

## SEATO MEDICAL RESEARCH STUDY ON ECOLOGY OF GIBBONS

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### GENERAL INFORMATION

The project on the Ecology of the Gibbon is directed mainly to a consideration of factors important for maintenance and breeding of gibbons in the laboratory and in seminaturalistic reserve areas. The studies comprising the program include observations of animals in natural habitats, experimental ecological studies on a 30-acre island in the Gulf of Siam and an experimental breeding program.

#### I. NATURAL HABITATS:

The gibbon, Hylobates lar, lives in deciduous forests in northern Thailand. In some sections of the north, restricted forest sites of not more than 10 acres are found with single family groups in them. This is a good deal smaller area than the 50-100 acres believed to be the natural range size of gibbons, and the significance of this observation is that a group can live successfully in a more restricted range than is characteristic in more extended forest areas.

The areas of isolated forest in which gibbons may be found typically border a stream between two hills with vegetation heavy near the water and becoming more sparse toward the top of the hills. Food and water are therefore most plentiful near the stream, and this constellation of factors may tend to keep the animals within the restricted forest areas. It seems likely that given an adequate supply of food, water and cover, gibbons might artificially be kept in rather small forest areas.

These observations were made during a trip to northern Thailand to capture natural groups of gibbons using a drug loaded, gas powered rifle. Gibbons tend not to cross open areas of ground, and it was therefore possible to locate gibbons in the restricted forest areas, drive them to the edge of the forest using a crew of men and shoot at the animals without their leaving the forest.

Of 12 animals seen, it was possible to capture one juvenile by hand and one adult was obtained by proper use of the capture rifle. Six other adults were seen but no shot was possible, and three were killed because of errors in the procedure. Working out the technique will be part of the project during the next year but it seems now as if the following considerations should be part of the method.

Sernylan, an experimental tranquilizer is a useful drug and 1/2 mg. is an adequate dose for an adult gibbon. The effect of the drug is to slow the animal's progress so that he rests in a single tree. He must then be retrieved from the branches. Sernylan is probably superior to drugs which drop the animal

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from a tree since there is a substantial risk to the animal when he falls to the ground. This risk could be reduced some-what by use of a net. However, we found it difficult to use the net accurately in the forest. Sernylan also is not as likely to affect vital functions as some other drugs. Although somewhat slower in action than succinylcholine chloride, the restricted nature of the forest permitted one to follow the animal quite easily in the 5-10 minutes required to bring him to a halt.

In shooting the animal, care must be taken to hit the animal in the abdomen or in the thigh. A 1/2 inch syringe needle is adequate and the needle should have no barb since a barb makes the needle difficult to remove if it becomes embedded in bone. No other type of gun should be used in the procedure, although local hunters may wish to supplement the capture gun with techniques with which they are more familiar.

## II. KO KLET KAEO

During the report period, permission was obtained for use of a 30 acre island, Ko Klet Kaeo, as a site for semi naturalistic studies of gibbon ecology. The island is available for ten years under an agreement with the Royal Thai Navy.

The island consists of thickly grown secondary forest throughout, located on steep terrain. Rain is stored in tree holes but otherwise there are no natural water sources and no free water sources are present during the dry season. Despite this fact, there are numerous animals indigenous to the island including at least six species of mosquito (Culex litoralis, Aedes togoi; Aedes aurostrialis; Aedes dissimilis; Aedes (Canraedes) and Aedes albopictus; two species of rat (Bandicoota indicus; Rattus rattus) and monkeys (Macaca irus).

As an initial effort, eight gibbons were placed on the island. Within one month five had disappeared. The remaining three lived on the island for three months using mostly natural food and water. At the end of this time, two were removed and the remaining animal lived for an additional three months but was found dead soon after the dry season began.

During this initial phase of the project, 20 km. of trails and four small clearings were cut to permit access to all parts of the island. One hundred small feeders and water bowls were distributed widely and a weather station and large trap for monkeys were erected. Two workmen were hired to maintain the feeders and trails and provide security. A new group of gibbons will soon be placed on the island and projects will be initiated concerning the development of territories and ranges.

## III. LABORATORY BREEDING PROJECT

Although the technique for maintenance of gibbons in the laboratory is well worked out, the feasibility of breeding the animal regularly has not been tested. In the natural state, adult gibbon pairs can produce infants at the rate of one every two years, and a few gibbon infants are born in zoos every year.

The laboratory breeding project asks whether, given good laboratory management, gibbons can be bred to produce an adequate number of animals for laboratory investigation. During the report period, twelve 1000 cu. ft. and four 500 cu. ft. outdoor wire mesh cages were constructed at the Phraputabaat facility. Nine compatible pairs of healthy adult gibbons were formed and maintained one pair to a cage. A diet consisting of water and monkey chow is fed ad libitum and is supplemented with oranges, bananas, sweet potatoes, acacia leaves, peanuts, boiled eggs, milk and a vitamin supplement.

Under these conditions, seven of the nine pairs have been seen to copulate repeatedly, with copulations observed throughout the day but mainly early in the morning. Not all copulations result in ejaculation. Future work in this project will include observations of conditions under which copulations occur, the prevalence of ejaculation in the male and the development of pregnancies.