

ABSTRACT

The reproductive biology of three species of neotropical bats, Carollia perspicillata, Anoura geoffroyi and Natalus tumidirostris was studied in Tamana cave, Trinidad, between August 1984 and September 1985.

All three species exhibited sexual size dimorphism. Males were on average 4% larger than females in Carollia perspicillata and 10% larger than females in N. tumidirostris. Females were 8% larger than males in A. geoffroyi.

Breeding was seasonal in all three species. The period of maximum female pregnancies was between January and July for C. perspicillata, August and November for A. geoffroyi, and February and April in N. tumidirostris. Individuals of C. perspicillata were polyoestrus, giving birth twice a year (around April and August) and having a gestation period of four months. Polyoestry in C. perspicillata was facilitated by a postpartum oestrus. A. geoffroyi was monoestrus with a gestation period of four months, and N. tumidirostris was monoestrus with a gestation period of about three months. All three species were monotocous. The factors influencing the frequency and timing of births are discussed.

The period of spermatogenesis coincided with the period of maximum female pregnancies in the polyoestrus species, C. perspicillata, but not in A. geoffroyi nor N. tumidirostris.

In the latter two species, spermatogenesis was more markedly seasonal than in C. perspicillata, and peak testicular activity preceded the period of peak female pregnancies. This may indicate that sperm storage occurs in A. geoffroyi and N. tumidirostris.

Distributional patterns within the roost were studied to allow comment on the mating system of all three species. C. perspicillata was observed to form either bachelor groups (all male) or harem groups in which a few males defended several females. A. geoffroyi roosted in large multi-sex groups of approximately equal numbers of males and females. N. tumidirostris maintained individual spacing between members of the colony in the day roost. In N. tumidirostris, males and females segregated during gestation, females forming maternity colonies in which the young were raised. Sexual segregation did not occur in either C. perspicillata or A. geoffroyi.

The histological examination of all three species indicated that follicular maturation and corpus luteum formation were typically mammalian. Definitive histological evidence for the postpartum oestrus in C. perspicillata was obtained. Both C. perspicillata and A. geoffroyi exhibited alternation of ovulation and unilateral oviducal reaction. The biological significance of these phenomena are discussed. The possible role of glycogen stored in the oviducts in terms of the maintenance of developing ova is discussed.

Menstruation was observed in C. perspicillata, but not in A. geoffroyi nor N. tumidirostris. This is the first report of menstruation in a wild population of C. perspicillata. Menstruation and the non-pregnant cycles observed in C. perspicillata are discussed in the context of the male defense of females characteristic of the harem mating system observed in this species.

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