

Oral presentation

Woolly rhinos and woolly mammoths in Southern Greece? Using REE elements to trace the provenance of old museum collections

George Iliopoulos^{1,2}, George Lyras³, Socrates Roussiakis⁴ & Athanassios Athanassiou⁵

¹Department of Geology, University of Patras, 26504 Rio Patra, Greece (iliopoulog@upatras.gr)

²Natural History Museum of Crete, University of Crete, P.O. Box 2208, 71409 Iraklion, Greece

³Museum of Palaeontology and Geology, Faculty of Geology, National and Kapodistrian University of Athens, 15784 Athens, Greece (glyras@geol.uoa.gr)

⁴Department of Historical Geology and Palaeontology, Faculty of Geology, National and Kapodistrian University of Athens, 15784 Athens, Greece (srousiak@geol.uoa.gr)

⁵Hellenic Ministry of Culture, Department of Palaeoanthropology–Speleology, Ardittou 34B, 11636 Athens, Greece (aathanas@geol.uoa.gr)

The Mediterranean peninsulas of Europe are commonly included in the glacial distributions of cold-adapted faunas, particularly with respect to their most iconic animals: the woolly mammoth (*Mammuthus primigenius*) and the woolly rhino (*Coelodonta antiquitatis*). The presence of both taxa is well documented by rather scanty, though identifiable, remains from Northern Greece, as well as from Megalopolis in Peloponnese, a quite southern locality (37°N).

The incompatibility of cold-adapted elements with the rest of the Megalopolis fauna, which is of forest/woodland type, together with the presence of physically similar specimens from Ukraine in the collections of the Museum of Palaeontology and Geology, University of Athens, raised many doubts about the provenance of the alleged Megalopolis finds. The Ukrainian fossils come from “Kiev, Telichka” locality and were donated to the museum more than a century ago. To test our doubts we used Rare Earth Elements (REE) analyses. Small quantities of bone, dentine and sediment samples were pulverised and analysed on an ICP-OES spectrometer. The normalised REE signal of the analysed samples showed clearly that the supposed woolly mammoth and rhino samples from Megalopolis were completely different from a specimen that definitely comes from this locality, but matched with another, unquestionably Ukrainian sample, evincing a quite plausible Ukrainian provenance. Our results contradict the referred presence of woolly mammoths and rhinos in southern Greece (possibly due to specimen mixing), which is in accordance with the regional faunal data.