

of the females were inseminated 3 days after emergence, but all were inseminated by day 9 (Nayar & Pierce 1980).

Swarms of male *Cx. nigripalpus* have been observed above solid markers such as trees during the evening twilight starting at 15 to 20 minutes after sunset (Provost 1969). In the laboratory, male *Cx. nigripalpus* began to swarm at dawn with an average light intensity of 0.72 to 2 log lux and stopped swarming at 1.32 log lux. At sunset, the swarms started at 0.63 to 1.13 log lux and stopped at 0.08 to 3 log lux (Nielsen & Nielsen 1962). Whether females were actually inseminated during these swarms has not been conclusively established.

In order to determine the age at which *Cx. nigripalpus* females are inseminated in nature, Lea & Edman (1972) released on a wooded island in a fresh water swamp, marked males and females that were both 22 hours old. They had also released males 5 to 7 days earlier at the same site. The females were recaptured during the night of the release and for two subsequent nights with CO₂-baited light traps and during the mornings from the ground litter with a tractor-mounted power aspirator. Upon dissection, it was discovered that few of these females were inseminated until the third night. A positive correlation was also found between the rate of insemination and the distance from the release point at which the recoveries were made.

Lea and Edman's (1972) conclusions were confirmed during a 1976 study at Tiger Hammock, when inseminated ³²P-marked females were first recaptured at 54 hours of age, after being released between the ages of 6 to 30 hours. All of the recaptured females were inseminated by 90 hours. This study also showed that those females which dispersed further from the release area during the first two days were inseminated earlier than the ones that remained nearby.

FLIGHT ACTIVITY

An investigation of the flight activity patterns of virgin and mated *Cx. nigripalpus* adults having different nutritional experiences was conducted in the acoustic bio-room under a LD 12:12 light cycle (both square- and sine-waves) at 27°C, where flight sound could be recorded continuously for at least two weeks (Nayar & Sauerman 1969). In square- and sine-wave light cycles, both virgin males and females maintained on 10% sucrose had a bimodal flight pattern (Nayar & Sauerman 1974a). The activity started about 24 hours after emergence and thereafter a peak of about 30 minutes of flight activity occurred at light-off and a peak of 20 minutes occurred at light-on (Fig. 3). There was no discernible activity during the remaining dark phase of the LD cycle. But as these adults matured, began to feed on sugar and blood, and developed eggs, their activity increased throughout the night (Fig. 3). A similar flight pattern was observed in the field when adults were collected with suction traps for different durations during the night (Bidlingmayer 1974). Further laboratory experiments showed that starvation caused an initial increase in activity for 24 hours, but the activity decreased on subsequent days. Flight activity of mated females, however, was extended throughout the dark phase both on 10% sucrose and sucrose plus a