



A PIG'S JOURNEY THROUGH TIME

The evolutionary history of Suinae



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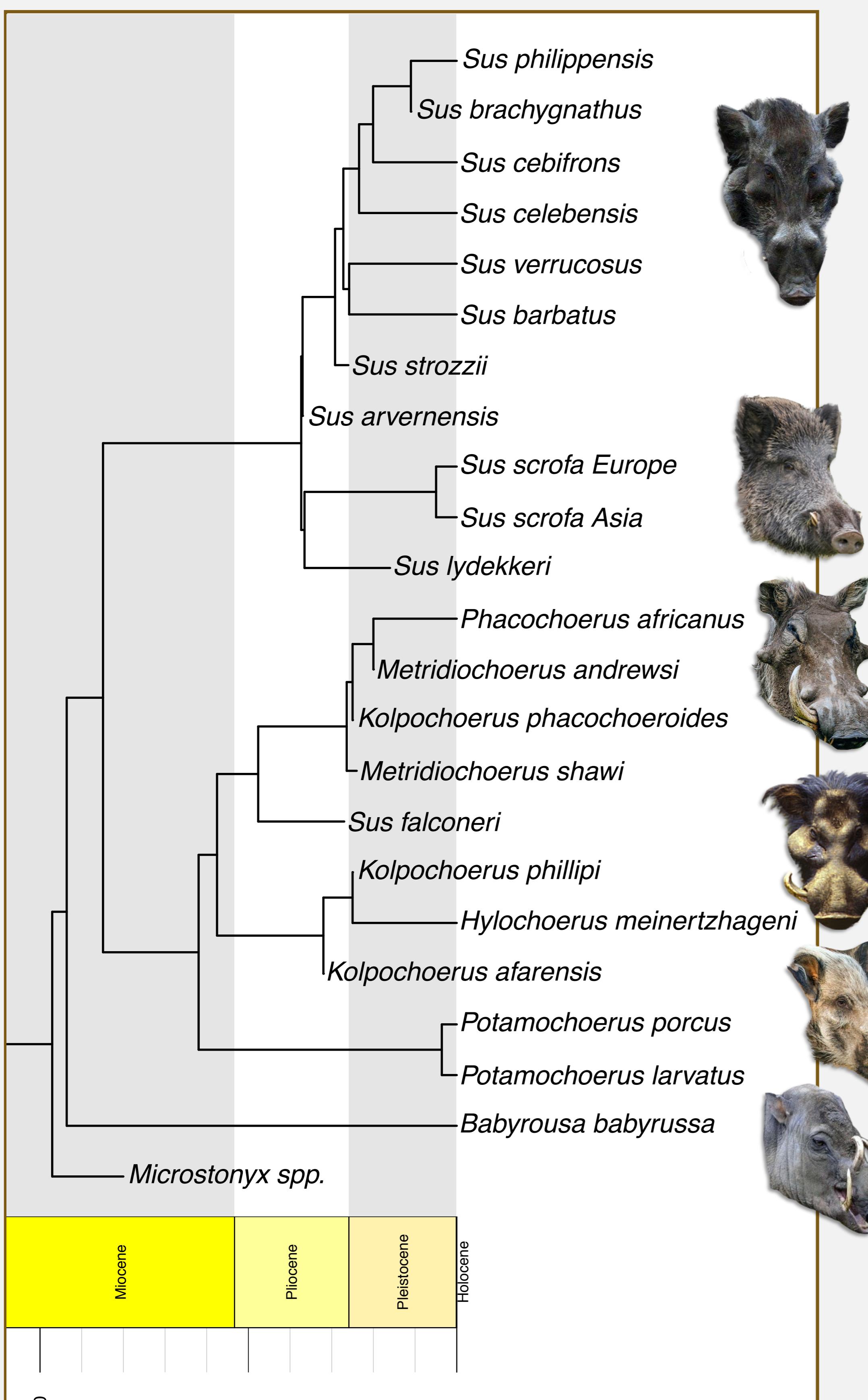
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1. When did Suinae lineages originated?

We are using the modified fossilized birth–death (FBD) model of Gavryushkina et al. (2017) to jointly estimate topology of living and extinct species, and infer time of divergence within Suinae. We used the morphological dataset published in our previous work, and added two genes obtained from GenBank.

2. Why are Suinae the only extant suids?

Estimating speciation and extinction rates from molecular phylogenies is not suitable for taxa which diversity is mostly found in the fossil record (Silvestro et al. 2014). Here we used PyRate and information from the fossil record to estimate time and rate of diversification for Suidae and Suinae, to understand why only this subfamily won the evolutionary race.



Suinae originated in the Miocene, between 9 and 13 Myr. The topology recovered by the total evidence FBD is similar to our previous estimate based on morphological data, to the exception of *S. lydekkeri* now grouped with *S. scrofa*. The split between the two *Sus* lineages occurs in the Pliocene. Overall, time of origin for each group are consistent with previous estimates.

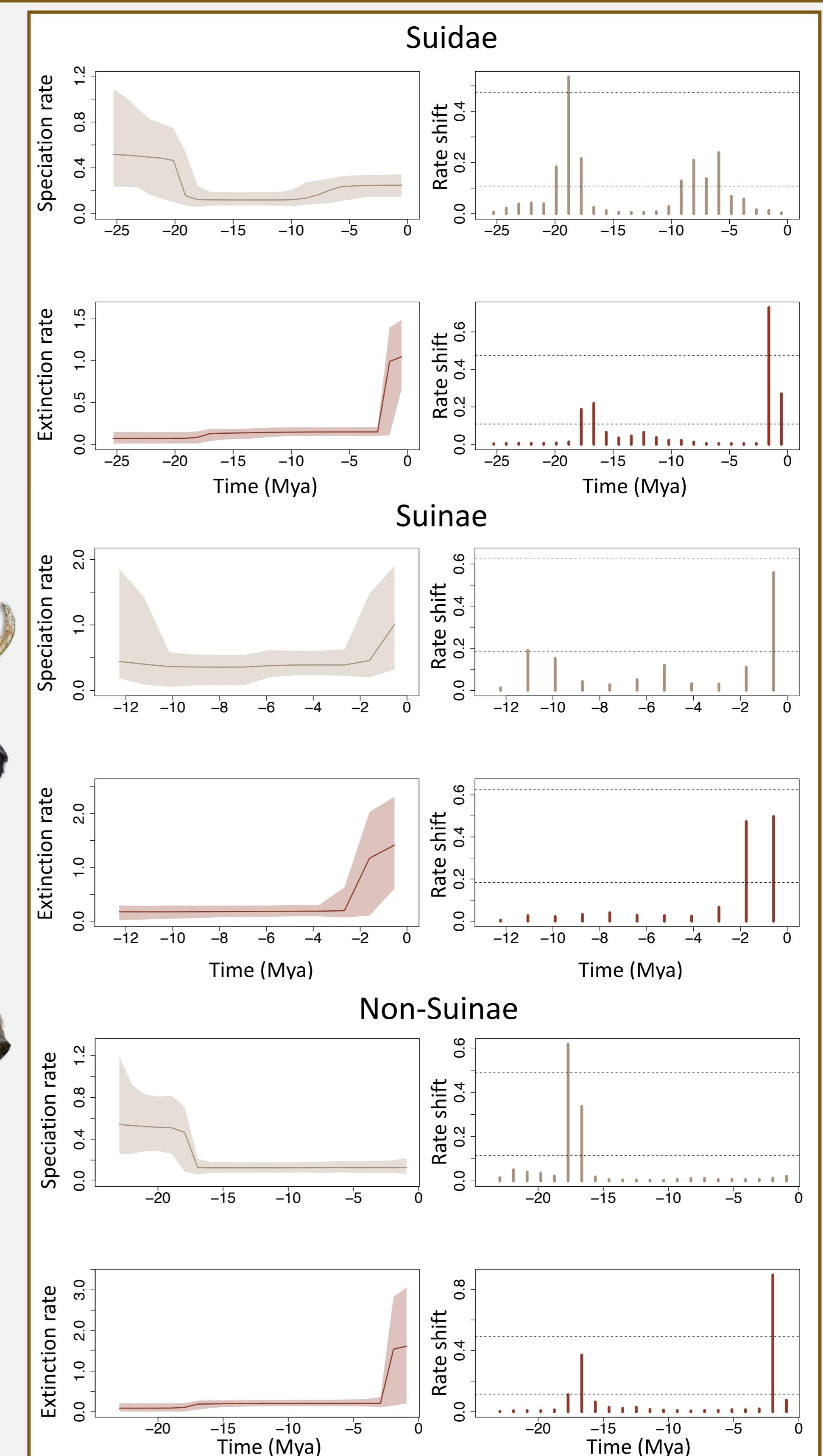
References:

Cherin, Sorbelli, Crotti, et al. (2018), Quaternary Science Reviews, 194

Gavryushkina et al. (2017) Systematic Biology, 66

Silvestro et al. (2014) Systematic Biology, 63

Photos obtained from www.ultimateungulate.com



Suidae experienced a high and constant diversification rate for the first five million years, after which it declined to less than half. Around 3 Myr, extinction rate increased consistently for both Suinae and other subfamilies, but the former also registered an increase in speciation rate around the same time, possibly explaining why they are the only extant suid subfamily.