25[™] ANNIVERSARY OF MUSEUM OF AMBER INCLUSIONS UNIVERSITY OF GDAŃSK

Fossil Record in Resins and Sediments

BOOK OF ABSTRACTS

UNIVERSITY OF GDAŃSK 23-26 MAY, 2023



FossilRRS Conference



Fossil Record in Resins and Sediments

25th Anniversary of Museum of Amber Inclusions University of Gdańsk

BOOK OF ABSTRACTS

University of Gdańsk, Faculty of Biology Gdańsk, POLAND May 23 - 26 2023







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Editors: Jacek Szwedo, Błażej Bojarski, Karolina Cierocka, Elżbieta Sontag Typesetting: Jacek Szwedo, Elżbieta Sontag; Cover: Elżbieta Sontag, Karolina Cierocka

This volume has been compiled from files supplied by the Authors.

ISBN: 978-83-968174-0-2

Published by: Department of Invertebrate Zoology and Parasitology, Faculty of Biology, University of Gdańsk, 59, Wita Stwosza St, PL80-308 Gdańsk, Poland

Ministry of Education and Science Republic of Poland

Conference Fossil Record in Resins and Sediments - 25th Anniversary of Museum of Amber Inclusions UG - a task financed from funds of the Minister of Education and Science for the "Doskonała Nauka" programme.

WELCOME

The Museum of Amber Inclusions University of Gdańsk is pleased to invite you to celebrate its 25th anniversary and attend the conference *Fossil Record in Resins and Sediments*, which will be held in Gdańsk, Poland, from 23rd-26th May 2023.

Twenty-five years ago, the natural history collection of amber and inclusions, started from modest beginnings – scientific collection of the Diptera inclusions of Professor Ryszard Szadziewski. What revolutionised the collection was the donation of 50 kg of raw Baltic amber, which completely changed the view on amber, its inclusions and its amber taphocoenosis. The uniqueness of the scientific collection of the Museum of Amber Inclusions is in its positioning within the structures of the University. We are not a collection of specimens, musealia that cannot be touched, but a collection where amber is the basis of scientific discovery and research. Twenty-five years ago, we were at the point when interest in inclusions was developing, and the amber market was growing, and we were present at the Amberif Fair, among the amber workers and collectors, at the centre of the amber (and inclusions) fever. The scientific backbone of the Museum is its collectors and friends among scientists. The flesh is a collaboration with amber workers, and opinions.

New technologies allow us to look more and more closely into worlds hidden millions of years ago in the solidifying drops of resins. It is the 21st century and we are discovering new pages written in the books of amber, its inclusions and its deposits, but also in the stone books of palaeontology. We will not be able to answer more and more questions on our own – cooperation, exchange of information and experience of geologists, palaeontologists and biologists is needed.

The Conference, which is being held at the University of Gdańsk and supported by the Ministry of Education and Science, will offer an outstanding scientific programme thanks to the participants. It is an opportunity to share the current state of knowledge, new working hypotheses, to debate new findings and new tools, to discuss and find new interpretations of existing data and opinions.

It is with great pleasure that we invite all of you in the spring of 2023 to this Conference, we encourage scientific openness, warm discussions, collaboration, and a shared reading of palaeobiology in fossil resins and sediments. We trust that your stay in Gdańsk – the World Capital of Amber and Museum of Amber Inclusions will be a memorable opportunity for both professional and personal satisfaction.



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TABLE OF CONTENTS

PLENARY LECTURES
Dzik J. – THE 'CAMBRIAN EXPLOSION'
Szwedo J. – FOSSIL RESINS OF THE WORLD, WORLDS OF FOSSIL RESINS
Szwedo J., Sontag E. – BALTIC AMBER – TRAP OR TREASURE TROVE FOR PALAEOBIOLOGY
ABSTRACTS
Álvarez-Parra S. et al. – PARASITOID WASP DIVERSITY (HYMENOPTERA) IN LOWER CRETACEOUS AMBER FROM EL SOPLAO (SPAIN)
Álvarez-Parra S. et al. – A GLIMPSE TO THE ANCIENT RESINIFEROUS FORESTS THROUGH AMBER TAPHONOMY 13
Arriaga-Varela E. et al. – HANDSOME FUNGUS BEETLES (COCCINELLOIDEA: ENDOMYCHIDAE, ANAMORPHIDAE) IN MYANMAR AMBER. REMARKABLE DIVERSITY, REMARKABLE CHALLENGES
Bartel C., Dunlop J.A. – A FORGOTTEN WORLD: AMBER HARVESTMEN AS A WINDOW INTO PAST DIVERSITY 17
Beurel S. et al. – FOSSIL FLOWERS FROM MIOCENE ZHANGPU AMBER (CHINA)
Bienias J. et al LITHOBIOMORPHA IN BALTIC AMBER - CURRENT KNOWLEDGE AND PERSPECTIVES 21
Bieszczad B. – NEW INSIGHTS INTO THE JURASSIC COLEORRHYNCHA MYERS ET CHINA, 1929 (HEMIPTERA) FROM EUROPEAN DEPOSITS
Bojarski B. et al EXPLORING THE FOSSIL RESINS TAPHONOMY - PIDDOCKS INCLUSIONS AND ICHNOFOSSILS 25
Bojarski B. et al THE NEMATODE FOSSIL RECORD - INSIGHTS FROM BALTIC AMBER INCLUSIONS
Bouju V. et al WHAT IS ETHIOPIAN AMBER TELLING US ABOUT MIOCENE AFRICAN FOREST ECOSYSTEM? 29
Celary W. et al BUZZERS FROM THE PAST - THE FIRST MELIKERTINI BEE FROM EOCENE LUBLIN AMBER 31
Cuber P., Hayes P.A. – AMBER COLLECTION AT THE NATURAL HISTORY MUSEUM, LONDON
<i>De Baets K. et al.</i> – THE BEARING OF THE FOSSIL RECORD TO CONSTRAIN THE EVOLUTION AND EXTINCTION OF PARASITE-HOST ASSOCIATIONS
Drohojowska J., Kurkina S. – JUMPING PLANT-LICE (HEMIPTERA: STERNORRHYNCHA: PSYLLOIDEA) FROM EOCENE BALTIC AMBER
Drohojowska J., Szwedo J. – CROUCHING DISPARITY, HIDDEN DIVERSITY – WHITEFLIES IN THE EOCENE RESINS OF EUROPE
Drohojowska J., Szwedo J. – DINGLOMORPHA - KEY TAXON OR BLIND BRANCH IN STERNORRHYNCHA EVOLUTION?
Heikkilä M. – SEARCHING FOR CALIBRATION POINTS IN THE WORLD FOSSIL RESINS TO DATE THE LEPIDOPTERAN TREE OF LIFE
Herbert M.C.M. et al. – THE IMPACT OF NEW SCUTTLE FLY FOSSILS IN FOSSIL RESINS FROM CRETACEOUS TO HOLOCENE
Hoffmannova J. et al. – LISSOMINAE (COLEOPTERA: ELATERIDAE) FROM BALTIC AND ROVNO AMBERS
Jenkins Shaw J., Solodovnikov A. – ROVE BEETLE PALAEOBIOLOGY AT THE NATURAL HISTORY HISTORY MUSEUM OF DENMARK
Jiang H. et al. – WIDESPREAD MINERALIZATION OF INSECTS IN MID-CRETACEOUS KACHIN AMBER
<i>Kaczmarek S., Soszyńska A.</i> – FIRST FEMALE OF FOSSIL <i>BURMOTHAUMA</i> (EOMEROPIDAE, MECOPTERA) FROM BURMESE AMBER SHEDS LIGHT ON ENVIRONMENTAL PREFERENCES OF FOSSIL EOMEROPID IN THE CRETACEOUS
Kaulfuss U. et al. – NEW ZEALAND AMBER: AGE, DEPOSITIONAL SETTING AND BIOINCLUSIONS
Kettunen E. et al. – DEMATIACEOUS MICROFUNGI FROM EUROPEAN PALAEOGENE AMBERS
<i>Kirichenko-Babko M.B. et al.</i> – A BRIEF REVIEW OF KNOWN AMBER PAUSSINAE (COLEOPTERA: CARABIDAE) AND THE IMPORTANCE OF THE FIRST ROVNO AMBER PAUSSINE FINDING
Klikowicz-Kosior A., Kosior M. – THE IMPORTANCE OF ACCURATE IDENTIFICATION OF FOSSIL RESINS
Krzemiński W. et al. – FIRST CHILELIMNOPHILA (DIPTERA: LIMONIIDAE) IN FOSSIL RECORD

<i>Krzemiński W. et al.</i> – UNIQUENESS OF PRESERVATION OF FOSSIL MATERIAL FROM FUR FORMATION ON THE EXAMPLE OF <i>ARCTOCONOPA</i> (DIPTERA, LIMONIIDAE)	НЕ 65
<i>Kundrata R. et al.</i> – FIRST CLICK-BEETLE LARVAE FROM THE MID-CRETACEOUS AMBER OF NORTHERN MYANMAR	67
<i>Mąkol J.</i> – TERRESTRIAL PARASITENGONA MITES (ARACHNIDA: ACARIFORMES) IN FOSSIL RESINS – STATE O ART	F THE 69
<i>Mulvey L. et al.</i> – WHERE TRADITIONAL EXTINCTION ESTIMATES FALL FLAT: USING NOVEL COPHYLOGENETI METHODS TO ESTIMATE EXTINCTION RISK IN PATHOGENS	C 71
Ogłaza B., Węgierek P. – THE COMPARISON OF APHIDS FROM CANADIAN AMBER TO FAUNAS FROM OTHER FOSSIL RESINS	R 73
Pełczyńska A. et al. – NEW INSIGHT INTO BIOGEOGRAPHICAL HISTORY OF THE GENUS ROBSONOMYIA (DIP KEROPLATIDAE) – FIRST EUROPEAN AND FOSSIL SPECIES	TERA: 75
<i>Pielińska A. et al.</i> – INCLUSIONS IN AMBER FROM COLLECTIONS OF THE POLISH ACADEMY OF SCIENCES MUSEUM OF THE EARTH IN WARSAW	77
<i>Ross A.J.</i> – THE REMARKABLE PALAEODIVERSITY IN BURMESE (MYANMAR) AMBER (MID-CRETACEOUS) – UPDATED	79
Santos D. – "OUR GRAVES HAVE MORE LIFE": FOSSIL TIPULOMORPHA FROM THE CRATO FORMATION OF N BRAZIL	E 81
Seyfullah L.J. et al. – A NEW GROUP OF AMBER SOURCE PLANTS FROM THE CRETACEOUS	83
Słomczyński K., Soszyńska A. – GLITTER IN AMBER – LONG-LEGGED FLIES (DOLICHOPODIDAE) IN BALTIC AM	1BER 85
Šmídová L. – COCKROACH FAUNA FROM MID-CRETACEOUS KACHIN AMBER: STATE OF THE KNOWLEDGE	87
Solórzano-Kraemer M.M. et al. – "NECROPHAGOUS TRAP" – A CASE STUDY ON CRETACEOUS AMBER WITH LIZARD HOLOTYPE OCULUDENTAVIS NAGA	89
Sontag E., Szwedo J. – MUSEUM OF AMBER INCLUSIONS UNIVERSITY OF GDAŃSK – DISCOVERIES AND POTENTIAL	91
Soszyńska A. et al. – EXTINCT PARASITE OF EXTINCT SCORPIONFLY - SYNCHROTRON MICROTOMOGRAPHY HELPED TO UNCOVER A HIDDEN STORY	93
Szawaryn K., Bukejs A. – X-RAY MICRO-COMPUTED TOMOGRAPHY REVEALS HIDDEN PALEODIVERSITY OF MINUTE HOODED BEETLES (COLEOPTERA: CORYLOPHIDAE) IN EOCENE BALTIC AMBER	95
Szawaryn K., Tomaszewska W. – MICRO-CT SCANNING REVEALED A NEW COCCINELLIDAE REPRESENTATIVE FROM BALTIC AMBER, A PUTATIVE COMMON ANCESTOR OF TWO EXTANT TRIBES	E 97
Szpila K. et al. – THE FIRST FOSSIL LARVA OF MECOPTERA (INSECTA) - DISCOVERED IN BALTIC AMBER	99
Szwedo J. – MIOCENE FOSSIL RESINS - WHAT THEY CAN SAY ON MODERN-DAY CLIMATIC CRISIS	101
Szwedo J., Bojarski B. – DAMSEL BUG FROM EOCENE LUBLIN AMBER, MAY BE NOT SUCH A DAMSEL	103
<i>Szwedo J. et al.</i> – FIRST SPILAPTERIDAE (PALAEODICTYOPTERA) FROM NAMURIAN B OF BIELSZOWICE COAL MINE, UPPER SILESIA	105
<i>Tischer M. et al.</i> – PALAEOGENE AMBERS AS SOURCE OF FOSSIL ASCOMYCETES: RECENT DISCOVERIES AND PERSPECTIVES.) 107
Vilhelmsen L. et al. – ECHOES FROM THE CRETACEOUS: NEW FOSSILS SHED LIGHT ON THE EVOLUTION OF H DETECTION AND CONCEALED OVIPOSITOR APPARATUS IN THE PARASITOID WASP SUPERFAMILY	IOST
ORUSSOIDEA (HYMENOPTERA)	109
Zakrzewska M. et al. – THE LIMONIIDAE OF EOCENE LUBLIN AMBER	111
TYPES OF FOSSIL SPECIES IN MAI UG COLLECTION [MAIG]	113

Fossil Record in Resins and Sediments

palaeobiological conference

23-26 May 2023 Gdańsk, Poland

ABSTRACTS



DAMSEL BUG FROM EOCENE LUBLIN AMBER, MAY BE NOT SUCH A DAMSEL

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Keywords: Nabidae, Heteroptera, disparity, palaeobehaviour, palaeoecology

Clastic deposits accumulated in the Middle and Late Eocene of the Górka Lubartowska region (Lublin area, South Eastern Poland) has been recently recognized as amber source¹. Amber found in this area brought several inclusions not reported from similarly aged amber from the Gulf of Gdańsk, Bitterfeld or Ukraine.

The Heteroptera family Nabidae – the damsel bugs, contains about 30 genera and 400 species, subdivided in two subfamilies and up to 8 tribes^{2,3}. The internal classification has been unclear and controversial, confusing researchers in various fields. Damsel bugs are medium sized, rarely exceeding 10 mm, usually elongate, softbodied, represent a guild of generalist arthropod predators, found in different terrestrial ecosystems. Many damsel bugs catch and hold prey with their forelegs, similar to mantids. The elongated, oval head has compound eyes placed close to the edge of the hemelytrae and the appendages located on a flat vertex. The relatively long and thin antennae, in addition to the four proper antennomeres, are also built up by two small intercalary insertions, located behind the first and second antennomeres. Rostrum is four-segmented, mobile, in the resting position does not adhere to the underside of the head, but arches. The pronotum towards the back widens trapezoidally, its the anterior section is developed into a collar; scutellum is small, triangular. Hemelytrae variable form macropterous to brachypterous, without costal break and cuneus. The pro- and mesofemora are sometimes thickened, tarsi three segmented and *fossula spongiosa* (bristly appendage), on the tips of pro- or sometimes pro- and mesotibiae are present. Males of most species have an Ekblom's organ behind the posterior opening of the pygophore and set of bristles on tips of metatibiae, involved in the distribution of pheromones from the rectal glands². In some Nabidae (Prostemmatinae, Carthasini) a special behavior called traumatic insemination (TI), do occur⁴.Oldest fossils record of the family is Cretanazgul camillei Garrouste et al., 2020 from Cenomanian, Kachin amber and there are two species known from Baltic amber - 'Nabis' lucidus Germar et Berendt, 1856 and Metatropiphorus succini (Jordan, 1952)⁵.

A piece of amber from Górka Lubartowska contained a fossil of true bug presenting features of the family Nabidae, but also features not present in modern damsel bugs, the most striking are stalked eyes, tarsi short, 2-segmented and *fossula spongiosa* developed on all legs. Some morphological details of the fossil are shared with representatives of Prostemmatini (Prostemmatinae), the others with Carthasini and Arachnocorini (Nabinae). Further analysis of morphological features of a new damsel bug brought some indications to its palaeoecology, palaeobehaviour and palaeohabitat. We can assume it was a riparian bug, hunting near shorelines or the marginal growths near freshwater bodies, estuaries, and sea coast, similar to modern members of the families Leptopodidae, Saldidae, and Gelastocoridae. *Fossula spongiosa* is present on the fore and mid legs or only on the fore legs in most of Cimicomorpha, including Nabidae. In the new fossil

Fossil Record in Resins and Sediments

25th Anniversary of Museum of Amber Inclusions University

Gdańsk 23rd-26th May 2023

fossula spongiosa is present on the tibiae of all legs. The presence of this structure on all legs is usually related TI, so we assume that such a behaviour was present in this fossil damsel bug.



Figure 1. Relationships within Nabidae, with TI occurrences marked in red.

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