

Title: The hidden teeth of sloths: evolutionary vestiges and the development of a simplified dentition.

Authors

Lionel Hautier¹

Helder Gomes Rodrigues^{2,3}

Guillaume Billet²

Robert J. Asher⁴

Author affiliations

¹Institut des Sciences de l'Evolution de Montpellier, Université Montpellier, CNRS, IRD, EPHE, Cc 064; place Eugène Bataillon, 34095 Montpellier Cedex 5, France.

² Sorbonne Universités, CR2P, UMR CNRS 7207, Univ Paris 06, Muséum national d'Histoire naturelle, 8 rue Buffon, 75005 Paris, France.

³Mécanismes adaptatifs et évolution (MECADEV), UMR 7179, CNRS, Funevol team, Muséum national d'Histoire naturelle, 55 rue Buffon, Bat. Anatomie Comparée, CP 55, 75005 Paris, France.

⁴Department of Zoology, University of Cambridge, Downing St., Cambridge CB2 3EJ, UK.

Corresponding authors

Lionel Hautier: lionel.hautier@univ-montp2.fr

S3 – A, a schematic representation of the tooth row in *Choloepus* and *Bradypus*, and a parsimonious reconstruction of the sloth ancestral dental morphotype. Dashed lines and question marks indicate ambiguous reconstruction for a given character (*i.e.*, state varies depending on the optimization mode¹), as it is the case for the shape of the upper and lower caniniforms and the presence of an prediastema. **B**, Phylogeny of extinct and extant sloth genera² with their dental formulae. Only the differences in size and shape of the caniniform teeth were reported here. The dental characters presented here mainly follow the matrix of Gaudin² (*i.e.*, characters 2, 6, 13, 14, 19, and 21). Upper teeth are in violet; lower teeth are in green; caniniform teeth are in red; pre and post diastemas are represented by arrows. The colors of the clades (families) are as follows: red, Megalonychidae; yellow, Mylodontidae; blue, Megatheriidae; green, Nothrotheriidae. The names Cf/cf and Mf/mf only specify the loci, not the dental generation (e.g., Cf or dCf). Dashed lines represent ambiguous characters.

References

1. Swofford, D. L. & Maddison, W. P. Reconstructing ancestral character states under Wagner parsimony. *Math. Biosci.* **87**, 199–229 (1987).
2. Gaudin, T. J. Phylogenetic relationships among sloths (Mammalia , Xenarthra , Tardigrada): the craniodental evidence. *Zool. J. Linn. Soc.* **140**, 255–305 (2004).

