

3D models related to the publication: Mummified Paleogene Spirostreptida and Julida (Arthropoda, Diplopoda) from southern France.

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Abstract

The present 3D Dataset contains the 3D models analyzed in the publication: Mummified Paleogene Spirostreptida and Julida (Arthropoda, Diplopoda) from southern France. Papers in Paleontology.

Keywords: Cambalida, Colombière, Paleogene, Quercy, Spirostreptida

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INTRODUCTION

These models are the result of the microCT-scanning of multiple specimens of two millipedes species from the orders Spirostreptida and Julida: *Protosilvestria sculpta* (Handschin 1944) (see Figure 1) and a specimen of the family Blaniulidae (see Figure 2); see also table 1. These specimens come from the Quercy phosphorite formations and the La Colombière locality in Montpellier and are dated from the Eocene or Oligocene depending of the specimen. They are preserved in three-dimensions and are phosphatized. Thanks to microCT-scanning, new details were revealed notably on the sexual dimorphism of *P. sculpta* with other characters that helped classify *P. sculpta* as a member of the suborder Cambalidea. The description of a collum not recovering the back of the head enabled to describe one specimen as member of the Blaniulidae specimen (order Julida) thus clearly different from *P. sculpta*.

METHODS

Two specimens, UM-SND-1704 and UM-ROQ1-500, were scanned using a GE Sensing&Inspection Technologies Phoenix X-ray phoenix v—tome—x CT-scan at the MATEIS laboratory of INSA. The 3D surfaces were extracted semi-automatically within AVIZO 8 using the segmentation threshold selection tool. NMB specimens were scanned using high-resolution X-ray computed tomography (Phoenix Nanotom, GE) from the Biomaterials Science Centre of the University of Basel, Switzerland. Their 3D surfaces were also extracted semi-automatically within AVIZO 9.0. The 3D surface models are provided in

.ply format, and can therefore be opened with a wide range of freeware.

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E. Handschin. 1944. Insekten aus den Phosphoriten des Quercy. *Schweizerische Paläontologische Abhandlungen*, 64, 1–23

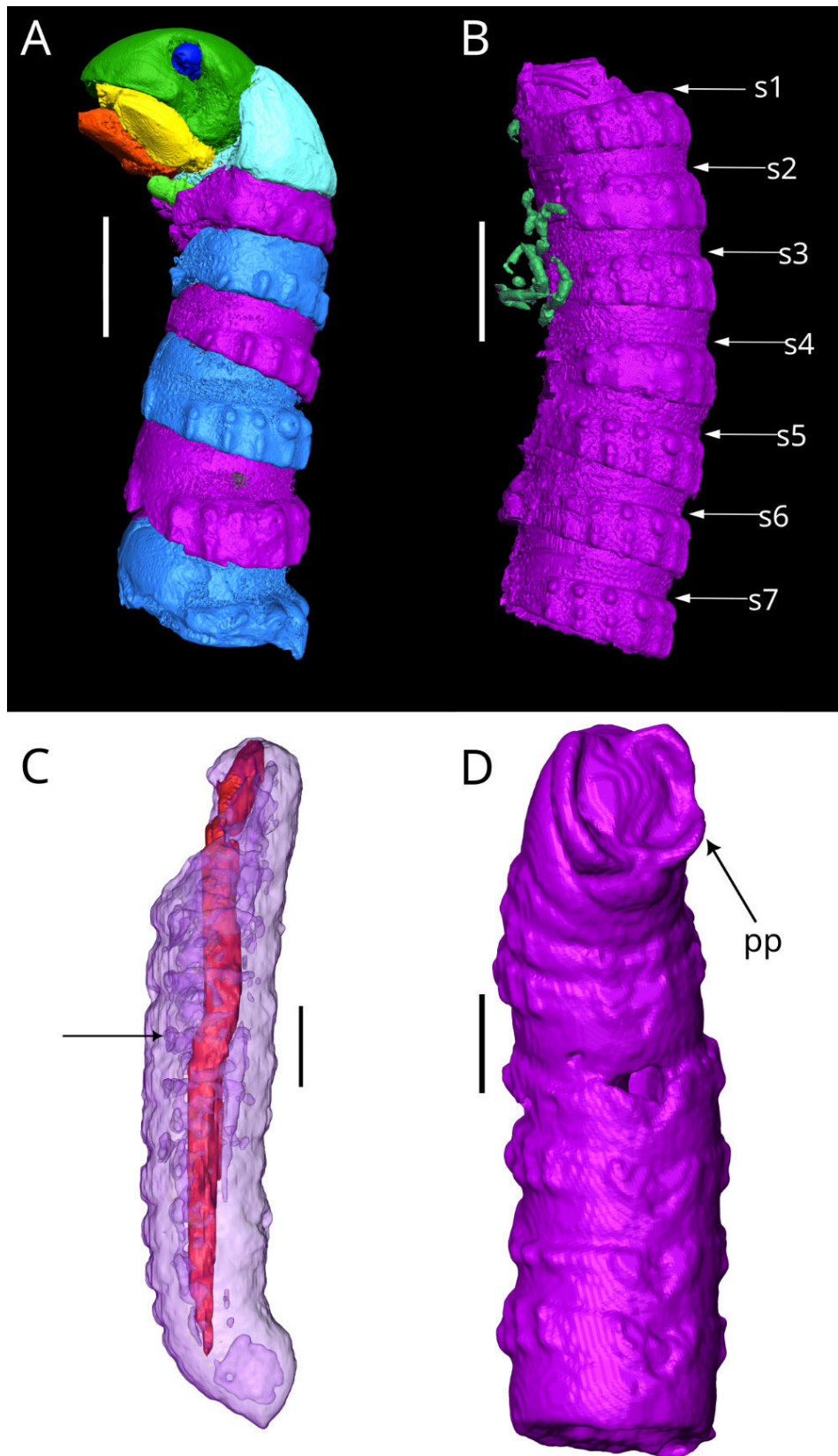


Figure 1. 3D reconstitutions of *Protosilvestria sculpta*. A: UM-SND-1704. B: NMB F3743. C: NMB F1989. D: NMB F1990. pp=paraprocts; s#=diplosegment number #. Black arrow in C indicates inner segments. Cyan=collum; dark blue=antennae; dark green=legs (in NMB F3743); green=head; light blue=even diplosegments; light green=legs; orange=gnathochilarium; purple= odd diplosegments (for UM-SND-1704); red=digestive tract; yellow=mandibles. Scale bars = 1 mm (C); 600 μ m (B); 500 μ m (A,D).

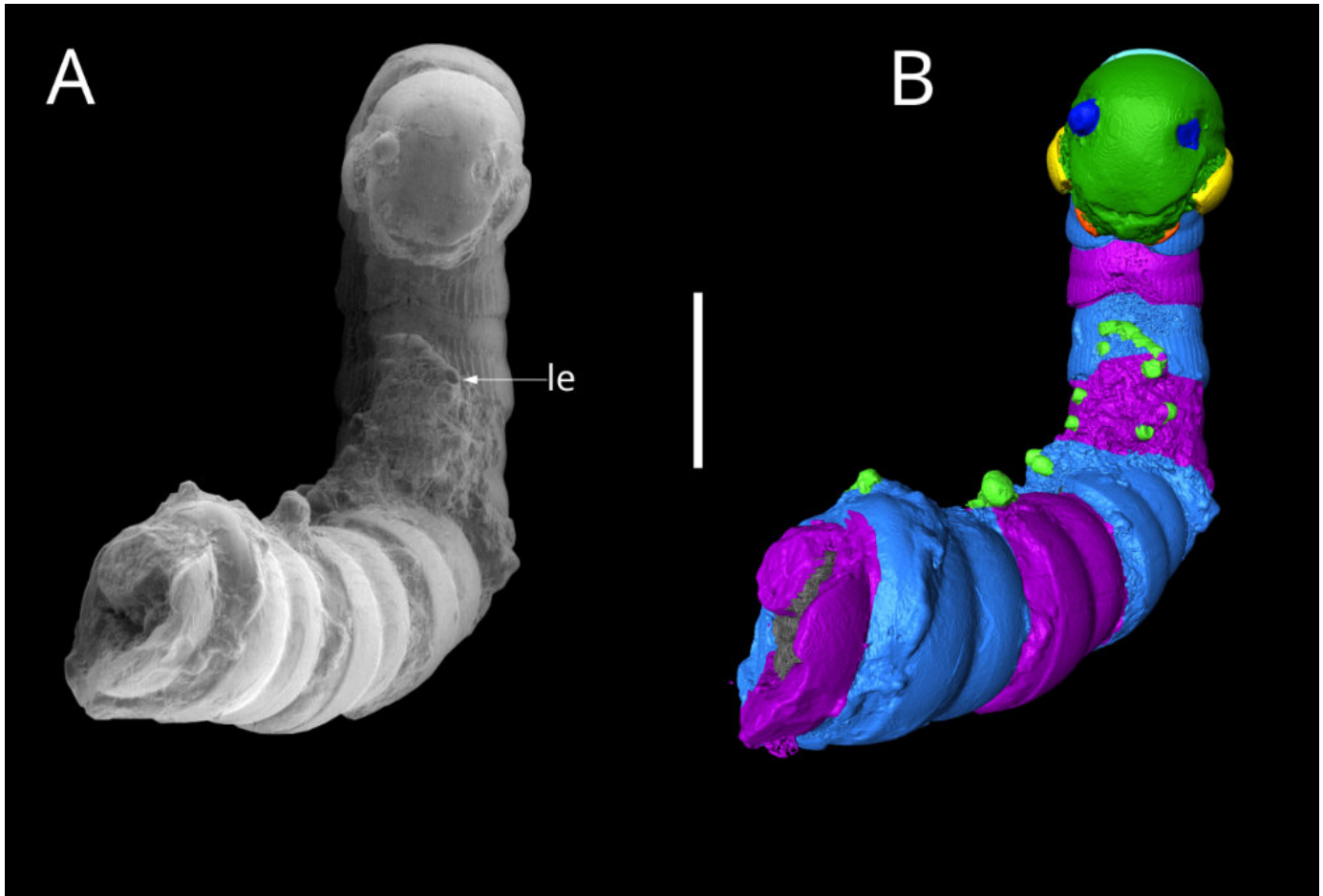


Figure 2. SEM micrographs and 3D reconstitution of a Blaniulidae specimen (UM-ROQ1-500). A: SEM micrograph. B: 3D reconstitution. le=legs. Cyan=collum; dark blue=antennae; green=head; light blue=even diplosegments; light green=legs; orange=gnathochilarium; purple= odd diplosegments; yellow=mandibles. Scale bar = 500 μ m.

Inv nr.	Surface	μCT data	Taxon	Description	Collection
NMB F1935	M3#1457	M3#1657	<i>Protosilvestria sculpta</i>	Paralectotype, 13 diplosegments with the proximal part of the legs	NMB, Basel
NMB F1936	M3#1458	M3#1658	<i>Protosilvestria sculpta</i>	Lectotype, head with the ten following segments	NMB, Basel
NMB F1937	M3#1459	M3#1659	<i>Protosilvestria sculpta</i>	Paralectotype, seven segments	NMB, Basel
NMB F1938	M3#1460	M3#1660	<i>Protosilvestria sculpta</i>	Paralectotype, ten segments and the telson	NMB, Basel
NMB F1987	M3#1461	M3#1661	<i>Protosilvestria sculpta</i>	Nine segments and the telson	NMB, Basel
NMB F1988	M3#1462	M3#1662	<i>Protosilvestria sculpta</i>	Two parts, first part=telson and four segments, second part=five segments	NMB, Basel
NMB F1989	M3#1463	M3#1663	<i>Protosilvestria sculpta</i>	Telson with 13 segments and the digestive tract	NMB, Basel
NMB F1990	M3#1464	M3#1664	<i>Protosilvestria sculpta</i>	Eight segments and the telson	NMB, Basel
NMB F3743	M3#1465	M3#1665	<i>Protosilvestria sculpta</i>	Seven segments and legs	NMB, Basel
UM-SND-1704	M3#1468	M3#1666	<i>Protosilvestria sculpta</i>	Head and seven segments	ISEM, Montpellier
UM-ROQ1-500	M3#1467	M3#1667	Blaniulidae Indet	Head and ten segments	ISEM, Montpellier

Table 1. List of models.