

On the dynamics of rodent social groups

Luis A. Ebensperger & Loren D. Hayes

Abstract

A prevailing view is that animal social groups are largely determined by natal philopatry. However, other processes can influence the dynamics of social groups, including emigration of individuals that join pre-existing groups. Given that fitness consequences of living in a group may vary depending on how groups change, the extent to which alternative mechanisms drive social dynamics is an important theme to the evolution of sociality. We considered the available literature on social rodents to examine (i) whether the available evidence supports single versus multiple mechanisms, (ii) how strongly evidence supports a major importance of natal philopatry, and (iii) whether mechanisms of group formation are linked to the reproductive strategy across species. While natal philopatry is considered the major process behind group dynamics in 26% of species examined, studies on 74% of species indicate two or more mechanisms take place simultaneously. Natal philopatry is considered a primary mechanism in communal (56%) and singular breeders (70%), but less so in solitary breeders (18%). Thus, the tenet that natal philopatry is the main process driving group dynamics in rodents may be premature, and studies aimed at examining the importance of alternative mechanisms are justified.