



CONSERVATION-RESTORATION AND VIRTUAL RECONSTRUCTION OF A PALAEONTOLOGICAL HERITAGE: FIVE FOSSIL ANTLERS OF THE NEW PLEISTOCENE FALLOW DEER *DAMA CELIAE* SP. NOV.

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The proposed project for the *Dama celiae* antlers has been carried out in the National Archaeological Museum (Madrid, Spain) facilities. The material was found at the sites of Pedro Jaro I and Orcasitas, both located in the former +25/30 terrace of the Manzanares River (Madrid, Spain). This terrace correlates with MIS9 (337–300 ky), and it has been described lithic industry associated with the Achelense technocomplex. This fallow deer has simple antlers with only four points, one proximal and one distal on each antler. The conservation of the antlers has been aimed at preserving their scientific and patrimonial value. The procedure has been divided into several phases: mechanical-chemical cleaning, adhesion of small and large fragments of antler with epoxy resins and nylon filaments, material reintegration with fine mastic, and chromatic reintegration. During the development of the phases, it was observed that certain parts required the use of materials that could be aggressive to the specimens, such as strong adhesives or gripping dowels. For that reason, we have opted for a harmless reintegration of the antlers using a completely virtual reconstruction to recreate them in their original morphology. In this case, certain technological techniques were used to obtain the most accurate result possible. The first step was to photograph the five antlers in different positions, then apply the photogrammetric method and obtain three-dimensional models using *Agisoft Metashape*. These models were imported into the Blender software where the fragments that were not physically attached were virtually joined together, the areas lacking bone material were manually filled in, and the reconstructions were processed. Finally, an animation of the virtual reconstruction of the larger *Dama celiae* antler was developed with the same software and used for the VITRINA CERO project of the National Archaeological Museum.

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