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EDITORIAL NOTE

Development of the Atlantic Forest in Rio de Janeiro, the oldest known Neotropical plant and biogeography of megaherbivores during the Late Pleistocene in South America

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The Atlantic Forest is considered one of the richest and most diverse biomes. Nonetheless, despite several mitigation initiatives, the destruction rates are presently very high affecting a variety of species (e.g., Lourdes-Ribeiro et al. 2011). Udo Nehren of the University of Applied Sciences Cologne (Köln, Germany) and colleagues have made on extensive study how the historical human land use and the climate change has affected the Atlantic Forest present in Rio de Janeiro. The studied area is about 3,000 km^2 and authors have gathered information from a variety of sources, including geomorphologic field studies, sediment and soil analysis, historical maps, photographs and land register maps, to name a few. They were able to draw several conclusions, such as that the different parts of the Atlantic Forest have been highly degraded since colonial times, particularly the costal region up to the lower mountain ranges. They also observed that in the last 200 years, agriculture changed the landscape of the mountain ranges as well, where the Atlantic Forest was essentially reduced to numerous small forest patches (Nehren et al. 2013).

Which is the oldest plant of Brazil? This is an interesting question that is quite difficult to answer. As has been observed, the highest longevity in plants is found in clonal plants (de Witte and Stöcklin 2010), but the age estimation of those organisms is hard to be established. Furthermore, most information about this subject comes from vegetation that is found in the temperate climates of the Northern Hemisphere. In Ouro Grosso range, located in Itutinga, Minas Gerais State, Ruy Alves from the Museu Nacional/UFRJ and colleagues came across the underground tree *Jacaranda decurrens*. This endangered species is part of the Brazilian Cerrado biome. Along with several aspects they were able to estimate the age of one particular plant over 3800 years, making it the oldest Neotropical plant known so far (Alves et al. 2013).

Biogeography deals with studies that unravel the distribution of species in space and time. This can be quite a complex endeavor particularly when the task involves organisms that have lived millions years ago, where not only the record tends to get slimmer, but several other variables also have to be taken into account due to the movements of the continents (e.g., Jacobs et al. 2011). In the Pleistocene, however, part of these problems is minimized and biogeographic studies can be performed in more detail. One of these studies is being published in the present issue of the AABC. Valéria Gallo (Universidade do Estado do Rio de Janeiro - UERJ) and collaborators analyzed the geographic distribution of 27 species of large

herbivorous mammals collected in Late Pleistocene deposits of South America. They then employed the panbiogeographic method of track analysis (Croizat 1964, Craw et al. 1999), that essentially consists in plotting the records of different species on maps and connecting them using the criterion of minimum distance (Gallo et al. 2013). According to the authors, this is the first time that such a method was applied for biogeographic studies of Pleistocene mammals. Among their results they demonstrate that the distributional pattern of megaherbivores during this time period was dependent on the vegetation. They also point out that that among the several theories that try to explain the extinction of the megafauna the most compelling one is related to changes in the climate and vegetation.

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