

Vorwort des Präsidenten

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Christoph B. ...
der Deutschen Pflanzenschutzgesellschaften ...
Wilmshausen ...
des ...
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8. Bernstein-Workshop am 16. März 2017 im Rahmen der Deutschen Entomologentagung 2017 in Freising

Chair: WILFRIED WICHARD

Kurzfassungen

The rise of the ants revealed in amber (Keynote)

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Ants are a conspicuous element of modern terrestrial ecosystems, are distributed virtually worldwide, and have an expansive range of behaviors and interactions with other organisms. The vast majority of over 13,000 extant species belongs in the “big four” subfamilies Dolichoderinae, Formicinae, Myrmicinae, and Ponerinae. However, despite the presence of ants on Earth for over 100 million years, their rise to dominance has been relatively slow, and they appear to have been only moderately abundant and diverse for about the first half of their history. This is well documented in the fossil record and a focus is made here on fossils entombed in amber, as they harbor the finest preservation and offer a tantalizing glimpse of ant diversity at various points in the past. Ants never surpass 1.5% of the total insects in Cretaceous amber deposits, where they mostly comprise stem-group ants that did not survive beyond the Cretaceous-Cenozoic boundary. In Early Eocene amber, prevalence increases up to 10%, and all identifiable ants are assignable to crown lineages. Also, dominance of the “big four” subfamilies is already largely consistent into the Eocene, during which a burst of diversification evidently occurred. In Miocene amber, ant prevalence reaches 25–36% and all specimens are assignable to extant genera. A temporal midpoint in the history of ants is thus reached in the Early Eocene, ~ 50 million years ago, with a distinct shift observed in their abundance and diversity. Finally, all modern lineages had appeared by the middle Miocene, ~ 15 Ma, and major changes since then mostly comprise their geographical diversification.

Hemiptera stories preserved in fossil resins (Keynote)

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Hemiptera is one of Big Five insect orders together with Coleoptera, Lepidoptera, Hymenoptera and Diptera – the most speciose and diversified insects. Their evolutionary history could be traced back to the Carboniferous and the inclusions in fossil resins are known since early Cretaceous. The oldest inclusions of the Hemiptera comes from the Lebanese amber, aged Barremian – representatives of various groups – scale insects, whiteflies, aphids, moss bugs, true bugs and planthoppers are reported. Surprisingly, no leafhoppers were found yet among

these inclusions. A few only are known so far from Cretaceous ambers of France and Spain. Rich and sometimes very peculiar fossils, still weakly elaborated, comes from Burmese amber, aged earliest Cenomanian. Few more Hemiptera were reported from the other Upper Cretaceous ambers: Taimyr, New Jersey and Canadian. The knowledge about Hemiptera from the ambers of Eocene is biased towards Baltic amber (incl. Bitterfeld and Rovno), but the others – ambers of Oise, Cambay, Fushun, brought important findings of the various Hemiptera groups. Baltic amber inclusions of the Hemiptera are the best known, with numerous aphids, scale insects, planthoppers, leafhoppers and true bugs, less numerous psyllids and whiteflies. The knowledge of these fossils is still far from complete, more and more outstanding and important inclusions must be thoroughly elaborated. Miocene findings of various Hemiptera groups in Dominican and Mexican ambers are sometimes spectacular; still little is known about inclusions of hemipterans in ambers from Zhangpu, Indonesia, Cape York, New Zealand, but preliminary reports are very promising. Amber inclusions preserved not only data about taxic diversity, morphological disparity, palaeodistributions of the Hemiptera, but also important data about habitats they live and behaviors they presented.

The oldest record of the basal Chironomidae subfamily – Buchonomyiinae

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Non-biting midges or chironomids (Diptera, Chironomidae) are the most widespread freshwater insects in the world. Chironomids are common inhabitants of most aquatic, semiaquatic and some terrestrial habitats; they often dominate benthic communities in terms of both abundance and species richness. Chironomidae have a long and well-documented geological history, with earliest records from upper Triassic. Among the 11 modern subfamilies of chironomids, Buchonomyiinae are the most primitive and considered to be a sister group to the rest of the chironomids. Subfamily is monotypic with a single genus *Buchonomyia*, including 3 modern species from Europe, South-East Asia and Central America, and a single fossil species *B. succinea* SEREDSZUS & WICHARD, 2002, from the Baltic amber. Elusive nature of the larvae and pupae, who are developing as parasites or commensal of caddisflies larvae is making records of the even recent Buchonomyiinae extremely rare. According to the latest dated phylogeny of the Chironomidae (CRANSTON & al., 2012), Buchonomyiinae have branched from the rest of the Chironomidae in the lower-to mid-Jurassic. Here we are presenting the oldest record of the genus *Buchonomyia* from the upper Cretaceous Burmese amber. New species is presented by the single, well-preserved male, closely reminiscent of modern species, however easily distinguishable by the bootshaped inferior volsella, and presence of 2 strong setae on the dorsal lobe of the gonostylus.