

CAN ANCESTRAL PRIMATE SOCIAL SYSTEMS BE PHYLOGENETICALLY RECONSTRUCTED?

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The hypothesis of ancestral solitary primates has been criticized, with authors arguing that nocturnal strepsirhines, used as models of ancestral primates, exhibit diverse, poorly known social systems forming dispersed social networks. Moreover, the Socio-Ecological Model (SEM), which relates social systems and ecological factors, suggests that sociality in primates is subject to high degrees of homoplasy. In this comparative study we used territoriality indexes as proxies for spatio-temporal distribution of food to test the SEM on 123 primate species, including 15 species of nocturnal strepsirhines. Group size, including the average size of sleeping associations for nocturnal species, was allometrically and negatively correlated with territoriality indexes, confirming that cooperation for defence of space and local resources is the main adaptive advantage of group-living. Furthermore, group size was also strongly influenced by body size and activity rhythms (diurnal, nocturnal, cathemeral). We conclude that social structure (size and composition of social groups) reveal frequent convergent or parallel evolution, making phylogenetic reconstructions very difficult. Mating systems are often poorly heritable and extremely sensitive to proximal factors, and cannot be used for phylogenetic reconstructions. In contrast, social organization (relationships among group members) is a better phylogenetic marker, particularly among closely related species.

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