Mastozoología Neotropical, 13(2):281-282, Mendoza, 2006

ISSN 0327-9383
Versión on-line ISSN 1666-0536
www.cricyt.edu.ar/mn.htm

COMENTARIOS Y NOTICIAS

RE-WILDING IN SOUTH AMERICA: IS IT POSSIBLE?

Jorge L. Cajal[1] and Eduardo P. Tonni[2]

[1] Comisión de Investigaciones Científicas de la Provincia de Buenos Aires, 1900-La Plata, Argentina <jcajal@cic.gba.gov.ar>. [2] División Paleontología Vertebrados. Museo de la Plata, 1900-La Plata, Argentina <eptonni@fcnym.unlp.edu.ar>

Key words: Re-wilding. South America. North America. Pleistocene. Extinctions.

Recently, Nature magazine published an article referred to the possibility of the re-wilding of extinguished mammals in diverse areas of the territory of the United States of America (Donlan et al., 2005).

Regarding this topic, Martin (1981) stated that: "The free ranging horses and burros, escaped from domestic stock and occupying public lands in western US, are an example of a largely unintentional 'replacement' of an extinct relative, the species of Pleistocene horses and asses that were lost 10 000 years earlier… At least from a paleontological point of view it is hard for me to view the wild horses and burros as entirely 'alien'. Their ancestry is deeply rooted in North America. That of many of the so-called 'natives' is not" (Martin, 1981: 39). We agree with Martin. Furthermore, we think that re-wilding in North America is a good and original statement for its reality.

However, let's imagine a similar statement for South America, particularly for Argentina, and within it, the pampean region, which has a rich paleontological record for the Pleistocene and Holocene (Tonni and Cione, 1999). Five species of *Equus* lived in South America during the Pleistocene. In the pampean region of Argentina, one species of *Equus* lived until the beginning of the Holocene. According to historical chronicles, the introduction of horses in the pampas from stocks brought from Europe expanded notably in the mid-XVIth century. Charles R. Darwin was surprised by the expansion of feral horses in the pampas of South America (Darwin, 1859). Noteworthy, from a strictly biological point of view, the extinction process recorded in South America by the end of the Pleistocene and beginning of the Holocene was the most important if it is compared to similar processes in other areas (Cione et al., 2003). The extinction affected at least 82 species of megamammals (>1 tn) and large mammals (>44 kg).

But the most significant extinction is the definitive disappearance of the trophic level of megamammals, which during all the Neogene had been represented in the faunas of the South America. By the end of the Pleistocene and beginning of the Holocene at least 36 megamammal species of lineages with lengthy authochtonous development, became extinct (Cione et al., 2003). That is the case of the Glyptodontidae, Megalonychidae, Mylodontidae and Megatheriidae within the xenarthrans; to which the "native ungulates" must be added, with high diversification of lineages during the Paleogene and part of the Neogene, and whose last representatives (Litopterna Macraucheniidae and Notoungulata Toxodontidae) took part in this large extinction.

The Andean region (Puna and Cordillera Frontal) does not need consideration because the region has undergone almost no changes (concerning fauna), at least over the last 18 000 years (Last Glacial Maximum). In addition, there are not as many records of extinctions as in the other mentioned regions. Only in the subandean region extinctions have been recorded (below 2500 m a.s.l.) or at the base of the Andean region (around 3000 m a.s.l.) where some tardigrade xenarthrans have survived at least until the last glacial advance (ca. 13-11 ka BP). This is the case of Scelidotherium in Las Juntas (Catamarca), Glossotherium in the south of Mendoza and probably Megatherium in Salta (see Zurita et al., 2004).

In short, because of both, the trophic structure of the mammal populations with high diversification of megamammals and the taxonomic composition (predominance of cingulate and tardigrade xenarthrans in addition to the native "ungulates"), the South American fauna prior to the extinction neither has nor had analogues in any other part of the world.

Consequently, from this point of view, a re-wilding project such as the one suggested in the commented paper, is not viable. It could only be applied to some camelids and obviously to the equids. The former survived the extinction through some eurytopic or mountain adapted species (e.g. *Lama guanicoe*, *L. vicugna*) and the latter have already demonstrated a significant adaptability to modern environments.

A last issue to consider, but not least important, is the relationship between private landowners and the conservation of the fauna in Argentina, as well as the regime of land owning. In the United States, as opposed to Argentina, the historical relationship of the private producer (farmer) and the wild life has been quite friendly. In addition, the Government has consistently played an outstanding role developing conservation policies, and maintaining important remnants of public lands (Galbraith, 1987; U.S. National Forest Management Act., 2006).

On the other hand, the Argentina Government withholds a low proportion of surface area (federal lands): National Parks occupy only 4.5 % of the territory. Furthermore, the pampean landowner has developed a relationship of competition with the fauna through time, in which livestock and agrarian exploitation originated an almost absolute exclusion of the feral fauna. The high proportion of land in private hands in Argentina is an almost insurmountable barrier for the application of a re-wilding project.

LITERATURE CITED

CIONE AL, EP TONNI, and L SOIBELZON. 2003. The Broken Zig-Zag: Late Cenozoic large mammal and tortoise extinction in South America. Revista del Museo Argentino de Ciencias Naturales (n.s.) 5(1):1-19

DARWIN CR. 1859. On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life. John Murray, London

DONLAN J, HW GREENE, J BERGER, CE BOCK, JH BOCK, DA BURNEY, JA ESTES, D FORMAN, PS MARTIN, GW ROEMER, FA SMITH AND ME SOULÉ. 2005. Re-wilding North America. Nature 436:913–914.

GALBRAITH JK. 1987. Economics in Perspective. A Critical History. Houghton Mifflin Company, 324 pp. Boston.

MARTÍN PS. 1981. Beyond Bos: is nothing better?. Pp. 33-61 In: Proceedings of Symposium on Sothwestern Grasslands: Past, Present and Future (CE Brock and JH Bock, eds.). Appleton–Whittell Research Ranch, Elsin, Arizona.

US National Forest Management Act. 2006. www.fs.fed.us.

TONNI EP and AL Cione (eds.). 1999. Quaternary Vertebrate Palaeontology in South America. Quaternary of South America and Antarctic Peninsula, 12, 310 pp. AA Balkema, Rotterdam.

ZURITA A, AA CARLINI, GJ SCILLATO YANÉ and EP TONNI. 2004. Mamíferos extintos del Cuaternario de la provincia del Chaco (Argentina) y su relación con aquellos del este de la región pampeana y de Chile. Revista Geológica de Chile 31(1):65-87.