

25<sup>TH</sup> 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**

**25<sup>th</sup> 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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## WELCOME

The Museum of Amber Inclusions University of Gdańsk is pleased to invite you to celebrate its 25<sup>th</sup> anniversary and attend the conference *Fossil Record in Resins and Sediments*, which will be held in Gdańsk, Poland, from 23<sup>rd</sup>-26<sup>th</sup> 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 collection, research facilities and friends among scientists. The flesh is a collaboration with amber workers, collectors and enthusiasts of amber and inclusions. The blood is the circulation of information, data, ideas, 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 21<sup>st</sup> 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.

### HONORARY PATRONAGE





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# **Fossil Record in Resins and Sediments**

**palaeobiological conference**

**23-26 May 2023**

**Gdańsk, Poland**

**ABSTRACTS**



## FIRST SPILAPTERIDAE (PALAEODICTYOPTERA) FROM NAMURIAN B OF BIELSZOWICE COAL MINE, UPPER SILESIA

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**Keywords:** adpression fossil, Zabrze Beds, Upper Silesia Coal Basin, fossil record

The Upper Silesia Coal Basin, located in south western Poland and the north-eastern Czech Republic, is the largest coal basin in Europe, with a total area of about 7400 km<sup>2</sup>. The basin has a triangular shape, being bounded on its western side by over thrust Devonian to Mississippian sediments of the Moravo-Silesian fold-zone, and to the north by the Lubliniec–Kraków tectonic zone. Its southern limits have been identified based on records from deep bore holes of the Carboniferous coal-bearing strata be low Miocene deposits and nappes of the Outer Carpathians. The Upper Silesia Coal Basin was part of a larger sedimentary basin located in a foreland position in front of the Moravo-Silesian orogen during Late Palaeozoic times. The Zabrze Beds (Kinderscoutian; Namurian B) are the oldest deposits of the fully terrestrial phase of sedimentation in the Upper Silesia Coal Basin (USCB ) and constitute a part of the flexural Variscan fore deep USCB in fill. On the Main Anticline area this unit starts the continental stage of the basin development. The Zabrze Beds were deposited on an extensive alluvial plain probably constructed by meandering river systems<sup>1</sup>.

Carboniferous record of insects from USCB is scarce, a few representatives of unplaced Archeorthoptera and Geraridae; Protorthoptera: Paoliidae (=Katerinkidae) and Stygneidae; Palaeodictyoptera: Breyeriidae and Homiopteridae. The Palaeodictyoptera have been major herbivorous plant-sap sucking insects during the Late Carboniferous to the Early Permian. They were well-diversified, with at least known 50 genera in about 16 families. However, palaeodictyopteran species are generally represented by very few specimens in comparison to other clades such as the Dictyoptera or the Archaeorthoptera. Spilapteridae is regarded as one of the most species-rich of its order, comprising currently 23 genera<sup>2</sup>, but so far no taxa of this family were recorded in USCB.

Fossil insects of the Late Carboniferous have been popularized as lost giants of the past. However, their small contemporaries are very poorly known. Here we present first record of Spilapteridae from USCB, from the collection of the Upper Silesian Museum in Bytom, representing a new genus and species of this family and first record if it from Poland. It is represented by isolated forewing, ca. 17 mm long, which is rather small in comparison with most of known Spilapteridae. The smallest species known so far is *Tythospilaptera wangae* with fore wing length less than 10 mm, while in the largest (*Becquerelia superba*) it exceeds 85 mm<sup>3</sup>. Reasons of this gigantisms in insects was postulated as effect of an elevated atmospheric pO<sub>2</sub> on the size during the late Late Carboniferous<sup>4</sup>, but other macro-ecological causes such as particular mating regimes, or a comparatively low level of predation pressure, might have to be considered<sup>5</sup>. The newly found specimen

enrich the dataset to address such evolutionary questions. With new data it should be possible to adequately test the hypothesis of a global effect of an elevated atmospheric pO<sub>2</sub> on the size of these insects during the late Late Carboniferous vs. that of a lineage-specific trend possibly driven by an arms race in size<sup>3</sup>.

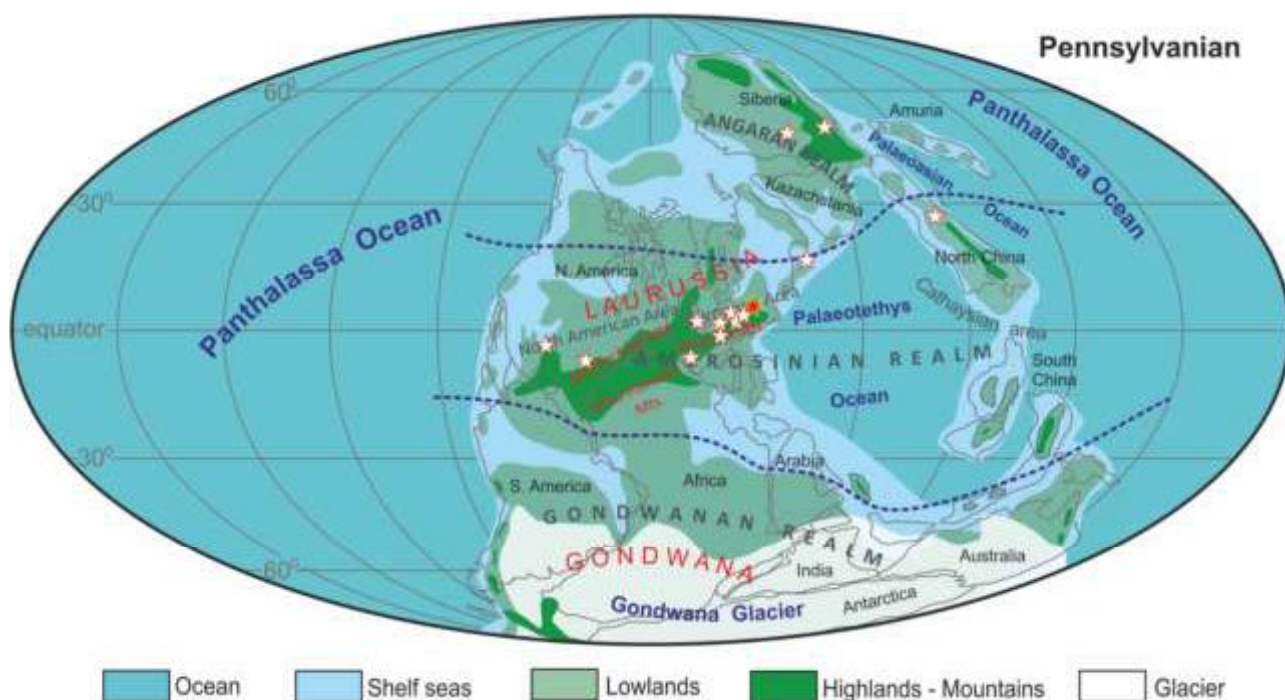
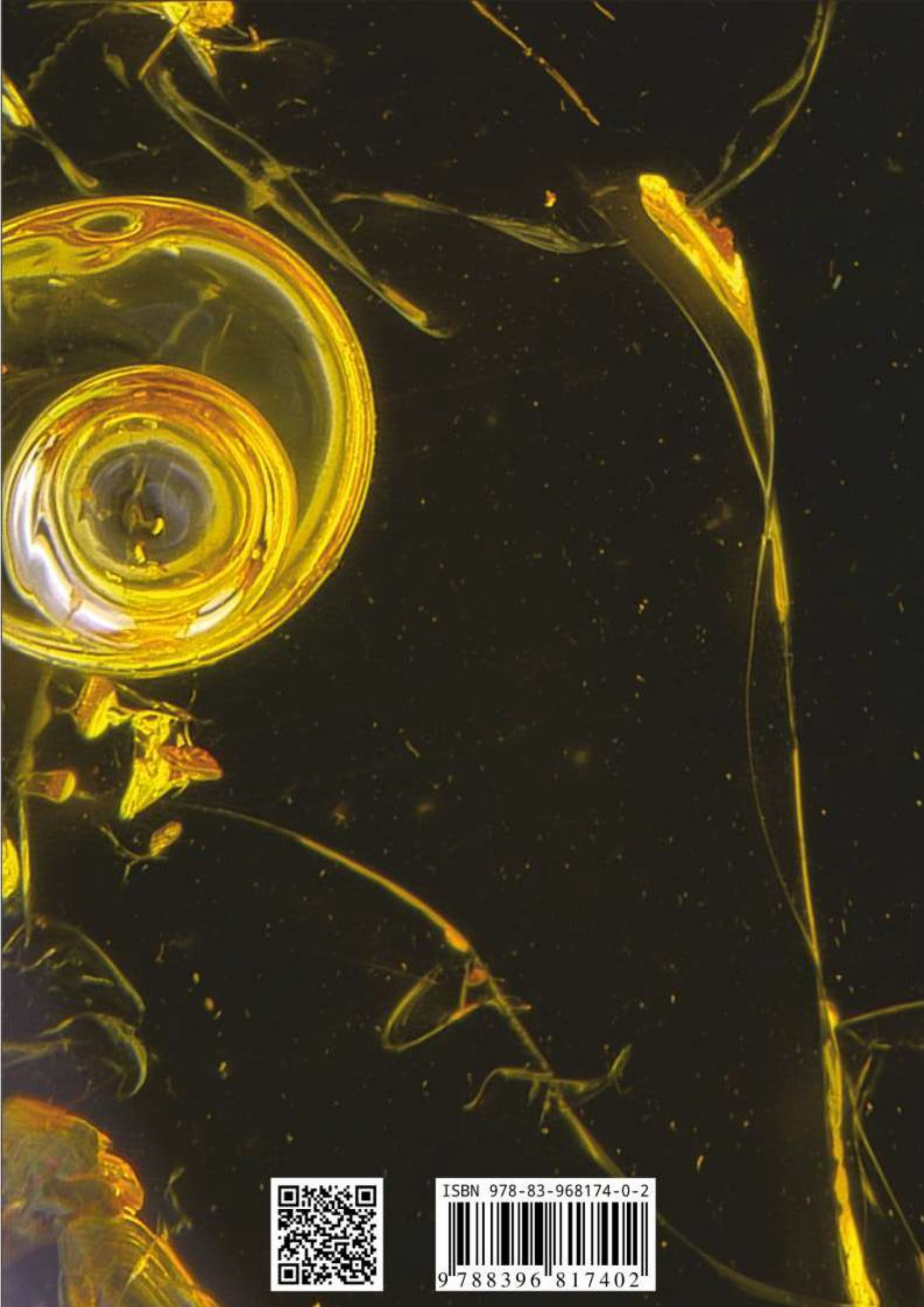


Fig. 1. Distribution of fossil Spilapteridae in the Carboniferous (white star – known places; red asterisk – a new locality in Silesia). Palaeogeography and phytochoria after Opluštil et al. 2021: *Geol. Soc. Lond. Spec. Publ.*, 512, 813–863; doi:10.1144/SP512-2020-97.

#### References

1. Kędzior A. 2016: *Ann. Soc. Geol. Pol.*, 86, 437–472. doi:10.14241/asgp.2016.020
2. PaleobioDB 2023: Spilapteridae. [https://paleobiodb.org/classic/basicTaxonInfo?taxon\\_no=221202](https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=221202)
3. Liu X. et al. 2015: *C.R. Palevol.*, 14, 346–352. doi:10.1016/j.crpv.2015.05.013
4. Clapham M.E., Karr J.A. 2012: *Proc. Natl. Acad. Sci U.S.A.*, 109, 10927–10930. doi:10.1073/pnas.1204026109
5. Li Y. et al. 2013: *Alcheringa*, 37, 487–495. doi:10.1080/03115518.2013.793024





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