



## **Ecological problems in the period of formation of the producing economy in Russia**

Vyacheslav Nizovtsev (1) and Natalia Erman (2)

(1) Lomonosov Moscow State University, Moscow, Russian Federation (nizov2118@yandex.ru), (2) S.I. Vavilov Institute for the History of Science and Technology of the Russian Academy of Sciences, Moscow, Russian (erman.natalie@mail.ru)

The economic human activity as a factor of differentiation and development of landscapes on the territory of Russia began to appear together with the development of the producing type of economy since the Aeneolithic-Bronze Age (The Atlantic period) in the southern steppe regions and since the Bronze Age in the forest areas. IV - III millennium BC was the time of appearance of clear traces of the formation of the first center of the producing economy in Russia, associated with the tribes of Maikop culture. These tribes developed hoe farming and home-stead cattle breeding in the valley and near-valley plains and foothill steppe landscapes of the North Caucasus in the areas of settlements. The long-existing settlement and agricultural structure in the riverside settlements led to the state when these areas became one of the first landscape complexes that underwent anthropogenic transformation. They can be considered one of the first natural-anthropogenic landscape complexes that included residential and agricultural (above-floodplain terraces and foothills of interfluves), pasture-meadow (floodplains of rivers and floodplain terraces) and pasture-steppe (fissure of interfluves). At the end of the Eneolithic, the resource base of these landscapes was greatly undermined, and local tribes had to master both river valleys and areas of interfluvial steppe landscapes of flat areas.

In the forest zone of the European territory in the Bronze Age (in the subareas of mixed and broad-leaved forests) tribes of Fatyanovo culture were widely spread. One of the first significant human vs. nature conflicts in Central Russia is associated with the extensive forest cattle breeding of these tribes. The main branch of the economy became forest cattle breeding with first, pig breeding, and then, small and large cattle breeding while hunting and fishing had a subordinate character. Pastures were located mainly in floodplains of rivers and lake lowlands. Long grazing of livestock in one place led to the complete destruction of vegetation, and forced constant transitions to other places in search of pastures led to involvement of new areas in the economic circulation. It is with the extensive economic activity of the Fatyanovo tribes that the deforestation of the floodplains of rivers and lakes started. In the morphological structure of landscapes, in floodplain tracts and localities, the first stable elements of anthropogenic origin appear, which were floodplain meadows. At the end of the Bronze Age (II-I millennium BC) in the steppe zone a drastic drying of the climate led to the drying out and disappearance of small rivers and lakes. Forced reduction of agricultural land led to a significant environmental crisis. A sharp increase in pasture loads in riverine landscape complexes led to the strongest pasture digression of the steppes in floodplain terrace complexes, accompanied by deflation of soils. The outbreak of the ecological crisis led to the "great migration of peoples". A significant number of nomads joined the movement. Since that time, the peaceful nature of the relationship and co-existence of the nomadic and agricultural population was replaced with a hostile confrontation.