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HAL Id: hal-05472028

<https://hal.science/hal-05472028v1>

Submitted on 22 Jan 2026

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Abstract

The present 3D Dataset contains the 3D models produced in the frame of the article Perthuis, A. de, Mennecart, B., Barrier, P., Chenot, É., Falconnet, J., Gagnaison, J.-C., Georgalis, G. L., Gilbert, C., Guevel, B., Langevin, D., Lapparent de Broin, F. de, Lemierre, A., Maubert, F., Ossó, A., Potel, S., Thivaïou, D., Tissier, J., Toullec, R., Xerri, S., Gagnaison, C. 2025. Révision des données sédimentologiques et biostratigraphiques des gisements à vertébrés des sables de l'Orléanais, à Beaugency, Tavers et Le Bardon (Miocène Moyen ; Loiret, France). *Geodiversitas* 47 (12): 2-76. <https://doi.org/10.5252/geodiversitas2025v47a12>

Keywords: Mammal, Photogrammetry, Reptile, Skull, Teeth

Submitted: 07/07/2025, published online: 31/10/2025. <https://doi.org/10.18563/journal.m3.243>

INTRODUCTION

The localities of Tavers-Beaugency-Le Bardon (Loiret, France) form a homogeneous faunal complex dating from the Miocene thermal maximum (MN5, approximately 15.5 Mya ; Zachos *et al.* 2001). The diversity of large mammals is exceptional on a European scale, with no fewer than 57 species, in addition to 9 glires and eulipotyphlans, reptiles and amphibians, as well as molluscs (De Perthuis *et al.* 2025). The uniqueness of this fauna is marked by the presence of rare species and others previously known only from the Iberian Peninsula, making the faunas of Tavers-Beaugency-Le Bardon a transitional zone between Iberian and Central European faunas. In this work, we created surface models of 7 specimens (casts) from the collections of the Institut Polytechnique UniLaSalle Beauvais. Among the specimens made available are the first known skull of the turtle *Chelydropsis* aff. *sansaniensis* (the original specimen is preserved in the National Museum of Natural History's fossil collection : MNHN.F.TAV185), a upper third molar of the pig *Bunolistriodon lockharti*, a carnassial tooth of the large carnivore *Megamphicyon giganteus*, and a hemimandible of the proboscidean *Prodeinotherium bavaricum* (Figure 1). In addition to this material, two upper third molar of the Miocene rhinocerotidae *Hispanotherium matritense* with its typical cementum and *Plesiaceratherium lumiarense* have been 3D reconstructed. A reworked Oligocene *Ronzotherium romani* tooth, rare for the Paris Basin, is added to this set of Miocene fossils. Making these specimens available will facilitate highlighting this paleontological heritage for educational purposes and future research.

METHODS

The models were generated using Structure-from-Motion (SfM) photogrammetry with optical images. The SfM method is inexpensive, cost-effective (Westoby *et al.* 2012), and flexible, which is crucial given the small size of the models (most are less than 50mm in length). The images were captured with a Canon EOS SP camera, equipped with a 50mm lens under artificial lighting. Approximately one hundred images were taken from various angles for each model (Table 1). The models were then processed using the Agisoft Metashape software (copyright 2007 Free Software Foundation, Inc.), using high resolution parameters for photo alignment and medium parameters for dense cloud construction and mesh building. Manual removal of certain points was necessary in all models to ensure the highest possible rendering quality. To avoid blurry areas in the textures, some images were excluded from the texture computation, although they were used for cloud building. The image acquisition and processing were conducted at the Apex at UniLaSalle, an innovation center dedicated to the application of digital technologies in the fields of planetary and life sciences, engineering and biomimetics, and pedagogical design.

ACKNOWLEDGEMENTS

Grant sponsor: This work received financial support from the GeoAgroEnergies and Environment Chair managed by Laurent Fontanelli and Yannick Vautier of the Geosciences College of UniLaSalle (Beauvais, France).

Grant number: Not concerned.

Thanks to Nour-Eddine Jalil and Frand de Lapparent de Broin for facilitating our access to the National Museum of Natural

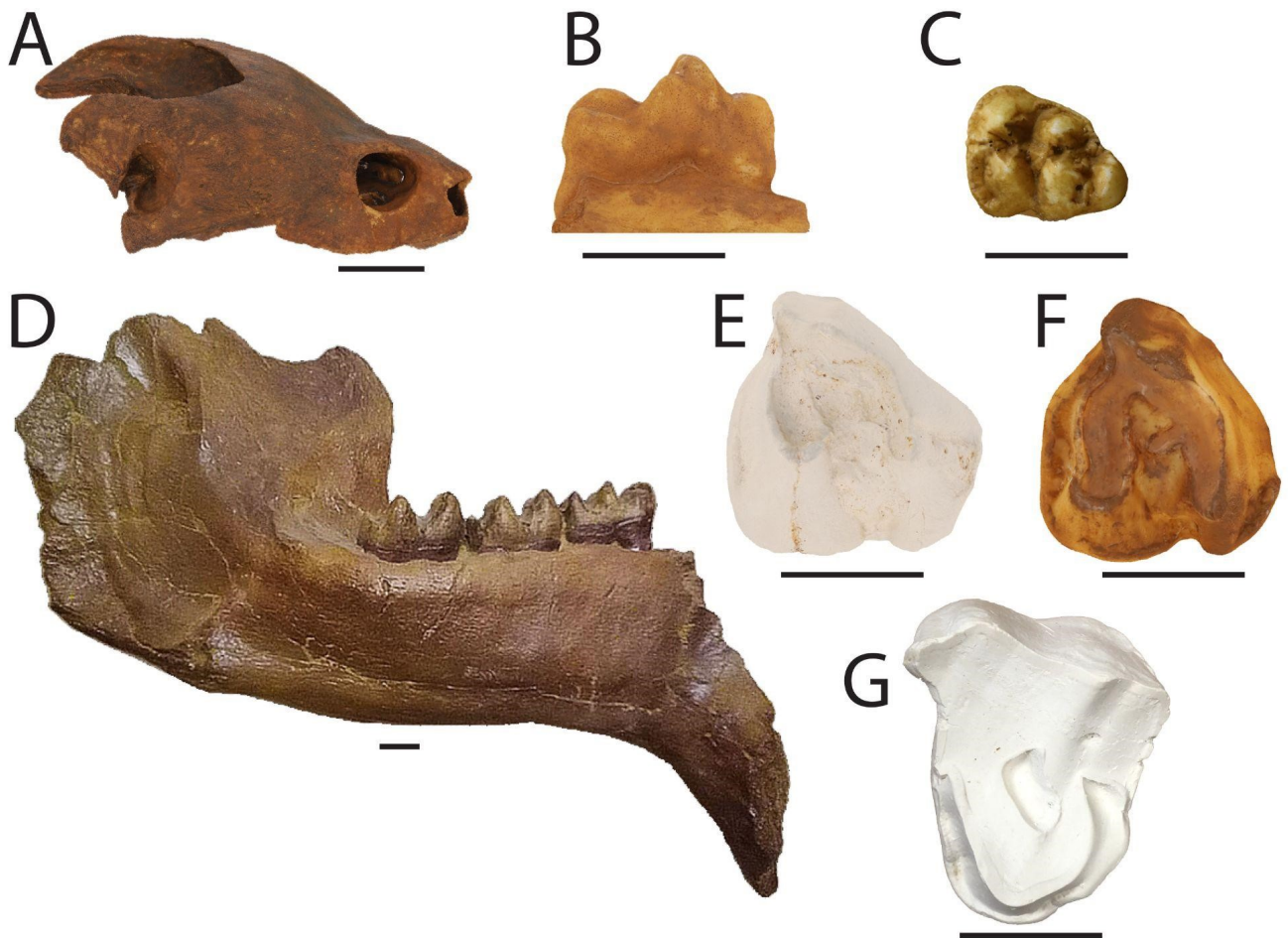


Figure 1. Casts of specimens from Tavers (Loiret, France). A, *Chelydropsis* aff. *sansaniensis* (ULB-TAV-23): skull. B, *Megamphicyon giganteus* (ULB-TAV-13): left lower m1. C, *Bunolistriodon lockharti* (ULB-TAV-21): left upper M3. D, *Prodeinotherium bavaricum* (ULB-TAV-24): left hemimandible with m1-3. E, *Hispanotherium matritense* (ULB-TAV-17): left upper M3. F, *Plesiaceratherium lumiarense* (ULB-TAV-18) left upper M3. G, *Ronzotherium romani* (ULB-TAV-4): right upper P4. Scale bars: 25mm.

| Inv nr. | Taxon | Description | Picture number |
|------------|--|-----------------------------|----------------|
| ULB-TAV-23 | <i>Chelydropsis</i> aff. <i>sansaniensis</i> | Cast of a skull | 506 |
| ULB-TAV-4 | <i>Ronzotherium romani</i> | Right fourth upper premolar | 64 |
| ULB-TAV-18 | <i>Plesiaceratherium lumiarense</i> | Left third upper molar | 64 |
| ULB-TAV-17 | <i>Hispanotherium matritense</i> | Left first lower molar | 64 |
| ULB-TAV-21 | <i>Bunolistriodon lockharti</i> | Left upper M3 | 38 |
| ULB-TAV-24 | <i>Prodeinotherium bavaricum</i> | left hemimandibule | 395 |
| ULB-TAV-13 | <i>Megamphicyon giganteus</i> | Left first lower molar | 64 |

Table 1. Specimen list. Collection: UniLasalle, Beauvais, France. Locality : Tavers (Loiret, France). Age: Middle Miocene (-15.5 Mya). Stratigraphical distribution: Orleanian (MN5).

History's fossil reptile collections. A big thank you to all the collectors who helped us directly or indirectly.

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