X. & Malgosa A. Resultados de la autopsia del Rey Pere el Gran. (Comunicació oral). In: XI Congreso Nacional de Paleopatología. (2011, Andorra).

García Martínez, R. Equipamientos, productos, problemas y soluciones en la preparación de láminas delgadas. (Comunicació oral). In: II Workshop de Conservación Preparación-Restauración en Ciencias Naturales. (2011, Sabadell, Spain).

García-Martínez, R., Marín-Moratalla, N., Jordana, X. & Köhler, M. First results from bone histology of the giant fossil dormouse Hypnomys.(Poster). In: First International Symposium on Paleohistology. (2011, Sabadell, Spain).

Ibáñez-Gimeno, P., Jordana, X., de Esteban-Trivigno, S., Manyosa, J., Malgosa, A. & Galtés, I. Extremidad superior: marcadores musculoesqueléticos, rigidez humeral y forma diafisaria.(Comunicació oral). In: XI Congreso Nacional de Paleopatología. (2011, Andorra).

Jordana, X., Köhler, M. & Marín-Moratalla, N. Evidence of Exceptional Longevity in a fósil insular mammal from dental histology. (Comunicació oral). In: First International Symposium on Paleohistology. (2011, Sabadell, Spain).

Jordana, X., Marín-Moratalla, N. & Köhler, M. Hipsodoncia en mamíferos insulares y longevidad. Testando la hipótesis a partir de la paleohistología dental.(Comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Köhler, M., Marín-Moratalla, N. & Jordana X. On the significance of fibrolamellar bone in bovids.(Comunicació oral). In: First International Symposium on Paleohistology. (2011, Sabadell, Spain).

Köhler, M., Riyahi, S., Marín-Moratalla, N., Jordana, X. & Quintana J. Comparative long bone histology of insular and continental leporids: reconstructing life history traits of Nuralagus rex. (Comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Marín-Moratalla, N., Köhler, M. & Jordana X. Bone histology in extant and fossil bovids and cervids.(Comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Marín-Moratalla, N., Köhler, M., Jordana, X. & Kaiser T. Preliminary reporto n bone histology in an ontogenetic series of Addax nasomaculatus.(Poster). In: First International Symposium on Paleohistology. (2011, Sabadell, Spain).

Luján, À.H., Alba, D.M., Delfino, M., Fortuny, J. & Carmona, R.Cranial remains of Cheirogaster (Testudines: Testudinidae) from the Late Miocene of Ecoparc de Can Mata (Vallès-Penedès Basin, NE Iberian Peninsula): Taxonomic and phylogenetic implications. (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Madurell-Malapeira, J., Alba, D.M., Aurell, J. & Moyà-Solà, S. Taphonomic approach to the last Villafranchian faunas of Europe: The layer 7 of the Vallparadís local section (Terrassa, Catalonia, Iberian Peninsula). (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Madurell-Malapeira, J., Alba, D.M., Aurell, J. & Moyà-Solà, S. The Layer 7 of the Vallparadís local Section: Paleoecology of the last Villafranchian faunas of Europe. (comunicació oral). In: Hominid-Carnivore Interactions International Congress. (2011, Salou, Tarragona. Spain).

Madurell-Malapeira, J., Fortuny, J., Alba, D.M., Aurell-Garrido, J. & Moyà-Solà, S. Early steps towards the cave bear lineage. (comunicació oral). In: 17th International Cave Bear Symposium. (2011, Einhornhöhle (Unicorn Cave), Harz. Germany).

Madurell-Malapeira, J., Alba, D.M., Aurell-Garrido, J. & Moyà-Solà, S. Early steps towards the cave bear lineage: late Early Pleistocene remains of Ursus deningeri from the Vallparadís Section (Terrassa, Vallès-Penedès Basin, NE Iberian Peninsula). (comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Madurell-Malapeira, J., Minwer-Barakat, R., Alba, D.M., Aurell-Garrido, J., Ros-Montoya, S. & Moyà-Solà, S. The Mid-Pleistocene Revolution and the latest Villafranchian faunas of Europe. (comunicació oral). In: XXVIII INQUA-Congress: Quaternary Sciences – the view from the mountains. (2011, Bern, Switzerland).

Marcé-Nogué, J., Fortuny, J., Gil, Ll. & Galobart, À. (2011). Using Reverse Engineering to Reconstruct Tetrapod Skulls and Analyse its Feeding Behaviour. In: Proceedings of the Thirteenth International Conference on Civil, Structural and Environmental Engineering Computing. (2011, Crete, Greece). Topping, B.H.V. & Tsompanakis, Y. (Eds.), Civil-Comp Press, Stirlingshire, UK, Paper: 237.

Marigó, J., Minwer-Barakat, R. & Moyà-Solà, S. (2011). Paleogene primates from the Iberian Peninsula: Past, present and future. In: Lehmann, T. & Schaal, S.F.K (eds.) The World at the Time of Messel: Puzzles in Palaeobiology, Palaeoenvironment and the History of Early Primates. In: 22nd International Senckenberg Conference. (2011, Frankfurt am Main, Germany). Conference Volume: 108-109.

Minwer-Barakat, R., Madurell-Malapeira, J., Alba, D.M., Aurell-Garrido, J., De Esteban-Trivigno, S. & Moyà-Solà, S. Datación de los niveles de la sección de Torrent de Vallparadís (Pleistoceno Inferior-Medio, Terrassa, Barcelona) mediante el estudio de roedores. (póster). In: XXVII Jornadas

de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Pérez de los Ríos, M., Moyà-Solà, S., Alba, D.M. & Fortuny, J. Computed-tomography scan analysis of the internal facial anatomy of the Middle Miocene ape Pierolapithecus catalaunicus (Primates: Hominidae): Phylogenetic implications. (comunicació oral). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Pérez de los Ríos, M., Alba, D.M. & Moyà-Solà, S. Ventajas del uso de tomografía computerizada en el estudio de la anatomía craneal interna en hominoideos. (comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Pina, M., Alba, D.M., Almécija, S. & Moyà-Solà, S. Is the cortical thickness of the femoral neck a diagnostic trait for inferring bipedalism? (comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Pina, M., Moyà-Solà, S. & Fortuny, J. Inferring locomotion in Miocene apes: the femur of Hispanopithecus laietanus. (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Pineda, S., Casanovas-Vilar, I., Alba, D.M., Carmona, R. & Rifà, E. (Submitted). Biostratigraphy of locality S5C of Autovia Orbital de Barcelona B-40, stretch Olesa de Montserrat – Viladecavalls (Vallès-Penedès Basin, NE Iberian Peninsula). (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Riyahi, S., Köhler, M., Marín-Moratalla, N., Jordana, J. & Quintana J. Bone histology of the giant fósil rabit Nuralagus: The trade-off between growth and reproduction. (Poster). In: First International Symposium on Paleohistology. (2011, Sabadell. Spain).

Robles, J.M., Alba, D.M., Fortuny, J., Rotgers, C. & Moyà-Solà, S. New craniodental remains of the barbourofelin Albanosmilus jourdani (Filhol, 1883) from the Miocene of the Vallès-Penedès (NE Iberian Peninsula) and the phylogeny of the Barbourofelidae. (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Robles, J.M., Alba, D.M., Casanovas-Vilar, I., Galindo, J., Cabrera, L., Carmona, R. & Moyà-Solà, S. On the age of the paleontological site of Can Missert (Terrassa, Vallès-Penedès Basin, NE Iberian Peninsula). (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Rook, L., Berna, F., Delfino, M. & Longo, L. (2011). Fossili senza confini: il contributo Italiano al progetto Dmanisi (Georgia). In: XI Giornate di Paleontologia - Società Paleontologica Italiana. (2011, Serpiano. Italy). Abstract book: 59.

Rotgers, C. & Alba, D.M. The genus Anchitherium (Equidae: Anchitherinae) in the Vallès-Penedès Basin (NE Iberian Peninsula). (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Susanna, I., Alba, D.M., Almécija, S. & Moyà-Solà, S.The vertebral remains of the Late Miocene ape Hispanopithecus laietanus (Primates: Hominidae). (póster). In: 71st Annual Meeting Society of Vertebrate Paleontology. (2011, Paris Las Vegas, Las Vegas, Nevada. USA).

Tomàs, M., Alba, D.M., Robles, J.M., Rotgers, C., Carmona, R., Galindo, J., Almécija, S., Bertó Mengual, J.V., Casanovas-Vilar, I., Balaguer, J. & Moyà-Solà, S. Small suoids from the Middle Miocene of Abocador de Can Mata (Vallès-Penedès Basin, NE Iberian Peninsula): A preliminary assessment. (comunicació oral). In: IX Encuentro de Jóvenes Investigadores en Paleontología. (2011, Morella, Castellón. Spain).

Van Dam, J. Fortuny, J., van Ruijven, L. 2011. Micro-CT scans of fossil micromammal teeth and the definition of volume-based indices of hypsodonty and enamel amount. (comunicació oral). In: XXVII Jornadas de la Sociedad Española de Paleontología. (2011, Sabadell, Spain).

Vila, B., Moratalla, J.J., Gaete, R., Santos, V. & Galobart, À. (2011). New titanosaur trackways from southern Pyrenees: Orcau-2 locality (Late Cretaceous) revisited. In: Dinosaur Track Symposium. (2011, Obernkirchen, Germany). Abstracts boo.

Institut Català de Paleontologia
Miquel Crusafont

Edifici ICP
Campus de la UAB
08193 Bellaterra
(Cerdanyola del Vallès)
Barcelona - Spain
Tel. 93.586.83.45
icp@icp.cat

www.icp.cat

Find us on

Board of Trustees

Generalitat de Catalunya

Universitat Autònoma de Barcelona

Supported by

European Union
European Regional Development Fund
Investing in your future