

the state (such as the Wildlife Conservation Society, Nigerian Conservation Foundation, and Fauna and Flora International). Relevant comments and concerns made by the respective NGOs were integrated into the overall governmental evaluation process. The Forestry Commission articulated these external comments and later requested each organization to address key issues before proceeding with the re-introduction. Because of the issues regarding the transmission of disease between wild and released individuals of conspecifics, re-introduction organizations must consult at least one wildlife veterinarian. If the species to be released could potentially pass disease to humans or acquire a disease from humans, government should also involve relevant official expertise, such as a Ministry of Health. It might also be important to utilize the skills of a social scientist and/or economist to evaluate any possible post-release problems of the re-introduced animals.

## 5) Visit the proposed re-introduction sites.

Government officials cannot properly evaluate any re-introduction project without making one or more visits to the proposed release site and surrounding communities. The relevant government agency must carry out thorough field visits to the proposed release sites to confirm project status and hold community consultations.

### Additional Comments

Because the CERCOPAN and Pandrillus re-introductions are the first of their kind in Nigeria, their implementation must be meticulous, and they must be monitored post-release in the long term. A determination of which organization is and/or individuals are responsible for post-release management is required, particularly if the re-introduction organization involves expatriate staff or is not registered in the host country (CERCOPAN and Pandrillus are both registered charities in Nigeria and abroad, and both have expatriate directors). Ultimately, long-term monitoring will allow organizations and government to help ascertain the success of the project: Did the population increase? Did the individuals establish themselves and reproduce? Was genetic diversity affected? How can we improve future releases? Etc.

Even though the IUCN/SSC Re-introduction Guidelines should be implemented in the context of IUCN's general policies pertaining to biodiversity conservation and sustainable natural-resource management, government must ensure that local and specific issues be accorded due attention to reflect existing realities of proposed release sites. This will help address specific challenges that will in turn aid in the overall success and acceptability of the project.

### Conclusion

Because of the socio-economic and ecological concerns associated with re-introduction, government and communities must be sufficiently involved if the program is to succeed and be sustainable. For re-introductions of large or potentially dangerous animals, or where a re-introduction presents a relatively high risk of negative ecological impact, there is a greater need for both government and community participation, particularly with regard to smaller tracts of protected areas and areas where human density is relatively high.

The CRS Forestry Commission is optimistic that this year CERCOPAN and Pandrillus will be ready to re-introduce primates back into the forests of southeastern Nigeria.

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## The Gibbon Rehabilitation Project in Phuket, Thailand

The white-handed gibbon (*Hylobates lar*) was hunted to extinction on Phuket Island in the early 1980s. Since 1992, the Gibbon Rehabilitation Project (GRP) has attempted to rehabilitate individuals confiscated from the illegal pet trade with the aim of returning them to a life in the wild. The first releases were made on un-inhabited islands just off the coast; however this strategy has been discontinued due to conflicts with local fishermen, all of the surviving gibbons were re-captured as these islands were also too small to support self sustaining gibbon populations. Since 2002 gibbons have been released into the 22 km<sup>2</sup> Khao Phra Theaw non-hunting area on the main island of Phuket. Gibbons arriving at the GRP are either confiscated by the Thai authorities from wildlife touts or are handed in by private owners.

Quarantine lasts for approximately three months in which time they are thoroughly screened for disease. Behavioral observation also begins at this point as the gibbons are in auditory and visual contact with conspecifics, some for the first time since infancy. Once quarantine is complete animals that are free from infection are transferred to the rehabilitation site. It is here that training for life in the wild begins; young gibbons are put into peer groups to aid in social development while adults are monitored to determine which individuals could be successfully paired. Once pairs have bonded sufficiently they pass through a succession of environments designed to encourage natural behaviors. Pairs are deemed suitable for release only after rearing of at least one infant. This process has taken up to 10 years in some cases. A soft release methodology is employed which includes at least 10 days acclimatization at the release site in an enclosure suspended in the lower canopy. Release sites are selected to be adjacent to the territory of previously released gibbon groups to encourage territorial behaviors. Provisioning takes place at the release site with the amount and frequency of supplemental feedings reduced when the gibbons show less interest in the provisioned food. There are currently two completely self sustaining gibbon groups.

Post-release monitoring is an essential part of re-introductions, accordingly over 15 km of permanent transects have been cleared in the forest and new transects are cut prior to each release. Observations take place between 07:00 - 17:00 hrs daily for the first month after release. After this bi-weekly observations are carried out on all released groups. Behavioral data are collected on a focal animal every 120 seconds. Group scan sampling every 10 minutes is used to supplement data on ranging, adaptation, diet and inter-group interactions. Additional data are collected on favored fruit and browse, sleeping sites and territorial expansion. This has been found to be important when planning subsequent



**Photo 1: Newly released Gibbon group at feeding basket © Owart Maprang**

releases. So far there have been five releases involving 16 gibbons, with a further two born in the forest. Of these two have disappeared, four have had to be re-captured and two are known to have died, thus leaving a total of 10 gibbons successfully re-introduced.

A further family group of four gibbons is currently undergoing acclimatization at the release site. Although some of the adult gibbons have at times shown interest in human observers, this behavior has not been seen in infant or juvenile individuals, who show a marked preference for the upper canopy and avoid contact with observers. The KPT forest is estimated to be able to support about 60 gibbon families. This leaves sufficient room for natural population growth as well as future releases. In addition to the re-introduction work the GRP is also coordinating an island wide environmental education program. Regular visits to local schools and communities are made in conjunction with leafleting, and awareness raising campaigns in the tourist centers of the island where most of the wildlife touts operate. It is felt that the successful releases can be attributed to the extensive pre-release training given to the gibbons. The interactive post-release management has helped to keep deaths and disappearances to a minimum, a very important factor for a re-introduction program with individual animal welfare as one of its core objectives.

Whether this re-introduction program can be considered a success is hard to determine. The short term success of a project is most easily measured by the survival and adaptation rate of the re-introduced animals, in this way the GRP can be viewed as having been moderately successful to date. Long-term success is a harder thing to measure. In the case of highly intelligent animals such as primates, rehabilitated adults may never fully revert to wild behavior and so proper evaluation may take decades. A possible indicator of success can be seen in the behavior of the younger gibbons; they spend more time in the upper canopy, show less trust of human observers and are adept at finding their own food (*see photo 1*). This is especially true of those released in infancy or born in the forest. The GRP plans to continue its re-introduction and education work, and it is hoped that not only will there be a self sustaining gibbon population on Phuket once again, but also a halt to the hunting, trade and exploitation of gibbons in Thailand.

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## Arabian Oryx Release Program, Abu Dhabi Emirate, United Arab Emirates

Historically the Arabian Oryx (*Oryx leucoryx*) inhabited the western region of the United Arab Emirates (UAE). This large beautiful antelope became extinct in the wild by the late 1960s or early 1970s. Since then large scale captive-breeding programs were established and large groups were kept in zoos and private collections. Today due to the successful breeding of this animal the UAE hosts the largest population of the Arabian oryx in the world. The recent figures indicate more than 3,000 animals present within the UAE and more than 66% of these are within the Abu Dhabi Emirate. To continue the efforts of the late President of UAE, H.H. Sheikh Zayed bin Sultan Al Nahyan in protecting the Emirate's environment and conserving its natural heritage, this release project has been initiated by H.H. Sheikh Khalifa Bin Zayed Al Nahyan, the UAE President. As the governmental authority working towards the protection of the emirate's natural environment, the Environment Agency–Abu Dhabi (EAD) has been delegated to implement this project.

#### Preparing the Release Site

As a first step towards the on-site implementation of the project, a set of criteria have been identified to select release sites that would best suit the Arabian oryx requirements in term of:

- Availability of food, water and shelter
- Habitat quality and quantity
- Human use
- Site accessibility

According to these criteria three sites have been identified as potential release sites in the south-western corner of Abu Dhabi Emirate which borders Saudi Arabia in the south and Oman to the west. The release area covers approximately 10,000 km<sup>2</sup> of sand-dunes (mega & undulating) which also include sabkhas (salt marshes), gravel plains and sand-sheets (*see figure 1*). Three pre-release sites were selected and pre-release enclosures constructed. As part of the on-site preparations, artificial shade shelters and water drinking troughs have been constructed in order to improve the acclimatization of the animals especially during the early stages of the release (*see photo 1*). Parallel to that, plantations of animal feed such as grasses, shrubs and trees were planted at the pre-release site to provide animals with food and shelter taking into accounts the harsh climatic conditions of the area.