

The development of the Late Pliocene to early Middle Pleistocene large mammal fauna of Ukraine

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On the basis of the extensive fossil mammal material from the Northern Black Sea area and adjacent regions of Ukraine, the Khaprovian, Tamanian and Tiraspolian Faunal Complexes (correlating with the Late Pliocene to early Middle Pleistocene) have been characterised according to the regional species assemblages and evolutionary levels of those large mammal present.

Large mammal faunas from the Akchagyl-Kuyalnik sediments have been assigned to the Khaprovian Faunal Complex, which can be approximately correlated with the Upper Villafranchian and MN17. The most important large mammal sites from Ukraine are Kotlovina (middle and upper levels), Tokmak, Cherevychnye (middle level), Dolinske, Velika Kamyshevakhka, Kryzhanivka (lower level) and Reni.

The Khaprov Faunal Complex is characterised by the appearance of quite different types of large mammal faunas. The lower boundary of this complex is determined by the emergence of elephants and horses. Important events during the Khaprovian Complex are (cf. Fig. 1):

- The replacement of members of Mammutiidae (*Mastodon borsoni* = *Mammut borsoni*) and Gomphoteriidae (*Anancus arvernensis*) by Elephantidae (*Archidiskodon gromovi*), which became widespread. *Anancus gromovi* was replaced by *Archidiskodon meridionalis meridionalis* during the middle of Late Pliocene;
- Rhinoceroses were represented by the genus *Stephanorhinus* (*S. etruscus*) and the new genus *Elasmotherium* appeared;
- The last hipparions disappeared and were replaced by true horses *Equus (Allohippus) livenzovenski* and *E. (A.) stenorhinus*, which subsequently became predominant;
- The specific composition of camels changed and *Paracamelus alutensis* appeared;

- *Eucladoceros* appeared and stayed constantly, whilst during the final stages of this complex the first representatives of genus *Bison (Eobison)* also appeared.

The Taman Faunal Complex comprises the large mammal faunas of the Early Pleistocene and can be approximately correlated with the Early Biharian. The main Ukrainian localities from this complex are Kairy, Prymorsk, Cherevychnye (upper level), Chortkiv and Tarkhankut. The fauna of the Tamanian Complex represents the next developmental stage following the Khaprovian. The lower boundary of this complex is determined by the appearance of the elephant *A. meridionalis tamanensis*. The large mammal species assemblage is general the same as that of the Khaprovian complex, but many animals represent a higher evolutionary level: the late form of southern elephant *Archidiskodon m. tamanensis*, *Stephanorhinus etruscus*, *Elasmotherium caucasicum*, *Equus (A.) suessenbornensis* (the next stage of *E. (A.) stenorhinus* development), *Paracamelus alutensis*, the last representatives of genus *Eucladoceros* and *Bison (Eobison) tamanensis*. The dominant species are *A. m. tamanensis*, *E. (A.) suessenbornensis* and *E. caucasicum*. The deer group of genus *Cervus (Cervus ex. gr. elaphus)* is developing.

The Tiraspol Faunal Complex comprises the large mammals faunas from the beginning of the Middle Pleistocene (an approximate analogue of the late Biharian). The main localities in Ukraine are Morozivka, Shutnovtsi, Tikhonivka and Bilyavka. Stratigraphically, these localities mainly represent the final stage of this complex.

The dominant species is *Archidiskodon trogontherii*, which is consistently recorded. Two rhinoceros species of the genus *Stephanorhinus* have been discovered, *S. etruscus* and

S. mercki. The horses are represented by three species, the most dominant being *Equus* (*Equus*) *mosbachensis*. Camels disappear completely. In the Tiraspolian Faunal Complex, Artiodactyla are represented by several Cervinae (*Alces latifrons*, *Praedama suessenbornensis*, *Cervus acoronatus* and *Praemegaceros verticornis*) and *Bison* (*Bison*) aff. *schoetensacki*, which differs from the typical German *B. schoetensacki* by the structure of the horn

cores and greater size of the distal parts of limb bones. The Tiraspolian fauna represents the starting point for the formation of the Middle Pleistocene fauna. The Bilyaivka locality has yielded *A. trogontherii*, together with *S. mercki* and *E. (E.) mosbachensis* and various representatives of Cervidae. It can be compared with Süßenborn in Western Europe, although at Bilyaivka there are more steppe elements.

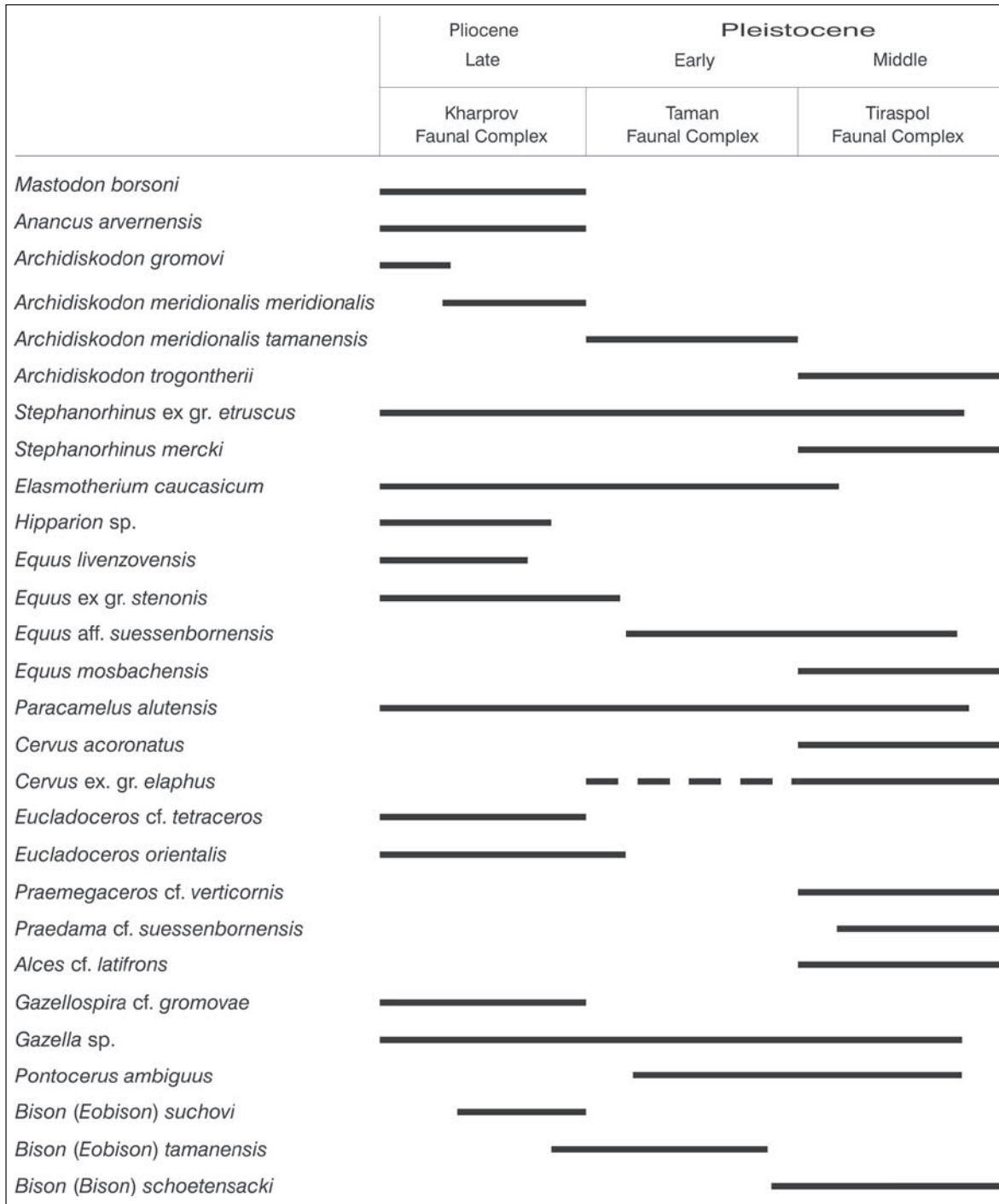


Fig. 1
The stratigraphical distribution of large mammals (Proboscidea, Perissodactyla, Tylopoda and Artiodactyla) in Ukraine during the Late Pliocene and Early Pleistocene.