

Vonhof MJ, H Whitehead, and MB Fenton (2004) Analysis of Spix's disk-winged bat associated patterns and roosting home ranges reveal a novel social structure among bats. *Animal Behaviour*. 68(1):507-521 Due to publisher copyright issues, we cannot provide a copy of this full report but include the publically available abstract.

Abstract: Spix's disc-winged bats, *Thyroptera tricolor*, roost in young, rolled leaves of *Heliconia* or *Calathae* plants. In this paper, we examined how the combination of high habitat availability, low occupancy rate and short longevity of these roosts may affect the pattern of interactions among individuals in the population. We regularly censused a 5.69-ha study area in northeastern Costa Rica and examined patterns of association used mark-recapture data. *Thyroptera tricolor* formed behaviourally cohesive social groups of mixed sex, ranging in size from four to 14 individuals. Approximately 85% of dyads maintained associations over time periods of up to 100 days, and 40% of dyads maintained longer-term associations of at least 420 days across sex classes. Individuals within social groups did not always roost together, but they shared a small common roosting home range, which averaged just 0.19 ha. Members of different social groups in one subunit were observed. However, roosting home ranges of adjacent social groups often overlapped (up to 39% of home ranges, and up to 92% of the area of the smaller home range), and home range centres were situated less than 100m apart. Thus, social groups rarely interacted but overlapped in space. The features of this social system are unique among bats and mammals in general, and point to groupings based on kinship or cooperation.