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THE DIVERSITY OF MULTI-LEVEL PRIMATE SOCIAL SYSTEMS – PATTERNS AND EVOLUTION

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Multi-level or modular social systems are structurally characterized by nuclear one-male units (OMUs, or harems) nested within at least one other higher level social unit, in most cases larger relatively coherent social bands. Among non-human primates, multi-level societies are found in African Papionins (*Papio, Theropithecus*) and Asian colobines (notably *Rhinopithecus, Nasalis, Pygathrix*). The internal structure of the modular associations may range from tight bands composed of OMUs to loose neighborhoods of OMUs. Among modular societies, the largest social groupings of primates are found, up to several hundred individuals. According to phylogenetic reconstructions, two evolutionary pathways are possible: (1) ancestrally solitary OMUs associate in larger groups, or (2) transformation of ancestrally multi-male multi-female groups into bands composed of OMUs. Several ecological (e.g. minimizing the disadvantages of food competition in large groups) and social hypotheses (e.g. minimizing risk of infanticide and harassment in large social groups) have been proposed to explain the evolution of such systems. However, testing of these hypotheses remains difficult due to the lack of comparative and quantitative data. In our contribution we will review similarities and differences among the various forms of modular systems, their most likely evolutionary history and we will try to incorporate information of other primate species which also form extremely large groups, but which may have evolved an alternative solution to cope with the disadvantages of large groups.

Keywords: Papionini, snub-nosed monkeys, social system, nested societies