

MJ Vonhof and MB Fenton (2004) Roost availability and population size of *Thyroptera tricolor*, a leaf roosting bat, in north-eastern Costa Rica. *Journal of Tropical Ecology*. 20:291-305 Due to publisher copyright issues, we cannot provide a copy of this full report but include the publically available abstract.

Abstract: Estimates of roosting habitat availability and population size using unbiased sampling regimes are completely lacking for any bat species. The use of conspicuous and accessible roosts in the developing, rolled leaves of *Heliconia* and *Calathae* plants by *Thyroptera tricolor* (Spix's disc-winged bat) provided an ideal opportunity to address this need. To assess roost availability and population size, the number of occupied and unoccupied leaves and bats in known areas in an area of lowland rain forest in north-eastern Costa Rica were quantified in 1998-99. A high density of leaves was available on any given day (mean: 43 leaves ha⁻¹), but the density of roost leaves was low (mean: 2.5 leaves ha⁻¹), corresponding with a low occupancy rate of 5.7 or 12% based on different methods of estimation. Developing leaves were available for 8-16h in the preferred size range of leaves used by *T. tricolor*, and a maximum of 28-60 h, depending on the plant species. Using closed-population mark-recapture models, the 5.69-ha study area supported 261 individuals over a 4-mo period in 1998, corresponding to a density of 43 bats ha⁻¹. These results have important implications for the results of studies on bat community structure and rarity, and for the behaviour and ecology of *T. tricolor*.