



Balance or imbalance? Paleoecology of the Pleistocene of North and South America

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In recent years, the validity of the model proposed by Damuth about the paleoecology of past and present mammalian faunas has been addressed. In previous works such model had been applied to the fauna of Rancho La Brea (North American late Pleistocene), Venta Micena (European early Pleistocene) and to other faunas in South America. In the case of Rancho La Brea, the model had shown that it behaved as expected, i.e., keeping the balance between number of herbivorous species and primary productivity, and between number of carnivore species and secondary productivity. In other words, that the primary productivity was enough to feed the herbivores in the community, and that the secondary productivity (which is the meat available for carnivores to eat) was fully consumed by the carnivores, as in modern, actualistic examples of communities with large mammals. In the South American Lujanian Age (late Pleistocene-early Holocene), an imbalance was proposed, namely that the herbivores did not have enough food to eat according to reconstructions of their environment, and, on the other hand, that the carnivores had too much. In this work twenty six faunas from North America were studied, as well as fifteen from South America. For their study the same model and equations were applied. The results showed that those North American faunas that had number of mammalian species large enough to infer that the community was well represented were balanced, while those with few species or a low number of carnivores were not. In addition, all the Pleistocene South American faunas from diverse origins in the subcontinent were imbalanced. A possible explanation already stated was that in South America there was a great diversity of xenarthrans. In the North American faunas, such diversity was not high, and also not higher than that of any other order of mammals.

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