Extinction: The Quaternary Perspective

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Reviewing late Quaternary Megafaunal Extinction: The case-study of Sri Lanka

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Late Quaternary megafaunal extinction, mostly of mammals, significantly reduced global biological diversity. Extinctions in some regions are well documented, and data are available for sufficient numbers of extinct species and living relatives to make comparisons. Two main theories for the cause of these extinctions are interaction of humans with megafauna, environmental/climate changes, or both. Salient data include biological characteristics of species, models of 'overkill', chronological comparisons, and so on.

The taxonomy of extinct Quaternary mammals and their present relatives has been described for the Indian subcontinent. But for Sri Lanka less is known. New palaeontological work needs to focus on glacial & interstadial fluctuations, and the significance of the Sri Lankan landmass as a Pleistocene habitat. Deraniyagala and others (1958) identified nineteen fossil mammalian species belonged to seven Orders and eleven Families from Sri Lanka, most probably belonging to the Quaternary period. Since then there has been no significant progress in the field, until a couple of recent initiatives.

The study considered body sizes of living and extinct Quaternary extinct species. Among the present mammalian species are identified: small-sized 62 (12 families), medium-sized 21 (10 families), large-sized 7 (6 families) and mega-sized 1 (1 family). This reflects the strongly decreasing number of species with increasing body size, but the number of families does not decreasing as much as number of species.

Quaternary species of Sri Lanka are mainly from two contexts: Ratnapura alluvial sediments, and cave/rock shelter excavations. They can be classified into a Pre-Mesolithic Pleistocene Fauna (PMPF), probably belonging to the Paleolithic culture (before 40,000 BP), and a Mesolithic Late-Pleistocene Fauna (MLPF) (after 40,000 BP). Most of the Quaternary megafauna belonging to PMPF are already extinct in Sri Lanka, especially three elephant species (phylogeny yet to be confirmed), two rhinoceros species, one hippopotamus and one lion/tiger species. Of this fauna only one species of elephant has been able to survive up to now (*Elephas maximus maximus*). The results show that more than 75% of the Quaternary megafauna of Sri Lanka is extinct. Environmental, climate change and catastrophic scenarios contributed to the megafaunal extinction, together with the possible impact of early man. The stratigraphy of finds, and stone tool technology, are included in the study.

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