

Abstract

In the pre-lactation, lactation and post-lactation periods in 2010 and 2011 and the pre-lactation period in 2012 we used radio-telemetry to determine changes in home range and habitat activity and preference of the maternity colony of the Mediterranean horseshoe bat (*Rhinolophus euryale*) in Slovak Karst. The colony roosted in the attic of the monastery in Jasov. This area represents the northern margin of the species' distribution range.

In total, we tagged 35 females that were radio-tracked for 31 nights. For the all pre-lactation periods 17 females were marked, in the lactation periods 12 females were marked, and 6 females were marked in the post-lactation periods. The females were marked with radiotags and the VHF telemetry (radio telemetry using very high frequencies) was used. We compared the spatial and habitat preferences in the above defined seasons of the annual reproductive cycle. The total number of recorded locations was 858 for all reported periods.

We compared the various aspects of activity of the females during the night in the particular periods. We have shown that the females left their roost in the pre-lactation periods as the most late. These were followed by the females in the lactation periods and as the most early after the sunset the roost was left by the females in the post-lactation periods (the average time after the sunset, which the females spent in the roost was 28.3 minutes in the pre-lactation period, 23 minutes in the lactation period and 20 minutes in the post-lactation period).

We compared the proportions of the activity types (time of foraging, time of flight, time spent in the roost) during night in each of the periods. Foraging time represented for largest proportions of the observed activity in the pre-lactation periods, the time in the roost and the time of flight in this period represented a smaller portion of the whole night length. In the lactation periods the females spent a longer time in their roost at the expense of foraging activities, the time spent by flight was in this period the shortest of all the monitored periods. In the post-lactation periods the females spent most of their night time in the roost and the time spent by foraging formed only a small part of their nocturnal activities. In this period the females spent the longest time by flight of the all monitored period.

The distance from the roost, in which the females were found during the night was also measured in the particular periods. In the pre- and post-lactation periods, the largest shared area of the recorded locations was in the circuit of the radius between 1000 and 1500

m. In the lactation periods, the females foraged in larger distance from their roost, where the largest proportion of locations was measured in the radius between 4000 and 4500 m.

We measured the length of distances flown by the females during the night in particular periods. This distance was the largest in the lactation periods, shorter in the pre-lactation periods and in the postlactation periods, the females flown the shortest distances from all of the observed periods.

We determined the area of the home range for each of the periods and these were: 258,74 ha in the pre-lactation period in 2010, 2456,01 ha in the pre-lactation period in 2011, 3170,85 ha in the pre-lactation period in 2012, 484,81 ha in the lactation period in 2010, 2505,67 ha in the lactation period in 2011, 97,48 ha in the postlactation period in 2010 and 673,74 ha for the post-lactation period in 2011.

Furthermore, we evaluated the habitat preferences in each of the periods. In all monitored seasons the females preferred forests, which were also the most common type of habitat in the study area. We never found females to forage near coniferous trees. Females foraged most largely in the forests in the pre-lactation periods, while we almost did not found any movement in the open habitats, which were the second most represented habitats in the study area. In the lactation periods the females reduced the average time spent in the forests and increased the time spent in open habitats and line biotopes. In the post-lactation periods the forests were still the most visited areas, but in the smallest level of all the observed periods and the uses of open habitats were the largest in these periods from all the observed.