

Gibbon Rehabilitation Project on Phuket Successfully Reintroduces Animals into Forest

The Phuket Gibbon Rehabilitation Project (GRP) has since 1992 served as a home for gibbons that have been raised in captivity, as photo props for tourists (Figure 1) or by private owners, and that have at some point been given up, either through donation or through confiscation by wildlife conservation officials. Private owners find that while young gibbons make lovable and entertaining pets, adult gibbons tend to become intractable or aggressive to humans due to their undomesticated wild nature. The gibbons are then usually kept on chains or in cramped cages. The GRP houses them in spacious cages and provides them with healthy food and veterinary care. The GRP facility, located at the Khao Phra Thaew Non-hunting Area (KPT) in the north-east of Phuket Island, has served as an education center for anyone wanting to see these expert acrobats and learn about their biology and conservation problems (Figure 2).

Beginning in 1993, the GRP has attempted to reintroduce its captive gibbons (the common white-handed gibbon *Hylobates lar entelloides*) to the natural environment, to allow them to return to their ancestral forest home. This is easier said than done. First, a suitable secure forest home must be found, preferably far from human settlements. The forest must be natural habitat for gibbons, where gibbons once lived in the past, if not the present. Secondly, the gibbons must be healthy and fit enough to climb and move through the tree canopy. The gibbons must be able to pair with suitable mates (normally, also captive-reared animals), or else they may wander about and leave the forest. In an early attempt to release individual gibbons in the KPT forest, the animals left the forest and attempted to join the households of nearby villagers, which caused the GRP to abandon the effort. Thereafter, the GRP experimented with releasing gibbons in groups on uninhabited islands in Phang Nga Bay from which they could not wander. The effort was unsuccessful for a variety of reasons: the islands were remote and could not be checked every day, and most did not have very suitable tall forest with sufficient food sources for gibbons. The gibbons began disappearing, probably taken, or killed, by humans who visited the islands. After a reevaluation of the goals of the project, the GRP decided to attempt to introduce pairs of gibbons in the remaining forest in the protected KPT forest near the GRP facility. Releasing gibbons in the forest on Phuket had several advantages. First, the forest is truly gibbon habitat, as wild gibbons lived here just a few decades ago before they were hunted out. Secondly, the area is near the GRP rehabilitation facility and released gibbons could be checked and monitored daily. Thirdly, the area can be much more easily protected by GRP and forestry personnel than islands far offshore.

Several measures were taken to induce the gibbons to stay together and not wander out of the forest again. The first was that gibbons were released as mated adult pairs with offspring, which gave the males in particular a strong incentive not to desert and wander away. Gibbons are naturally generally monogamous and pairs raise their offspring until they are old enough to find a mate and a new territory, and have offspring of their own.

It was a particularly wise measure to release only pairs that had successfully produced offspring, because many gibbons captured traumatically as infants are unable to mature properly and rear offspring themselves. Such gibbons are excluded by using only the proven breeders for reintroduction. There is now growing evidence from a wide variety of mammals (especially monogamous ones) and from humans that individuals that did not receive proper nurturing



Figure 1. A. Gibbon in a bar on Phuket (photo: P. Osterberg); B. Tourist with three young gibbons at Muslim floating village in Phang Nga, south Thailand (GRP archive); C. Father Jom (right) and son Sherpa; D. Gibbons (Cop and Jom) pair-bonding in rehabilitation cage.

from their parents (such as institutionalized orphan children) are unable to develop the proper social and parental responses needed for child-rearing as adults (RILLING & YOUNG, 2014). Lack of responsive parental care as infants and juveniles results in neurological and hormonal deficits during development that persist into adulthood and impair socialization and parental ability. In captive primate colonies, caretakers are often perplexed when mothers drop their newborn and lack the motivation to care for them. Thus, we may predict that gibbons born in the forest will have a higher probability of rearing offspring successfully than their parents did. We may also predict that gibbons released into the forest as captive-reared juveniles will have a low probability of pairing and starting a new population. Releasing them may speed up development of their locomotor and food-finding abilities, but may not improve their social bonding and parenting abilities that are most critical to starting a new colony.

The gibbons were also provisioned with fresh fruit and vegetables at their release sites, for at least a year, so that they had time to find the locations of wild fruiting trees and vines. Wild gibbons appear to have considerable knowledge of the locations of food trees in their territories in all seasons, which takes many years to accumulate. Releasing them without provisioning would cause them to starve, and perhaps force them to leave the forest habitat in search of more familiar food.



Figure 2. A. Female Cop leaving the cage, Nov. 2012; B. The forest on Khao Phra Thaew (photo : P. Osterberg); C. Volunteers observing gibbons after release; D. Jom and Sherpa in the wild; E. Lek with wild-born infant Peanut.

The release of gibbon pairs and their offspring in the KPT forest began in 2002 and has continued to the present. In all, eight groups have been released in a 22-square kilometer area of forest, and most of the animals still remain, although the group composition and social relations have changed somewhat. Pairs may break up and reform when the caretakers no longer have control over who stays mated with whom. But the most exciting result from the reintroduction project has been the record of reproduction. Between 2002 and 2012, eleven infants have been born in the wild, and the first wild-born female has produced a second-generation offspring. Three females have given birth more than once. This is a strong indication that the population can grow and maintain itself.

Additional groups need to be released to ensure that the population gets over the critical level for long-term sustainability. However, the “minimum critical level” for long-term sustainability is still a largely theoretical concept that cannot be given a specific number, and there is much argument over it by population geneticists and ecologists. Population geneticists usually put the number between 50 and 100 breeding adults, needed to overcome problems of inbreeding depression and stochastic drift in sex ratio and birth rate. There are many additional factors, however, which will affect the ability to survive over the long term, and even “long term” is a concept that lacks a clear limit. In reintroduction projects like the GRP on Phuket, it is hoped that active management and care will reduce the chances of failure.

Many attempts have been made to release gibbons back into forests in Asia, most of them half-hearted and poorly planned, and without long-term monitoring. The GRP's effort is the only reasonably successful attempt so far. With the success of the Phuket project, the Wild Animal Rescue Foundation (WARF), which also administers the GRP, is making plans for another reintroduction site in Chiang Mai Province. For this purpose captive northern white-handed gibbons, considered to be of the subspecies *Hylobates lar carpenteri*, need to be located and rehabilitated. More management personnel also need to be recruited. Foreign volunteers, who pay all their own expenses for the experience and training opportunities, have been a major source of manpower and support in Phuket and this structure may also become a necessity in Chiang Mai. Because of the ongoing and continuous costs and the lack of available gibbons to reintroduce at multiple sites, the hope is that the new Chiang Mai project will eventually be financially and structurally independent from the GRP, but it will take time.

We caution against the naïve view that the small successes in reintroduction of gibbons are an answer to the problems of deforestation, poaching and decline of gibbons in their most important refuges, in protected areas such as Kaeng Krachan, Huai Kha Khaeng, Thung Yai Naresuan, Khao Yai, Thale Ban, and other places that still have white-handed gibbon populations. Reintroduction projects will have hardly any effect on the big picture of the whole species, but such efforts may help to restore the ecological functions and viability of small areas of forest near humans. Gibbons are important dispersers of seeds of wild trees and vines that they swallow. To hear them singing again in the forest gives us much pleasure and hope.

The story of the successful gibbon reintroduction project on Phuket has recently been written up in detail for publication in two primatology journals, cited below. We are indeed proud of the results achieved so far and hope that the effort can be maintained so that the population continues to thrive.

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