

## Ailurid carnivoran mammal *Simocyon* from the late Miocene of Spain and the systematics of the genus

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We describe the most complete and best-preserved materials assigned to *Simocyon* from Spain. Specimens come from the late Miocene (Vallesian) locality of Batallones-1, Province of Madrid and are assigned to *Simocyon batalleri*. Cranial, mandibular and dental anatomy of *S. batalleri* from Batallones-1 is described and compared with those of known species of *Simocyon*. We review the systematic status and the definition of the species of *Simocyon* and we analyse the morphological variation within *Simocyon*. Three species are recognized as valid. *S. batalleri* is known from several Vallesian localities (mainly MN 10) of Spain. *S. diaphorus*, from the early Vallesian of Germany (Mammal Zone MN 9), is the geologically oldest European species. The type species *S. primigenius* is Turolian in age and known from several localities of Europe, North America, and China. The species includes the junior synonyms *S. zdanskyi* and *S. marshi*. The status of *Simocyon hungaricus* is not resolved. *Simocyon simpsoni* is excluded here from *Simocyon* and reassigned to its original generic name *Protursus*. On the basis of the material described here, we propose a differential diagnosis for *Simocyon batalleri*. This species is morphologically intermediate between the more primitive *S. diaphorus*, which has a less reduced p3; and the more derived *S. primigenius*, characterized by a modified mandible (e.g., more vertical and more expanded coronoid process, longer angular process). The evolution of the genus *Simocyon* is characterized by a trend toward a more crushing adaptation involving at least a modification of the posterior part of the mandible. A reconstruction of the skull and life appearance of *Simocyon* is proposed.

**Key words:** Systematics, Mammalia, Carnivora, Ailuridae, *Simocyon*, Miocene, Madrid Basin, Europe.

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