



2nd Palaeontological **Virtual** Congress

May 1st–15th, 2020



Book of Abstracts

Palaeontology in the virtual era

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A new way to make science

2nd Palaeontological Virtual Congress

Book of Abstracts

Palaeontology in the virtual era

From an original idea of Vicente D. Crespo

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Layout Evangelos Vlachos

Conference logo Hugo Salais

Contact palaeovc@gmail.com

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Presentation

After the great success of the 1st **Palaeontological Virtual Congress (PVC)** organised in December 2018, we are back with the 2nd edition of the first Palaeontological meeting completely developed in a virtual environment. The original idea of implementing this format in our discipline was the natural consequence of the emergence of new technologies, which allow the wider range of communication possibilities. The importance of this kind of initiatives, that allow communication among peers without being physically present, is even more evident with the dramatic changes and exceptional situation that our society has been experiencing in the last few months. Within this context, the origin of the PVC represented the first attempt in palaeontology to take advantage of these new possibilities, becoming nowadays the most important international palaeontological congress developed in the net. This online meeting offers an exclusively virtual-developed environment to researchers all around the globe. The novelty of this project is its simplicity, and one of our main goals is to give international projection to the palaeontological research carried out by groups with limited economic resources; allowing to save expensive registration fees, travel, accommodation and maintenance expenses.

The soul of our congress has not changed, and that is trying to combine the benefits of traditional meetings (i.e., providing a forum for discussion, including guest lectures, field trips or the production of an abstract book) with the advantages of online platforms. These allow reaching a high number of researchers along the world, promoting the participation of palaeontologists from developing countries and providing a comprehensive forum for the exchange of ideas and discussion with specialists in the target field. This abstract book is the best evidence of the success of the initiative, whose figures are increasing edition after edition.

At the moment of publishing this abstract book, more than **363** researchers on palaeontology from **44** different nationalities, and **six** continents (Europe, Africa, North and Central America, South America, Asia, and Oceania), have taken part in this initiative. It is important to highlight the numerous contributions from South America, Africa, Asia, Middle East and Eastern European Countries strengthening our main goal of a palaeontological congress without barriers.

The 2nd PVC is organised in four general theme sessions (**Palaeozoic, Mesozoic, Cenozoic and General Palaeontology**), trying to span the whole variety of potential contributions. However, taking advantage of the flexibility that virtual platforms offer, **five** specific thematic sessions, encompassing topics such as **evolution and palaeobiodiversity in islands, fossil insects, palynology, outreach** and an specific session for palaeontologists in their **early career Stage** to present their works in an completely friendly environment. In total, **161** contributions are compiled in this Abstract Book, including **four key-notes** presented by Dr. **Michael J. Benton** "*Identifying the drivers of macroevolution – methods and pitfalls*"; Dr. **Anne-Laure Decombeix** "*Reconstructing the biology of Palaeozoic trees*"; Dr. **James Kirkland** and Dr. **Don DeBlieux** "*Constraining the Jurassic – Cretaceous terrestrial biota: new data from Utah helps close the gap across the atlantic basin*" and Dr. **Jesús Lozano-Fernández** "*The conquest of land by arthropods*". All those contributions presented in this volume, somehow, summarize the good health and multidisciplinary nature of our science.

Finally, we would like to thank all our colleagues for organising and coordinating the different workshops. We also want to thank all the authors for submitting their contributions and the numerous reviewers that have made this volume and congress possible. We would also like to give special thanks to all Palaeontological and Geological Societies, Editorials, Museums, and Universities, that have supported this initiative.

Thank you all,

The logo for PalaeoVC is a stylized, handwritten-style signature in black ink. The letters 'P', 'a', 'l', 'a', 'e', 'o', 'V', and 'C' are interconnected and fluid. Behind the signature, there is a faint, circular graphic element that appears to be a globe or a similar abstract design.

The Organising Committee of the 2nd PVC

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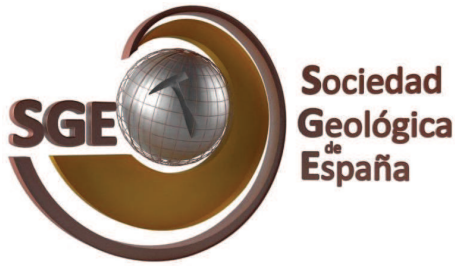
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Organizing Committee

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Dr. Vicente D. Crespo

(Museo de la Plata (UNLP, CONICET), Museu Valencià d'Història Natural, Museo Paleontológico de Alpuente and Departament de Botànica i Geologia, Universitat de València) vidacres@gmail.com

Esther Manzanares

(Department of Botany and Geology and Institut Cavanilles de Biodiversitat i Biologia Evolutiva, Universitat de València) Esther.Manzanares@uv.es

Secretary

Dr. Carlos Martínez-Pérez

(Department of Botany and Geology and Institut Cavanilles de Biodiversitat i Biologia Evolutiva, Universitat de València and University of Bristol) Carlos.Martinez-Perez@uv.es

Humberto G. Ferrón

(University of Bristol) humberto.ferron@bristol.ac.uk

Bursar

José Luis Herráiz

(Department of Botany and Geology and Institut Cavanilles de Biodiversitat i Biologia Evolutiva, Universitat de València) joheca@alumni.uv.es

Social networks

Fernando Antonio M. Arnal

(University of Bath) fama25@bath.ac.uk

Arturo Gamonal

(Museo Paleontológico de Alpuente) arturo-gamonal@hotmail.com

Francesc Gascó

(Universidad Nacional de Educación a Distancia) francisco.gasco@gmail.com

Other Members

Paolo Citton

(CONICET and Instituto de Investigaciones en Paleobiología y Geología, IIPPG); Argentina pcitton@unrn.edu.ar

Evangelos Vlachos

(CONICET and Museo Paleontológico Egidio Feruglio, Argentina and School of Geology, Aristotle University of Thessaloniki, Greece) evlacho@gmail.com





Thematic Session: Fossil insects, their record, ecology and evolution

Palaeoentomology started in the late 18th century, shortly after the 10th edition of Linnaeus' *Systema Naturae* (the foundation of modern taxonomy), when papers on the curiosities of insects entombed in fossil resins were published. Since its beginning, palaeoentomology covered not only descriptive aspects of terrestrial arthropods (including Insecta, Chelicerata and relatives) but also reconstructions of ancient environments, ecology, evolution and phylogenies.

Over half of all described species, at least one million species worldwide, are insects. This makes them one of the major ecological and evolutionary radiations on Earth. Insects evolved into a hyperdiverse lineage that currently occupies almost every ecological niche, thanks to great diversity of life forms and developmental strategies. Insects possess a surprisingly extensive fossil record, documented back more than ~410 million years ago. Nowadays, we know better their fossil record and phylogenetic relationships, our understanding of the reasons for this diversity is growing, but still is insufficient.

Despite retreat and impediment in taxonomic research, palaeoentomological papers are now flooding the journals, due to thousands of new fossils recorded in the mid-Cretaceous Burmese amber and in other fossil insects sites. However, more attention is nowadays, and should be given in future to present the fossils in wider context, with interpretation of their palaeoecological and evolutionary role and importance.

The main goal of this thematic session is to point out the needs in both descriptive (taxonomic) and interpretational (palaeoecological, evolutionary, etc.) aspects of palaeoentomological research. We wish to discuss these issues, search for the new ways of data accumulation and elaboration, finding the solutions for better understanding of ecological and (co)-evolutionary processes. We would like also discuss the ways to share and distribute the palaeoentomological data and information.

Organiser

Dr. hab. Jacek Szwedo

University of Gdańsk Professor Laboratory of Evolutionary Entomology and Museum of Amber Inclusions

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The oldest representative of Paederini (Coleoptera, Staphylinidae) from Late Cretaceous Burmese amber and its systematic position

D. Żyła[®]

University of Gdańsk,
Department of Invertebrate
Zoology and Parasitology, Wita
Stwosza 59, 80-308 Gdańsk,
Poland

Iowa State University,
Department of Ecology,
Evolution, & Organismal
Biology, 2200 Osborn Dr, Ames,
IA 50011, USA

S. Yamamoto

The Hokkaido University
Museum, Kita 10-jo, Nishi
8-chome, Kita-ku, Sapporo,
Hokkaido 060-0810, Japan

J. Szwedo

University of Gdańsk,
Department of Invertebrate
Zoology and Parasitology, Wita
Stwosza 59, 80-308 Gdańsk,
Poland

The family Staphylinidae, commonly known as rove beetles, contains over 65,000 described species, making it the largest family of animals. Among all subfamilies of rove beetles, the Paederinae are one of the most diverse, with more than 7500 described extant species and 35 fossil species. The subfamily is currently divided into four tribes, Lathrobiini, Paederini, Pinophilini, and Cyliandroxytini. Recent molecular, total-evidence, and morphological phylogenetic analyses of the group improved their classification and provided the first morphological matrices for the subfamily. So far, there are two fossil genera of Paederinae known from the early Late Cretaceous Burmese amber from northern Myanmar (Kachin amber), which is one of the most diverse insect amber deposits in the world. The genera were classified within the tribes Lathrobiini and Pinophilini based on the results of phylogenetic analyses. Paederini is the second largest tribe within Paederinae and it is further divided into four subtribes, namely Paederina, Cryptobiina, Dicaxina, and Dolicaonina. Up to date, the only known fossil representatives of the tribe belong to the subtribe Cryptobiina, but they have never been formally described. Almost all of these fossils, however, come from Cenozoic deposits, mostly of the Eocene age.

Here, we present the oldest undisputed representative of the tribe Paederini from the Burmese amber. Bayesian inference phylogenetic analyses of morphological and molecular data allowed its unambiguous placement in the tribe, as well as finding its systematic position within Paederini. This newly described Paederinae genus from the Burmese amber provides important insight into the evolution of the subfamily.



Phylogenetics
Paederinae
Fossils
Morphology
Molecular data



zyladagmara@gmail.com

