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## Fossils X3 for the 8<sup>th</sup> time and IPS Meeting in Santo Domingo, April 2019

JACEK SZWEDO<sup>1</sup> & MÓNICA M. SOLÓRZANO KRAEMER<sup>2</sup>

<sup>1</sup> *Laboratory of Evolutionary Entomology and Museum of Amber Inclusions, Department of Invertebrate Zoology and Parasitology, Faculty of Biology, University of Gdańsk, 59, Wita Stwosza St., PL80-308 Gdańsk, Poland, e-mail: jacek.szwedo@biol.ug.edu.pl*

<sup>2</sup> *Senckenberg Research Institute, 60325 Frankfurt am Main, Germany, e-mail: Monica.Solorzano-Kraemer@senckenberg.de*

### The 8<sup>th</sup> International Conference on Fossil Insects, Arthropods and Amber, Santo Domingo, Dominican Republic, 7–13 April 2019—a brief summary

The Fossil Insect Network was created 33 years ago in 1996 in Strasbourg, France, under the auspices of the European Science Foundation. Since then, several meetings were organised: 1998—First International Palaeoentomological Conference in Moscow, Russia; 1998—World Congress on Amber Inclusions in Vitoria-Gasteiz, Basque Country, Spain; 2000—Brazilian Symposium on Palaeoarthropodology in Ribeirão Preto, Brazil; 2001—Second International Congress on Palaeoentomology, Fossil Insects, Kraków, Poland. This Congress in Kraków was also the origination of the International Palaeoentomological Society. The year 2005 was very important as three meetings, i.e. the Palaeoentomological Conference, the World Congress on Amber Inclusions, and the International Meeting on Palaeoarthropodology were decided to merge together as Fossils X3. This decision was made in Pretoria, South Africa. Following the International Congresses on Fossil Insects, Arthropods and Amber, Fossils X3 continued in 2007—Vitoria-Gasteiz, Basque Country, Spain, 2010; in Beijing, China, 2013—Byblos, Lebanon; and 2016—Edinburgh, Scotland, where ‘International Fossil Insects Day’ was declared and is now celebrated on each 1<sup>st</sup> of October.

The 8<sup>th</sup> International Conference on Fossil Insects, Arthropods and Amber in Santo Domingo, Dominican Republic, passed very quickly, but it will stay long in memory of participants. The Conference was held in the historic Zona Colonial of Santo Domingo (declared by UNESCO as a World Heritage Site), and organised by the Amber World Museum and affiliated institutions of the Municipality of Santo Domingo and the Dominican Republic, in collaboration with the International Palaeoentomological Society. The Dominican Republic institutions supporting the Conference were: the National Museum of Natural History “Prof. Eugenio de Jesús

Marcano”; the Ministry of Energy and Mining; the Servicio Geológico Nacional; the Sociedad Geológica Dominicana; the Ministry of Higher Education, Science and Technology; the Ministry of the Presidency of the Dominican Republic; Ministry of Culture; Ministry of Tourism; and Ministry of Industry and Commerce of the Dominican Republic.

The organisation efforts were carried by Jorge Caridad, Director of the Amber World Museum in Santo Domingo, Jorelis Caridad, Senior Executive of the Amber World Museum, and Paul C. Nascimbene, from the Division of Invertebrate Zoology, American Museum of Natural History, New York. It was held at Centro Indotel Espacio República Digital in Santo Domingo, and parallel sessions took place at nearby Centro Cultural Banreservas.

The Amber World Museum is a private Museum existing since 1996. The realization of this project was only possible with thank international cooperation with different institutions as the Staatliches Museum für Naturkunde Stuttgart, American Museum of Natural History or the Museo de la Ciencias Naturales de Barcelona. The Amber World Museum is a Family business; nevertheless Jorge, Arelis and Jorelis Caridad are not only interested in the commercial value of amber but also in showing, the general public, the scientific value of amber and its inclusions. The engagement is clearly observed through the amber exposition and the open of the collection to scientists. The museum has also started with this congress to work in cooperation with the National Museum of Natural History.

The Conference gathered together 110 palaeoentomologists and palaeoarthropodologists. Five keynote presentations, 57 talks, and 26 posters were presented in the following Sessions: Eusocial Insects / Behavior; Mesozoic Phylogenies; Basal Lineages / Paleodictyoptera / Odonatoptera / Odonata; Arthropods in Amber / Amber Taphonomy; Amber Forest Biota / Paleoecosystems; Mesozoic Tipulomorpha / Blephariceridae; Caribbean Paleobiogeography / Dominican Amber; New Amber Deposits



**FIGURE 1.** A, Congress logotype. B, World Museum of Amber in Santo Domingo. C, Cover of the special issue of “Palaeoentomology”, volume 2 issue 2, co-edited by Michael S. Engel. D, Opening ceremony, Jorge Caridad opening speech (Photo JS). E, President of IPS Dany Azar presents diploma to Congress organiser, Jorelis Caridad (Photo JS). F, President of IPS Dany Azar presents diploma to Congress organiser Paul C. Nascimbene (Photo JS). G, Dominican Republic with amber and larimar mines visited during the field trips.





**FIGURE 2.** A, Romain Garrouste during Congress presentation (Photo DYH). B, Discussion after the talk. C, Chenyang Cai during the Congress presentation (Photo DYH). D, Looking for the inclusions in Dominican amber (Photo DYH). F, Amber mine pit-hole in Mina Del Valle area (Photo JS). G, Amber miner leaving the pit-hole, Mina Del Valle area (Photo DYH).





**FIGURE 3.** **A**, Piece of blue amber from Mina Del Valle (Photo JS). **B**, Aerial view of La Cumbre mining area (Photo DL). **C**, Amber pieces from La Cumbre (Photo JS). **D**, Aerial view of Las Filipinas mining area of larimar (Photo DL). **E**, Caridad family: Jorge, Jorelis, Arelis (Photo DL). **F**, Pieces of Larimar (Photo JS). **G**, Award presentation for the best student's talk (Photo DYH). **H**, Award presentation for the best student's poster (Photo JS).

Photo credits: JS—Jacek Szewdo; DYH—Diyang Huang; DL—Doug Lundberg.



/ Fossil bearing Outcrops / Entomofauna; Phylogenies: Nematocera (Diptera) / Coleoptera; New Technologies and Methodologies and Burmese Amber. All abstracts were published in the Conference Abstracts volume edited by Paul C. Nascimbene (2019).

Beside scientific sessions and discussions, three field excursions were available for participants. The first one was a visit to the amber mines in the northern part of the Hispaniola Island, in Cordillera Oriental, Mina Del Valle. There, participants had the possibility to look for amber, where if somebody is lucky he could find amber and if he was very lucky he could find blue amber—which is a very rare. The amber is deposited in the Yanigua Formation in the lagoonal carbonaceous claystones and sandstones, these laminated beds contain flattened and irregular inclusions of amber, usually as pockets or lenses ranging from a few millimetres to several centimetres in size. The beds may contain also fresh- to brackish- water ostracods and mollusks, foraminiferans and fish teeth.

The same field excursion gave the opportunity to visit Los Haitises National Park, located on the remote northeast coast of the Dominican Republic. The Park was established in 1976, and consists of a limestone karst plateau with conical hills, sinkholes and caverns. The Park is dominated by a large mangrove forest on the coast. Some of the caverns with original pictograms and petroglyphs, made by as yet unidentified native peoples, were visited.

The second amberiferous area visited was in the northern part of Dominican Republic, in Cordillera Septentrional, Santiago District, in La Cumbre area. Here the amber is deposited in La Toca Formation. The Formation is subdivided in three sections of which the upper one is amberiferous. This section is composed of thick-bedded sandstones with lesser amounts of conglomerate beds, which contain concentrations of lignite and amber fragments that define parallel laminae in the siltstones. The finer fraction of the beds is mud-poor and parallel-laminated or massive. Amberiferous beds are dated as late Early to early Middle Miocene (15–20 mya) (Iturralde-Vinent & MacPhee, 1996). Last field visit available was to the larimar mines in Barahona. Larimar is a trademarked name for a rare blue, gem-quality variety of the mineral pectolite, with chemical formula  $\text{NaCa}_2\text{Si}_3\text{O}_8(\text{OH})$ . Pectolite is normally gray in colour and is actually not that rare, occurring in many locations around the world. Blue larimar is found only in one location in the entire world—in Las Filipinas Mine, Dominican Republic. Gemmologically, blue larimar is a hydrated sodium calcium silicate with manganese. Its distinct blue colour is owed to calcium being replaced by copper impurities. The composition of larimar is often mixed with other materials such as calcite and hematite.

Its colour can vary from white to light-blue, and from medium sky to volcanic blue.

## 6<sup>th</sup> International Palaeontological Society General Meeting

During the Conference the General Meeting of the International Palaeontological Society (IPS) was also conducted. The reports on activities of the Society and managing bodies, its financial situation, memberships and other issues were presented. During the last three years since the former Congress, IPS finally achieved its own professional, scientific journal—“Palaeontology”, published by Magnolia Press (Azar *et al.*, 2018), with the support of the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences. The special issue of “Palaeontology” (vol. 2, issue 2), co-edited by Michael S. Engel, was presented during the Conference. To the time of 8<sup>th</sup> International Conference on Fossil Insects, Arthropods and Amber in Santo Domingo three volumes were published. The journal is edited by Diying Huang, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences and Dany Azar, Lebanese University (Editors-in-Chief), Jacek Szwed, University of Gdańsk and Neal Evenhuis, Berenice P. Bishop Museum in Honolulu, Hawaii (Associate Editors).

During the General Meeting several elections were preceded. The following persons were elected as members of the Executive Committee: Jacek Szwed, University of Gdańsk (President), Bo Wang, Nanjing Institute of Geology and Palaeontology (Vice-President), Edmund Jarzembowski, Nanjing Institute of Geology and Palaeontology (Secretary), Olivier Béthoux, Muséum National d’Histoire Naturelle (Treasurer), Iwona Kania, University of Rzeszów (Membership Secretary). Several other Officer positions were discussed: the position of Web Master of IPS website was sustained, with Vladimir Blagoderov, National Museums Scotland as responsible Officer and Social Media Officer position was voted, with Dagmara Żyła, Iowa State University, as responsible. The Scientific Committee was approved: Agnieszka Soszyńska-Maj (University of Łódź, Poland) as Head of Committee, regional representatives—Dmitry Kopylov (Palaeontological Institute, Russian Academy of Sciences, Moscow, Russia—Eurasia), Phillip Barden (New Jersey Institute of Technology, NJ, USA—North America), Romain Garrouste (Institut Systématique Evolution Biodiversité, Muséum National d’Histoire Naturelle—Africa), Julian Petrulevičius (Universidad Nacional de La Plata, La Plata, Argentina—South America), Sarah Martin (Geological Survey of Western Australia, East Perth, WA, Australia—Australasia), and members Chungkhun Shih (College of Life Sciences, Capital Normal University,

Beijing, China), Enrique Peñalver (Instituto Geológico y Minero de España (Museo Geominero), Valencia, Spain), Chenyang Cai (School of Earth Sciences, University of Bristol, Bristol, UK; NIGPAS, China), Vincent Perrichot (Université de Rennes, CNRS, Géosciences Rennes, Rennes, France), Mónica Solórzano Kraemer (Department of Palaeontology and Historical Geology, Senckenberg Research Institute, Frankfurt am Main, Germany), plus two substitutes: Dany Azar (Lebanese University, Beirut, Lebanon) and Xavier Delclòs (Facultat de Ciències de la Terra and Institut de Recerca de la Biodiversitat (IRBio), Universitat de Barcelona, Barcelona, Spain).

Two awards were granted: 1) for the best student oral presentation given to Jonas Barthel, University of Bonn for his presentation entitled “The limits of amber preservation: an ultrastructural and chemical approach with arthropods in resinites”, co-authored with Jes Rust, University of Bonn; 2) for the best poster to Marina Hakim, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences “Psocoptera from the Mid-Miocene Dominican Amber” co-authored with Diying Huang (NIGPAS) and Dany Azar (Lebanese University).

Finally, two proposals for organisation of the next

meeting in 2022 were presented: Munich (Germany) by Viktor Baranov, Ludwig-Maximilians-University of Munich and Xi’An (China) by Diying Huang, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences. These proposals were voted by secret ballots and by the majority of IPS members Xi’An was chosen, as the place of the next congress. Then see you in Xi’An in 2022!

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