# The Khasurty fossil insect Lagerstätte

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The Khasurty locality (Buryatia, Russia) was discovered in 2003. During four fieldworks, more than 6 000 imprints of Mesozoic organisms have been collected. The dominant group among the findings is insects; numerous crustaceans, plants, occasional findings of bivalves, arachnids, and vertebrates have also been discovered.

Dating of sediments in Khasurty presents a challenge. No index fossils or igneous rocks have been found here, and there is no apparent connection to other closely-aged deposits in the region. Thus, direct dating methods are unavailable. The age of the sediments is estimated based on the insect assemblage, which shows similarities to the Early Cretaceous Jehol Biota. Insect assemblages of the Jehol Biota are characterized by the presence of five key groups: beetles Coptoclava, dragonflies Sinaeschnidia, mayflies Ephemeropsis, midges Chironomaptera, and bugs Mesolygaeus. Of all these elements, the Khasurty assemblage only includes Coptoclava, while dragonflies are represented only by occasional findings, among mayflies, the genus Baikalogenites dominates, Chironomaptera and Mesolygaeus are not found. In total, ca. 100 genera of insects have been identified, about half of which are also found in other localities scattered across the geochronological scale from the Early Jurassic to the latest Early Cretaceous. The greatest number of shared genera is between Khasurty and Yixian. Additionally, three common insect species were identified: Amplicella shcherbakovi (also known from Dabeigo), Ghilarella mercurialis (Khurilt), and Tobleronothrips deparis (Baissa). Basing on shared findings of various taxa, we suggest that the age of Khasurty is Early Cretaceous, corresponding to the earliest Jehol Biota.

The dominant groups in Khasurty are Diptera and Homoptera. Additionally, represented in large amounts are Hymenoptera, Coleoptera, Trichoptera, Mecoptera, Neuroptera, Plecoptera, and Ephemeroptera. Odonata, Reculida, Orthoptera, Phasmoptera, Thysanoptera, Raphidioptera, and Lepidoptera are encountered much less frequently. In total, 16 orders and 130 families of insects have been identified.

In terms of the quantity of collected material, Khasurty still does not reach the level of Lagerstätten in the region, such as Baissa or Bon-Tsagan. However, with the organization of a similarly large-scale field study, we can expect no fewer findings from Khasurty. The majority of species from Khasurty are described based on individual specimens, indicating a significant potential for further exploration of the locality. In terms of the quality of preservation, it is one of the best Early Cretaceous rock fossil localities. With the appropriate level of attention, Khasurty could become one of the key Early Cretaceous Lagerstätten for fossil insects.