

RENEWED FRANCO-AMERICAN RESEARCH AT THE LATE VILLAFRANCIAN LOCALITY OF SENEZE (HAUTE-LOIRE, FRANCE)

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The fossil site of Senèze, located in the Auvergne volcanic province of the French Massif Central, is well-known for its mammalian fauna and its role as the reference locality for the Late Villafranchian time interval, MN 18. This site is a filled-in volcanic explosion-crater lake (maar) where fossils are found in volcanoclastic sediments interfingering with lacustrine deposits at the lake margin. The Senèze mammals are generally considered to date between 2.2-1.5 Ma, but some have suggested that the local fauna is composed of two associations of different age. Moreover, little has been published about the geological setting or the processes of site formation. We are re-examining Senèze for the first time in 60 years with three main goals: 1) to clarify the local geology (stratigraphy, mineralogy) of this complex site and determine the taphonomic history of the fossil remains; 2) to utilize a combination of methods (argon and ESR dating; tephrochronological and paleomagnetic correlation) to definitively establish the age of the site and its fauna; and 3) to collect additional mammalian fossils (especially of rare animals such as carnivores, primates and rodents) and samples of the non-mammalian biota, including vertebrates (e.g., birds and fishes), terrestrial and lacustrine invertebrates, pollen and diatoms from known points within the revised and dated stratigraphy. Well-preserved, mostly articulated skeletons of *Dicerorhinus etruscus*, *Eucladoceros ctenoides*, and *Allohippus stenonis senezensis*. have been recovered, in addition to more fragmentary remains of “*Cervus*” *philisi*, *Mammuthus meridionalis*, *Pachycrocuta perrieri*, *Acinonyx pardinensis*, and (for the first time at the site) *Mimomys pitymyoides* and a castorid. The bones present few if any indications of carnivore ravaging, and a taphonomic working hypothesis is that periodic mudflows down the inside crater walls may have buried large animals and rolled them into the lake in an anoxic situation. Argon dating suggests that the main fossiliferous level (which can be traced over a wide area despite faulting) postdates 2.1 Ma. Additional paleomagnetic profiles should allow tighter chronological calibration.

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