

Floristic changes near the K/T boundary in North-eastern Russia, Far East and Northern Alaska: role of plant migrations and climate fluctuations

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Study of fossil floral successions from the K/T boundary interval in Far East (Zeya-Bureya Trough), North-eastern Russia (Koryak Highland) and Northern Alaska (Sagavanirktok River Basin) is crucial for better understanding of events, which took place at this boundary. Investigation of these floras proves our ideas on the role of palaeoclimatic and palaeogeographic factors in the boundary events. Revision of fossil floras from the Zeya-Bureya Trough and North China allows substantiating a succession of the regional floral assemblages. This succession comprises taphofloras of Santonian, Campanian, early Danian, Danian and Danian-Selandian age. The early Danian Boguchan Flora keeps continuity in composition and dominating taxa with the Campanian Late Kundur Flora; therefore, the catastrophic floral change at the K/T boundary is not recorded in this region. The Koryak Flora of the Amaam Lagoon (North-eastern Russia) comprises 32 fossil plant species of horsetails, ferns, ginkgoales, conifers and angiosperms. It is dated as late Maastrichtian based on correlation of plant-bearing beds with regional marine biostratigraphy. The Early and Late Sagwon floras of Northern Alaska are Danian - Selandian and Paleocene in age judging from palynology and plant megafossils. The Danian-Selandian Early Sagwon Flora comprising about 30 plant species is most similar to the late Maastrichtian Koryak Flora of the Amaam Lagoon in taxonomic composition and dominating plants. This similarity indicates that floral development in the North Pacific Region also does not support a hypothesis on the global extend of the ecological crisis at the K/T boundary. Therefore, fossil floras of the Russian Far East and high latitudes of Asia and North America show no evidence of catastrophic event at the K/T boundary. Their development was most probably controlled by climate changes, plant evolution and migration. The Paleocene Late Sagwon Flora from Northern Alaska is similar to Danian or Danian-Selandian flora from the middle part of the Upper Tsagayan Subformation of the Amur Region and from the lower Wuyun Formation of the Heilongjiang Province in China. In a florogenic aspect, trans-Beringian plant migrations from North-eastern Asia and southern palaeolatitudes of the Far East, which became possible due to climate warming in Arctic, have played an important role in forming of the Paleocene floras of Northern Alaska.