

Gibbon Menstrual Cycle and Breeding Study

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OBJECTIVE: To gather information about normal reproduction and breeding habits of gibbons in captivity.

BACKGROUND: A colony of 45 gibbons (*Hylobates lar*) is being maintained at the SEATO Medical Research Laboratory for use in the medical research projects of the laboratory. An active breeding program has been conducted for the past several years, and 22 gibbons have been born in the colony. Insofar as it is consistent with the other research objectives of this laboratory, observations of the reproductive and breeding habits of these animals have been made on a regular basis.

PROGRESS: Vaginal swabs were taken daily from ten adult female gibbons and the time of menstruation was recorded. In the 110 menstrual periods observed, the duration of menses was 1–4 days, and the interval between menses was 15–107 days (Table 1). The most common time interval between menstruations was 15–25 days (67.4% of the cases). Eight pairs of gibbons were allowed to mate naturally during the year. In an effort to gain information about breeding habits, 21 matings were observed during normal duty hours (7:30 AM–4:30 PM). The duration of actual copulation was recorded in 18 of the matings and is shown in Table 2. In most matings copulation time was less than 3 minutes. In all 21 matings, both female and male were facing the same direction. The position of each animal is shown in Table 3. The most common position was the male vertical and the female horizontal. Eleven matings were observed on the flat elevated seat, two on the floor of the cage, five hanging from the cage wall, and one on the exercise bar.

Monthly rectal palpations were performed on all breeding animals during the year, and the size of the uterus and developing fetus recorded. These observations are presented in Table 4. Pregnancy can be confirmed by rectal palpation as early as the third month of gestation. Table 5 presents data concerning seven gibbons born during the past year.

DISCUSSION: Eight female gibbons were maintained in outdoor breeding cages, and access to males permitted during the reporting period. Seven young were born to six mothers. Two new breeding pairs were established and have not yet produced young. The ten females being observed for normal menstrual cycles serve as a reservoir of new breeding stock, and enables an evaluation of the menstrual pattern to be made before the animals are mated.

Table 1. The Duration of the Sexual Cycle in Female Gibbons

| Gibbon Identifi- cation Number | D ₁ | I ₁ | D ₂ | I ₂ | D ₃ | I ₃ | D ₄ | I ₄ | D ₅ | I ₅ | D ₆ | I ₆ | D ₇ | I ₇ | D ₈ | I ₈ | D ₉ | I ₉ | D ₁₀ | I ₁₀ | D ₁₁ | I ₁₁ | D ₁₂ | I ₁₂ | D ₁₃ | I ₁₃ | D ₁₄ | |
|-----------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---|
| S-2 | 1 | 23 | 1 | 39 | 2 | 19 | 2 | 17 | 2 | 20 | 1 | 17 | 1 | 18 | 1 | 19 | 2 | 17 | 2 | 32 | 1 | 30 | 1 | 38 | 1 | 18 | 3 | |
| S-81 | 2 | 52 | 2 | 15 | 3 | 107 | 1 | | | | | | | | | | | | | | | | | | | | | |
| S-92 | 1 | 25 | 1 | 24 | 2 | 34 | 1 | 23 | 2 | 29 | 1 | 54 | 1 | 21 | 1 | 26 | 3 | | | | | | | | | | | |
| S-96 | 1 | 103 | 2 | 24 | 1 | 94 | 2 | 45 | 2 | 20 | 3 | 23 | 1 | | | | | | | | | | | | | | | |
| B-14S | 1 | 20 | 2 | 24 | 1 | 17 | 1 | 23 | 1 | 70 | 1 | 25 | 2 | 30 | 3 | 25 | 1 | | | | | | | | | | | |
| B-66S | 2 | 20 | 3 | 17 | 1 | 23 | 3 | 34 | 1 | 24 | 2 | 18 | 2 | 17 | 1 | 23 | 1 | 21 | 1 | 36 | 2 | 21 | 1 | | | | | |
| B-85 | 2 | 18 | 1 | 38 | 1 | 20 | 1 | 20 | 1 | 18 | 1 | 19 | 1 | 18 | 1 | 40 | 3 | 37 | 2 | 21 | 2 | 3 | 22 | 2 | 18 | 2 | 17 | 4 |
| B-88 | 1 | 21 | 2 | 22 | 1 | 20 | 1 | 43 | 1 | 21 | 2 | 63 | 1 | 40 | 1 | 43 | 2 | | | | | | | | | | | |
| P-2 | 2 | 21 | 3 | 17 | 3 | 19 | 2 | 30 | 3 | 19 | 1 | 15 | 1 | 35 | 1 | 42 | 2 | 55 | 1 | | | | | | | | | |
| P-5 | 1 | 20 | 1 | 49 | 2 | 23 | 1 | 20 | 1 | 22 | 1 | 20 | 2 | 22 | 2 | 20 | 2 | 20 | 1 | 25 | 1 | 46 | 3 | 21 | 1 | | | |

D₁ & D₂ = Duration of menses in days
I₁ & I₂ = Interval between menses in days

TABLE 2
GIBBON COPULATION TIME

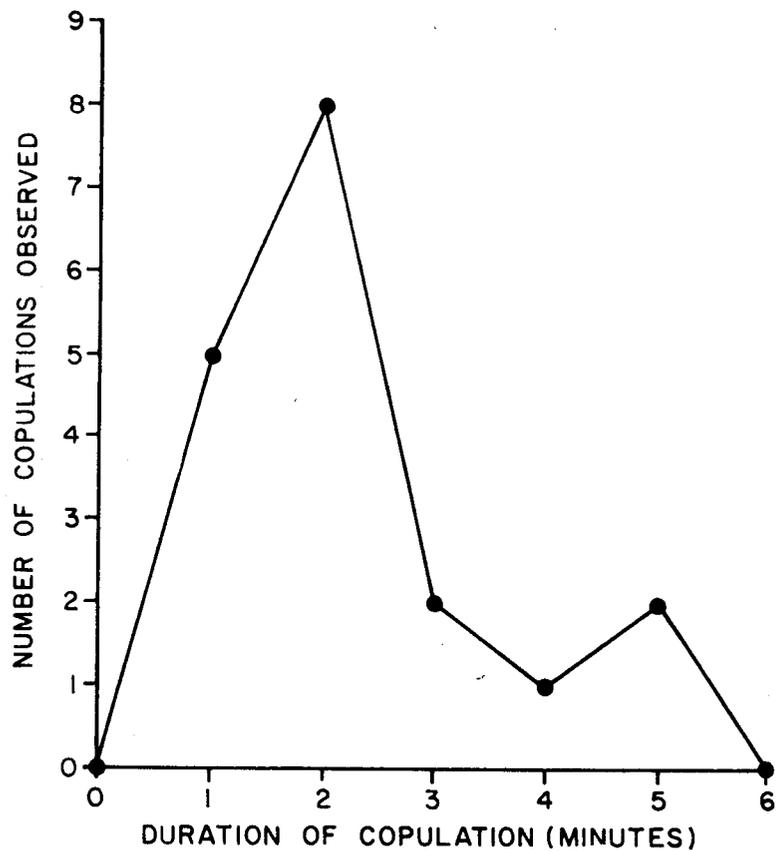


TABLE 3
COPULATION POSITIONS

| <u>POSITION DURING COPULATION</u> | <u>NUMBER OF MATINGS OBSERVED</u> |
|---------------------------------------|-----------------------------------|
| MALE VERTICAL AND FEMALE HORIZONTAL | 13 |
| MALE VERTICAL AND FEMALE VERTICAL | 6 |
| MALE HORIZONTAL AND FEMALE HORIZONTAL | 1 |
| MALE HORIZONTAL AND FEMALE VERTICAL | 1 |

Table 4. Fetal Development

| Gibbon Identification Number | Approximate Uterine Size* | | | | | | | | | | | | |
|------------------------------|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Mar 73 | Apr 73 | May 73 | Jun 73 | Jul 73 | Aug 73 | Sep 73 | Oct 73 | Nov 73 | Dec 73 | Jan 74 | Feb 74 | Mar 74 |
| B-4 | A | A | A | A | A | B | P | P | P | P | D | N | N |
| B-6 | B | B | B | P | P | P | P | D | N | N | N | N | N |
| B-7 | A | A | B | A | A | A | A | A | B | B | P | P | P |
| B-11 | B | B | C | P | P | P | D | N | N | N | N | W | |
| B-59 | A | A | A | B | A | A | A | B | P | P | P | P | D |
| B-89 | | | | | | | A | A | A | A | A | A | A |
| PC-1 | | | | | | | A | A | A | A | A | A | A |
| S-61 | C | P | D | N | N | N | N | W | | | | | |
| V-175 | A | A | A | A | A | B | C | P | P | D | N | N | N |

- *
 A less than 2.5 cm in diameter
 B 2.5 to 4 cm in diameter
 C 4 to 5 cm in diameter
 D month of parturition
 N Lactating mother; not palpated
 P confirmed pregnant; not palpated
 W offspring weaned

Table 5. Newborn Gibbons 1973-1974

| Delivery Date | Female Number | Male Number | Baby Number |
|---------------|---------------|-------------|-------------|
| 1 Jan 73 | B-59 | B-8 | Pc-16 |
| 19 May 73 | S-61 | P-16 | Pc-18 |
| 26 Sep 73 | B-11 | S-58 | Pc-19 |
| 23 Oct 73 | B-6 | B-12 | Pc-20 |
| 26 Dec 73 | V-175 | S-18 | Pc-21 |
| 2 Jan 74 | B-4 | B-8 | Pc-22 |
| 10 Mar 74 | B-59 | B-12 | Pc-23 |