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A Preliminary Study of the Wild Siamang Gibbon (*Hylobates syndactylus*) at Fraser's Hill, Malaysia

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ABSTRACT. The wild siamang gibbon was studied at Fraser's Hill, Malaysia. The study area was covered with a well developed forest and offered a suitable habitat for siamang gibbons. Other primates living in this area were the white-handed gibbon, the duskey leaf-monkey, the banded leaf-monkey, and the pig-tailed monkey. The siamang gibbon groups observed have a monogamous structure consisting of one pair of adult individuals and one or more subadults which are assumed to be the offspring of the adults. The adult male showed behavior typical of a group leader. As subadults become older, they tend to become spatially separated from the mother group. Each group was observed to range freely within an exclusive area of the forest into which no other group was observed to intrude. Each group emitted loud vocalizations which seemed to maintain the spacing between the groups.

The siamang gibbon, the largest ape among Hylobatidae, has been regarded as an intermediate animal between the lesser apes (Hylobatidae) and the greater apes (Pongidae) (SANDERSON, 1957). There are several field studies on the other species of apes (i.e., CARPENTER, 1938, 1940; ELLEFSON, 1965; GOODALL, 1965; ITANI & SUZUKI, 1967; SCHALLER, 1961, 1963; DAVENPORT, 1967, etc.), but few attempts to study of siamang gibbon have been made. The present study of the social behavior of wild siamang gibbons was therefore undertaken at Fraser's Hill, Malaysia, from August, 1966, to March, 1967, and this report outlines the results of that study; knowledge of the social behavior of free-ranging siamang gibbons will be helpful in clarifying their relationship to other apes.

THE STUDY AREA

Fraser's Hill is situated 1,329 m above sea level at Lat. 3°43'N. The mean temperature and rainfall are shown in Figure 1. The area has a complex topography consisting of many steep precipices and deep valleys, as illustrated in Figure 2.

The study area is a part of Fraser's Hill Forest Reserve and is also a game reserve area; hence, the natural habitat has been well protected from destruction by humans and the forest has a thick, well developed canopy. As HARRISON (1955) has pointed out, this area is a famous habitat of the siamang gibbon in the Malay Peninsula.

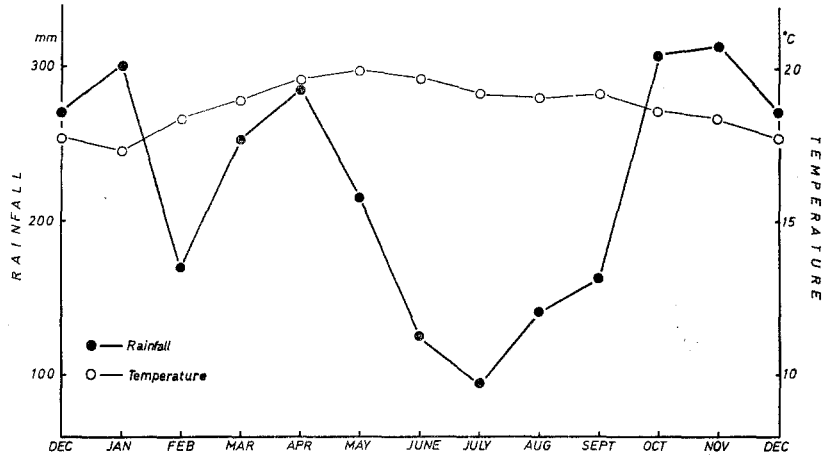

Fig. 1. Mean temperature and rainfall at Fraser's Hill. (After 'Meteorological Informations of the Orient')

In addition to the siamang gibbon, the white-handed gibbon (*Hylobates lar*), the dusky leaf-monkey (*Presbytis obscurus*), the banded leaf-monkey (*Presbytis melalophos*), and the pig-tailed monkey (*Macaca nemestrina*) were also found. The population of the two species of leaf-monkey appeared to be large, but the population of white-handed gibbons seemed to be smaller than that of the siamang gibbons. Only one pig-tailed monkey, a lone male, was found, and it is assumed that the main habitat of this species is at the bottom of the mountain.

DISTRIBUTION AND HOME RANGE OF GROUP

The canopy of the forest can be divided into three strata. The gibbons, both siamang and white-handed, were observed predominantly in the second stratum of the canopy, occasionally in the first and third strata, but never on the ground. It is therefore presumed that discontinuities of the forest, such as a roadway or a river, impede free movement of the gibbon and obstruct direct social contact between the members of different groups, contact being made only by vocal communication. On the other hand, even in the continuous forest, each gibbon group confined its movement to a particular area and never intruded into that of another group. From these observations, it is surmised that each group has a home range, or perhaps, as discussed below, a true territory. These exclusive areas of each of the gibbon groups are presented in Figure 3.

GROUP COMPOSITION

The composition of each group of siamang gibbons observed in the study area is shown in Table 1. The largest group was composed of six individuals and the smallest

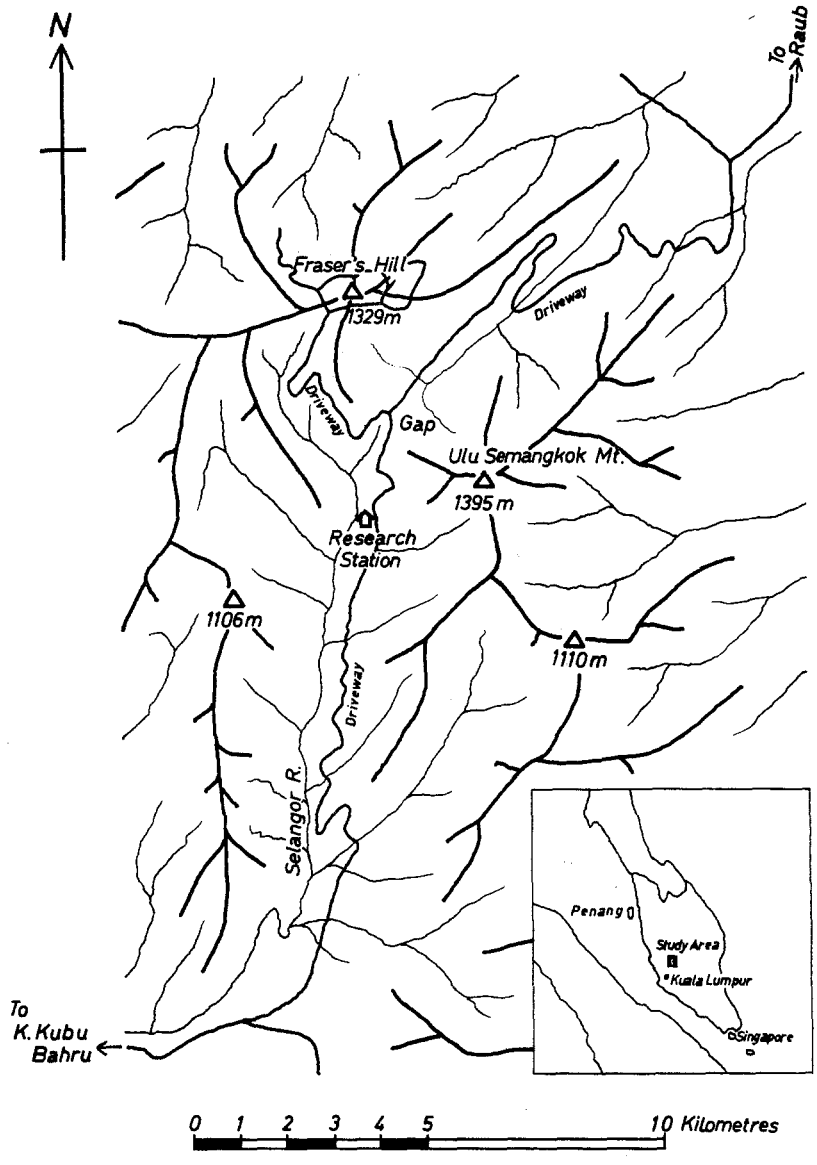

Fig. 2. Fraser's Hill and the study area.

was composed of three. Every group showed a monogamous structure, i.e., one adult male, one adult female, and one or more subadults which are assumed to be the offspring of the adults. The composition of these siamang gibbon groups does not differ substantially from that of the white-handed gibbon groups reported on by CARPENTER (1940).

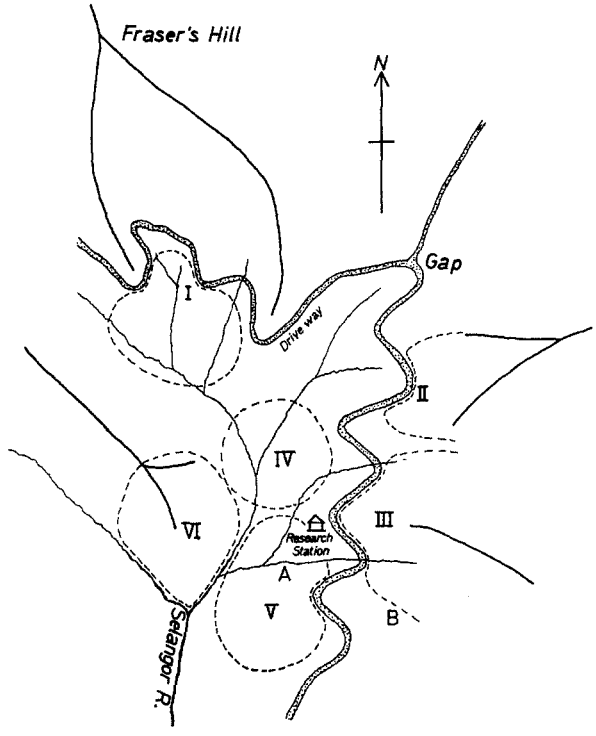

Fig. 3. Home range of each group. I–VI: Siamang gibbon. A, B: White-handed gibbon.

Table 1. Compositions of each group.

Group	Adult male	Adult female	Juvenile	Young	Infant	Total
I	1	1	1	1	1	5
II	1	1		1	1	4
III	1	1	2	2		6
IV	1	1		1		3
V	1	1			1	3
VI	1	1		1		3
A	1	1			1	3
B	1					1

I–VI: Siamang gibbon. A, B: White-handed gibbon.

INTRA-GROUP RELATION

The members of a group, both adults and subadults, seemed to be bound by intimate social relationships. They were usually observed to be within a short distance of one another and almost always to move as a group. When they were moving through the forest, the adult male usually went first, followed by the adult female and the subadults. Sometimes, however, the adult female preceded the adult male (Figs. 4 & 5).

The typical group cohesion described above may have been deteriorating in two groups, Group-I and Group-III. The latter, the largest group observed, was composed of one adult male, one adult female, two juveniles and two young. Of these animals, the two juveniles had a tendency to move at a short distance from the other four members, and sometimes they were observed eating on a tree more than 50 m from the place where their parents were moving. Group-I, the second largest group, was composed of five individuals. Of these individuals, the juvenile tended to move at some distance from the others, and sometimes the young member also separated itself from the parent group and joined the juvenile. These observations suggest that a temporary separation or spacing out of the group may ultimately lead to a permanent separation from the parent group.

Data concerning the leadership of the adult male of a group were gathered. As mentioned above, the adult male usually went first, leading the group during its movement through the forest. In response to the vocalizations of another group, the adult male would vocalize loudly, followed by the other members of his group.

Another typical response of the leader male was given by the adult male of Group-IV. When I approached the group, the adult male appeared suddenly and then ostentatiously separated from the other members of his group. His violent brachiation was repeated as he moved in a direction contrary to that of the other members. It seemed that his display was to distract the observer's attention from the rest of the group and toward some other place.

INTER-GROUP RELATION

No direct contact between groups was observed, but as illustrated in Figure 3, each group moved within a limited area and did not enter another's area. In most cases, except for roadways or rivers, the natural features of the environment did not appear to be obstacles to the free movement of the groups. It is, therefore, assumed that interaction between groups led to the establishment of the circumscription of their home ranges, or perhaps, territories.

In this regard, an important aspect of inter-group relations is vocal exchange. Vocal exchanges usually occurred in the morning, just prior to group movement. These vocalizations were so loud that they could be heard more than 2 km away. The vocalization was first emitted by the group's adult male. It began with a powerful <Hoh·Hoh·Hoh>, then changed to an excited cough-like sound, <Kau·Kau·Kau . . .>. The adult female and subadults then joined in with shrill vocalizations. When this vocalization was emitted, all of the group's members were gathered in a tree or within sight of each other in neighboring trees. They remained in the same place during the vocalization. When one of the groups emitted this loud vocalization, the other groups would respond one by one with similar vocalizations, the sounds coming first from one direction and then another. It appeared that the groups were reacting to one another's vocalizations. After this, the members of a group became quiet and then began to move in their home range, feeding, resting, and so forth.

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Judging from the smallness of group size and the tight spatial cohesion of group members, this loud vocalization seems to be unnecessary for intra-group communication. From the fact of the distinct spatial separation of the groups, it will be assumed that this loud vocalization functions to indicate the positions of the groups in the forest and to prevent or preclude actual visual and perhaps subsequent physical encounters between the various groups. The function of vocal exchanges of this type among siamang gibbon groups seems to be similar to the territorial song of certain species of birds.

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EXPLANATION OF FIGURES

Fig. 4. A siamang gibbon jumping from branch to branch. (photo by N. KOYAMA)

Fig. 5. Siamang gibbons moving in a tree. Above: Adult male. Below: Adult female. (Photo by N. KOYAMA)