

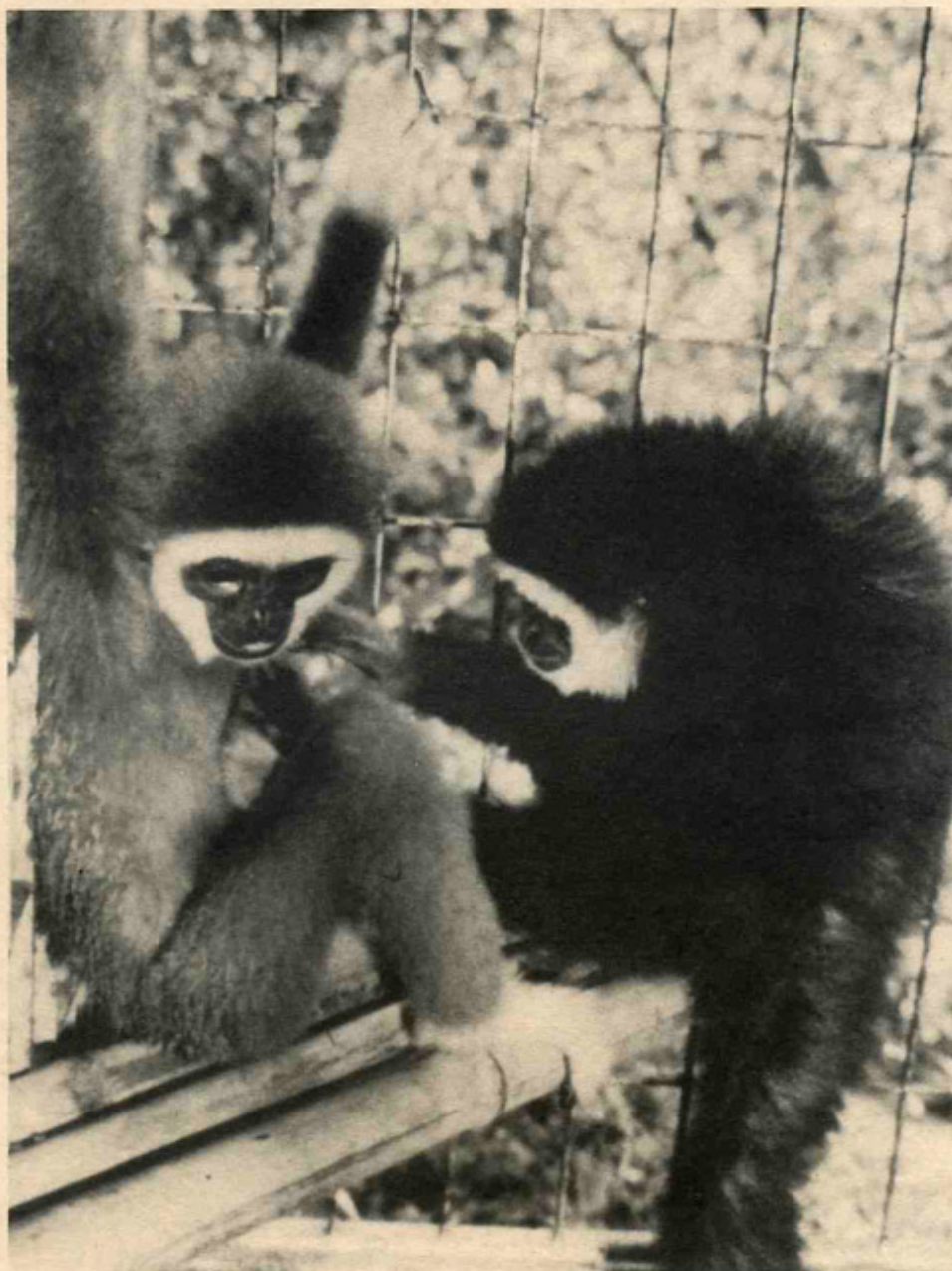
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Gibbon Rehabilitation Procedures in Thailand

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ABSTRACT

This paper describes the rehabilitation procedures used by the Gibbon Rehabilitation Project in Phuket, Thailand. Specific information is given regarding diet, feeding, housing, and rehabilitation methods used to prepare gibbons for release.

KEY WORDS: Gibbon rehabilitation, White-handed Gibbon (*Hylobates lar*), pet gibbons

Introduction

Gibbons are the smallest of the apes. While most species weigh about 5 kg, some can weigh up to 12 kg. At any weight, they are challenging to work with, especially when they have been raised captive. In spite of the fact that gibbons are currently listed as an Endangered Species and are listed on Appendix 1 of CITES, many are still taken by people as pets.

As young gibbons are captured from the wild and bought by pet lovers, large numbers are accumulating in captivity. While many of these receive loving care while young, they become dangerous and difficult to manage when they mature. They are usually kept on chains so they are not free to develop their legendary locomotor abilities. They are not given the food that gibbons are adapted to finding and eating in the forest. They have no chance to find a proper mate and enjoy a normal family life. They contribute nothing to the propagation of their own kind. Their songs go unanswered.

Clearly, the capture of gibbons for the pet market must be stopped and the raising of pets should be discouraged. It decimates the natural population and gibbons are not easily bred in captivity. Some of the gibbons in captivity might be returned to the wild, but successful reintroduction is difficult. One cannot just turn a pet loose in the forest and expect it to survive. Many people have tried this approach which results in either starvation or nuisance behavior.

Some studies have shown that with proper selection, preparation and supervision, some captive gibbons may be able to adjust to the wild and even reproduce. Apes that cannot be released are transferred to sanctuary facilities. Many captives, however, cannot make the adjustment. More research needs to be carried out to find ways to improve the chances of successful reintroduction. A reintroduction project should involve close cooperation between the "pet owners," veterinarians, forestry department personnel and primatologists who study behavior and ecology.

Bang Pae Waterfall is a wildlife park and a forest reserve located in the northeast of Phuket Island, Thailand. This is also the location of the



The Gibbon Rehabilitation Project education facilities.

Gibbon Rehabilitation Center (referred to as Phase I). We have established an Information Center at Phase I in order to educate both Thai and foreign visitors on how and why we rehabilitate.

Intake Procedures

At present, there is a large supply of unwanted captive gibbons, particularly the white-handed gibbon (*Hylobates lar*). While infant and juvenile gibbons are kept as pets the adults can be aggressive and quite dangerous. This animal has long arms with strength and reflexes that are far superior to our own.

When a gibbon is received at the center a case history form is completed in an attempt to establish the geographical area the gibbon is from and also its age, sex, daily diet, health history, inoculations and identifying features. The animal is then anesthetized by a veterinarian, for a basic medical check which also includes a blood sample for virological testing, a tuberculosis test (TB) and de-worming. To date, two animals have tested positive for human hepatitis but none to TB. Morphological measurements are recorded by our Phase I manager. The animal is isolated in a quarantine cage where its feeding and behavior are closely monitored.

Rehabilitation Procedures

After the animal has been judged to be healthy it is allowed to socialize with others of the same age. Socialization is one of the most important aspects of gibbon rehabilitation. Many captive gibbons have never seen (since capture) another gibbon, some may dislike the company of conspecifics and possibly consider themselves as "humans." This attitude changes with time, often within four weeks. Mature animals are given their own cage (same sex adults will normally fight), then we attempt to find and introduce a compatible mate. Juveniles are caged together as are sub-adults. We have had minimal problems with young animals sharing the same facilities. One of our enclosures houses as many as nine gibbons, two to three years old. They play well together and have little need for human contact. This is a rather unique situation where same-age gibbons have the opportunity to form play groups. Juvenile gibbons do not have same-age playmates in nature as do most other primate societies. It has been demonstrated at the Gibbon Rehabilitation Project (GRP) that observations of nine approximately same-age gibbons sharing the same enclosure have not displayed any apparent social dysfunctions. These animals play competitively, en-

joy one another's companionship and have shown positive improvement in their social abilities.

The enclosures are designed for brachiation, swinging, jumping and climbing. This allows the animals to improve their locomotor skills while building muscle tone and hardens the inner surfaces of their hands and feet.

Our gibbons are fed twice a day at 0800 and 1300 with a mixture of fruits, vegetables, starches, leaves and protein. Fresh produce is purchased locally and is supplemented by an afternoon addition of "gibbon balls." The original recipe was designed for the gorillas in captivity at Apenheul in the Netherlands. The Phase I manager adapted the recipe to locally available products that help to fulfill the nutritional needs of the gibbons thus insuring they get their carbohydrates, proteins, fats, vitamins and minerals. Furthermore, it turns out that food spillage is greatly reduced, because the gibbons eat them with gusto, preferring them over other foods with the possible exception of bananas. A gibbon should consume about 24 to 32% of its body weight. The majority of their diet is plant material and should be administered under these approximate percentages: fruit 10%; vegetables 20%; starches 10%; leafy matter 50%; protein 5%. Candies, junk food, over-ripe fruits and all citrus fruits can cause diarrhea. It appears that tuberous plants must be steamed or boiled first because the gibbon, even though considered omnivorous, has a gut morphology designed primarily for eating leaves and unripened fruit. Produce and fruit must be washed to remove traces of fertilizer and insecticides. Workers using mosquito repellent are reminded to clean their hands before handling gibbon food.

Gibbon Balls

(Serves 25 gibbons)

sweet potato (boiled)	3 kg
steamed rice	350 g
boiled corn	500 g
boiled soya-beans	500 g
boiled eggs	12
oatmeal	200 g
vitamin and mineral powder	20 g
bananas (for a nice taste)	6

For the vitamin and mineral powder we use at present a commercially available powder for young dogs, produced by Beapharm of Holland.



Gibbon assessment in Puket, Thailand.

To minimize fighting, gibbons are given their fruit first, starch second, vegetables third, etc. Dominant animals are fed first. The food baskets are scrubbed once a week, open water containers are rinsed daily and washed weekly. Water dishes have a tendency to accumulate a bacterial slime that must be removed. Food baskets must have all traces of food from the prior meal removed. Cages are cleaned twice a day, after feedings, and when possible leaf litter is put into the enclosures along with leafy lengths of bamboo to play with. Besides the possibility of bacterial contamination and spreading of disease, gibbons, which are very clean animals, do not like the smell or the flies caused by feces and decaying vegetable matter.

For human safety, an absolute minimum of human contact with the gibbons is recommended. Once a gibbon is in an enclosure it begins to socialize with its fellow cage mates and should not depend on keepers for grooming or affection. When it is necessary to enter an enclosure, the gibbons are kept occupied with food treats and have a second person standing by with a squirt bottle. When in range of aggressive animals one must *keep eye contact and not turn away!*

Animal caretakers are advised to wash their hands after any gibbon contact to prevent *Salmonella* contamination. Cuts and scratches should be disinfected immediately. Tetanus and hepatitis inoculation should be up to date. Keepers or visitors who have a cold, flu, virus, etc. are not allowed to approach or handle gibbons or gibbon food because the sicknesses of human beings can be lethal to a gibbon.

When mature animals are suspected of

forming a pair bond in the isolated minimum-contact enclosures, they are observed closely for mutual grooming, duetting, possible copulation; oestrus cycles are logged. When the pair-bond criteria are met the animals are given another medical check, placed in a carrying cage and transported to a release site on the island of Ko Boi (Phase II).

Captive gibbons soon lose their fear of man. With superb reflexes and sharp canines they are able to inflict serious wounds. After release it is not uncommon for gibbons to wander into populated areas, the consequences being negative for both man and gibbon. Uninhabited islands with natural forest and a source of fresh water afford an ideal location for releasing gibbons. Any body of water provides a natural barrier to apes and most islands do not have existing gibbon populations. Ko Boi is a forest reserve, non-calcareous island of approximately seven square kilometers. Located in Phang Nga Bay with sixty degree gradients ascending to 185 meters, thick foliage, lack of beaches and shore rocks covered with razor clams make this island inhospitable to the passerby. Two other primate species live on this island, the spectacled langur (*Presbytis obscura*) and the crab-eating macaque (*Macaca fascicularis*).

The gibbons are put into an acclimation cage at the release site, while their diet and feeding schedule remain the same as in Phase I. It is very important to allow the gibbons to acclimate to their new environment otherwise they will wander off, possibly separate, may not find their feeding station. The animals could easily die due to stress and starvation. During a week of internment in the acclimation cage the animals realize that they are fed each day and they learn the new sounds and alarm calls of the local fauna. One person who is familiar with the personalities of both animals should accompany them to the release site, do the daily feedings and the initial follow-up behavior observations, as it helps to relieve stress when the apes can recognize someone in their new environment.

On the morning of the seventh day the cage door is opened and the gibbons begin to explore their new situation. They must teach themselves about rotten branches and will fall several times. Daily feedings are continued for four to five weeks while the gibbons are learning to feed themselves. During this "weaning" period they soon prefer natural foods over our intentionally bland supplements. By the fourth week the supplementary feeding is usually reduced to one rice ball per individual, of course this depends on how well they have been foraging.

The gibbons will originally remain in the

vicinity of the release site, yet each week the radius of their exploration becomes larger. After the supplementary feedings are discontinued the female may leave the male (personal observations) and go off to find her own territory, afterwards the male will rejoin her. It is very important to continue behavior observations on all released pairs. Adult animals should never be trusted, especially when they are in a free environment. As a safety precaution, we use two people when entering gibbon territories carrying a 1.5 meter section of bamboo. We have also discovered that an air-powered pellet pistol (BB gun) provides the best protection and discourages the gibbons from following. (*Note: the thick pelage of the animal prevents BB pellet penetration.*)

The gibbon is not a difficult animal to rehabilitate due to its innate behavior, intelligence and ease of locomotion, if the correct procedures are accurately followed: selection of animals, medical examination, rehabilitation, release site selection, public relations, release, and follow-up observations. These procedures have been developed by Dr. Warren Y. Brockelman, Mahidol University, Bangkok.

Selection of Animals

Most gibbons in captivity are probably not suitable for release into the forest, for a variety of reasons. First of all, they must be strong and healthy, with no injuries that might impair their locomotor abilities, and their teeth should be intact. Second, they should be at home in the trees. Many gibbons raised in cages or around houses prefer to run on the ground, and therefore cannot adapt to forest life. Others may have been fed only a human diet and would not find natural foods to their liking.

Medical Examination

All gibbons must be examined by a competent veterinarian to be sure that they are disease-free. Having been raised around humans, they can easily pick up human diseases and transmit them to other gibbons. Adult gibbons also must be in good reproductive condition if they are to be paired and released.

Rehabilitation Concepts

The rehabilitation process for this species has three main focuses: locomotion, diet, and socialization. A gibbon management facility should also attempt to socialize juvenile gibbons, by putting them together so they will play, groom,

and sleep together. Human contact must be minimized and they must be allowed to seek other gibbons for companionship, not humans. Unfortunately, most gibbons in captivity were captured as infants while clinging to their mothers, and later learned to depend on human substitutes for their mothers. It is not fully understood if this damages their chances for later mating or reproduction appreciably, but baby gibbons must receive warmth and motherly love from somewhere.

Release Site Selection

The release area should satisfy several criteria:

a) It should be good natural habitat for the species being released -- that is, the species must have once lived there. Preferably, it should be in the same part of the country from which the gibbon originated; that is, a northern Thai gibbon should not be released on the peninsula. There may be important genetic differences between the populations in widely different parts of the country, as implied above.

b) The forest area should not have many wild gibbons remaining, or they will probably drive out the released animals. The territory of a single group may be as large as 30 hectares.

c) The site should be part of a large forest area, not isolated patch, so that it may be able to hold a viable population, not just a few animals. There should be space for at least 100 group territories, as a general rule.

d) The site should be away from human activity: not near houses, roads or places visited often by humans, or gibbons may leave the forest and follow them. Adult gibbons raised with humans also readily attack humans and can cause serious injury with their canines.

e) The site should be in a park or wildlife sanctuary and actively protected by guards.



Gibbon socialization in a rehabilitation setting.



White-handed Gibbon.

Release

The animals to be released, usually a mated pair, should be kept temporarily in a cage or enclosure at the release site to become accustomed to the area and local foods. This may induce them to stay around after release and not wander far away. They should continue to be offered food after release until they learn to rely on natural foods. They should not be allowed to follow humans. This may be considered to be the final - and most important - stage of rehabilitation.

Post-release Observations

After release, the gibbons must be carefully observed to determine how well they adjust to the wild. Notes are taken on their movements, ability to move through the trees, natural foods eaten and singing behavior. If they fail to behave like normal gibbons or if they follow people out of the forest, they may have to be returned to captivity. During the first year, they are checked for several days each month. Local persons near the release site may be hired to regularly report on the animals. It is crucial that we observe whether each reintroduction was successful or not in order to be able to improve chances for animals released in the future.

Public Relations

If any villagers or other people live near the area they should be informed about the reintroduction so that they will not be surprised or puzzled to see the gibbons. They should be instructed about what to do if the gibbons approach

or attack anyone. If possible, local people should be hired to help observe or protect the animals.

Future Plans

It is our intention to capture the feral-born offspring when they become young adults and reintroduce them to forest reserve areas that are presently depopulated.

One of the problems with rehabilitation is that we receive very young animals. Gibbons, being monogamous and forming small stable family groups, cannot be released into the wild until they form a pair-bond upon reaching sexual maturity (approximately seven years of age). Therefore, a two year old gibbon received for rehabilitation would have to remain in a cage for five years awaiting adulthood. An alternative to incarceration is an island sanctuary where the animals, on a daily basis, are fed and observed in a free setting. Upon reaching adulthood the gibbons would be transferred to another area. Ko Tai, a small island less than one kilometer square, has been selected as a release and study site for juvenile lar gibbons and will be known as Phase III. This unique opportunity to study juvenile gibbon social behavior in a same-age grouping should yield some interesting results. Phase III will begin as soon as we have staff.

Conclusion

While this project is small (due to lack of funding) and our efforts may have little influence on the future populations of lar gibbons, we do hope that the Gibbon Rehabilitation Project may serve as a model for similar projects. We have made extensive efforts to inform both the public and the scientific community of our program. Last year the director made a lecture tour at major universities in Europe in order to attract the assistance of graduate students as well as inform the general public about this important endangered species. We hope that what we do here will make a difference in the quality of life for the animals we seek to assist.

Author Profile

Terrance Dillon Morin is a zoologist/film maker. As an undergraduate in Marine Zoology, he discovered a new species of slipper lobster in Hawaii. He was a graduate student at the University of Hawaii and directed a film that was instrumental in saving a Costa Rican nesting site for the endangered Leatherback Turtle.