ABSTRACT

Studies on the reproductive biology and endocrinology of the neo-tropical bat *Phyllostomus hastatus hastatus* (Pallas) were conducted in Trinidad between October 1973 and November 1976. Findings indicated that there are important differences from the pattern of reproduction in laboratory, domestic and other wild mammalian species.

Seasonal breeding occurs and the reproductive cycle is annual, spanning a 12 month period. The corpus luteum persists for 7 or 8 months and appears to be an important factor controlling cycle length. Both pregnant and non-pregnant females possess cycles of similiar duration ; a phenomenon probably influenced by the interaction of exocrine factors between females living closely associated with each other for continuous periods - a direct consequence of the peculiar social organisation of this species.

Investigations on the reproductive status of the Tamana Cave population indicated that gestation lasts 5 months, which is uncommon for small mammals. The main birth period occurs during March - April, although a small percentage of births occur all year around. A single young is produced and there is a period of maternal care of offspring comparable with that of many primates.

A detailed analysis of histological changes in the ovaries and reproductive tract revealed that two features, which are uncommon among

mammals, were exhibited by these bats. Firstly, the corpus-luteum occupies about 90% of the ovarian volume and remains intact for at least 2 months after parturition; secondly these animals undergo menstruation.

Investigations into some factors (Follitropin, Lutropin, Prolactin, cyclic AMP, NADPH and Luliberin) influencing progesterone secretion by the ovary in vivo and in vitro, revealed that some similiarity does exist between this and other mammalian species in the pattern of steridogenesis. Prolactin however, differed from its usual action by causing an increase in progesterone synthesis in vitro.

The histological effects of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) and hysterectomy on the ovary were unexpected as neither had any rapid effect on luteal regression when administered alone. However a combination of both of these factors brought about early degenerative changes in existing corpora lutea. Significantly also, an increased rate of follicular atresia followed the administration of $PGF_{2\alpha}$ and hysterectomy.

Finally the recording of observations on general biology and ecology of this species in Trinidad provides a body of useful new information which was previously lacking.