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ON THE TAPHONOMIC STUDIES OF SMALL MAMMAL REMAINS FROM PELLETS OF BIRDS OF PREY: THE UKRAINIAN CONTEXT

Research in the field of taphonomy provide paleontology with biological and physical events, processes that operated after death and during removal from the environment [1]. Correct identification is critical to modeling how and why assemblages of animal remains (small mammals) accumulate on paleontological and archaeological sites. But just as important is the interpretation of identification, the explanation of the connection between the process and the agent [1, 13].

Identification of the agent is mandatory for successful taphonomic interpretation. Apart from natural or artificial death (due to an accident, human impact) predation (mammalian predators, birds of prey) is one of the causes for the accumulation of the remains of small mammals in pellets form on paleontological localities and archaeological sites [1, 2, 3, 14]. These finds contain perfectly preserved skeletal remains of the prey (a small mammal). Thus, we can make a detailed taphonomic and taxonomic analysis, which will provide information about the interaction between the predator and prey, as well as outline the environmental conditions during the formation of taphocenosis [1].

In nature, small mammals are associated with specific biotopes, so their remains are potentially an indicator of paleoenvironmental conditions [5, 15]. And here there are problems between questions of direct correlation. Predators have the ability to remove prey from the primary environment, they choose prey based on their specialization (size, behavior, etc.) and accumulate remains in nesting and/or roosting places [1, 14].

Methodological guidelines for taphonomic reconstructions based on small mammals remains contained in pellets of birds of prey was developed by Andrews in the 1990s [1]. His method is based on the degrees of modification bones of the skeleton, which have undergone mechanical and digestive effects of predators. The obtained results were used by the author as analogues for the assessment of fossil and archaeofaunal complexes in different parts of the world. Bones and teeth of rodents (Arvicolinae, Muridae) and insectivores (Soricidae, Talpidae and Erinaceidae) were extracted from the pellets birds of prey. Also studied coprolites of carnivorous mammals (Felidae, Canidae, Mustelidae and Mephitidae). To date, we have a large number of relevant researches based on Andrews' taphonomic methodology [13, 14].

In Ukraine, the pellet method was first proposed by I.H. Pidoplichko [7, 8]. But it was used in zoology in order to study and record the modern fauna of small mammals [4, 6]. In Ukraine, there are not enough studies related to Quaternary taphonomy, pellet taphocenoses based on the Andrews' methodology in the context of paleofaunistic interpretations [9-12].

First of all, it is necessary to adapt taphonomic methods to regional conditions, because the local fauna includes various taxa. For example, the simplest is the local seasonal collection of pellets of various species of birds of prey. Their analysis will make it possible to connect predators and seasonal fluctuations of their prey. And this will give an opportunity to better interpret ancient ecosystems in different seasons. An interesting question is the primary and secondary nature of the find. Because many prehistoric sites include species that are not modern. Such artificial assemblages can unite mammals from different environments or even from different geological periods [10]. There is another option, fossil species found nearby can live at the same time, but in different places. How they ended up together, united by a certain agent, predator or river. Recently, we tried to adapt Andrews' taphonomic model. It included only the level of mechanical breakage to the bones of the skull and lower jaw and bones of the postcranial skeleton of small mammals from pellets [11, 12]. In part, I succeeded in obtaining primary results for interpretation of taphonomic stages. In the future it will allow get a higher level of detail and better interpretation of pellet assemblages of small mammal remains removed from paleontological and archaeological sites of Ukraine.

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