

Wildlife Conservation Research Unit (WildCRU)

University of Oxford

Report to The Trustees of The Rufford Maurice Laing Foundation

Monitoring Ape Populations and
Felid Pilot Study:
Sebangau Ecosystem, Central Kalimantan,
Borneo, Indonesia

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Monitoring Ape Populations in the Sebangau Ecosystem, Indonesia

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Background



The rainforest of the Sebangau National Park hosts a wide variety of plant and animal life, including large populations of both Asian apes (© Susan M Cheyne)

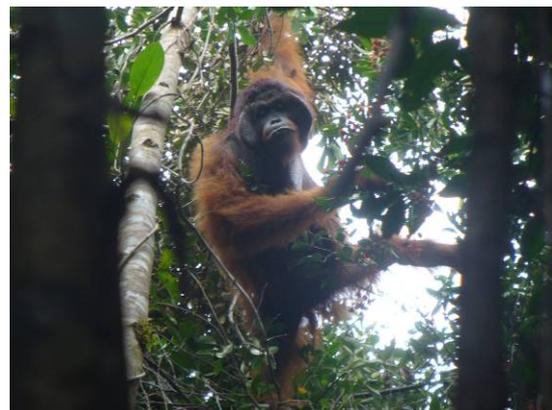
The Sebangau Forest is a 578,000 hectare area of tropical peat-swamp forest lying between the Sebangau and Katingan Rivers in Central Kalimantan, Indonesia, most of which has recently been granted National Park status in order to conserve one of the largest and most important remaining areas of lowland rainforest in Borneo. In addition, the Sebangau Forest supports the world's largest population of Bornean orang-utan (*Pongo pygmaeus*) – 6,900 individuals (Singleton et al., 2004); and one of the largest populations of the Bornean agile gibbon (*Hylobates albibarbis*) – around 30,000 individuals (Cheyne et al., 2007). Both species are at risk throughout their range from logging, conversion of the forest for agriculture, fire and hunting; thus the Sabangau

Forest is crucial for the continued survival of these species.

Although the area has recently been given protected-area status, the Forest is not immune from these problems, and there continue to be numerous challenges ahead. The habitat has undergone many years of disturbance, including uncontrolled illegal logging, which has resulted in drainage of the area and fires. Exploitation of the forest and its wildlife remains a concern; particularly as many of the surrounding populace formerly relied on logging as their major source of income.



Adult male Bornean agile gibbon
(*Hylobates albibarbis*)
(© Susan M Cheyne)



Flanged adult male orang-utan
(*Pongo pygmaeus wurmbii*)
(© Susan M Cheyne)

Monitoring ape populations

The ecological dynamics of the peat-swamp forests of Southeast Asia are poorly understood, despite covering large areas of lowland forest. Recent studies are showing that the Sebangau

National Park (Kalimantan, Indonesian Borneo), in particular, is of vital importance to the conservation of gibbons (Cheyne et al. 2007) and orang-utans (Morrogh-Bernard et al. 2003). However, little is understood about the complex relationship between the primate populations and the characteristics of their habitat, which is essential for their conservation. Following recent reassessments of the conservation status of the Bornean agile gibbon, the need to conserve the peat-swamp forests of Kalimantan, one of its main habitats, is more pressing than ever. Furthermore, little information is available on gibbons in peat-swamp forest.

The aim of this study was to investigate the relationship between vegetation characteristics and gibbon density in a newly protected, secondary peat-swamp forest in the Sebangau National Park. The study was conducted from February to July 2008, using auditory sampling methods and speed plotting. Gibbon densities and vegetation characteristics were recorded at 13 sites within the Natural Laboratory for the Study of Peat-swamp Forest (*LAHG*) operated by the Centre for the International Management and Cooperation in Tropical Peatlands (CIMTROP), based at the University of Palangka Raya. As mentioned, threats to the area and the primates are numerous:



Adult male gibbon (*Hylobates albibarbis*) (© Susan M Cheyne)

fire, illegal logging, and hunting for the pet trade. In addition, the area was formerly a legal logging concession prior to being declared a National Park. Therefore, the gibbon population in the area is likely to have suffered some impact from this intense disturbance and detailed studies of populations and densities such as this can help to tease out any population trends.



Susan Cheyne (front row 2nd from right) and some of the Indonesian and foreign researchers on expedition (© Marie Hamard)

Monitoring the effectiveness of these actions in achieving the desired conservation outcomes is considered necessary in order to properly target resources, identify and understand problems and demonstrate success. There are few empirical, recent data available on ape distribution and density outside of CIMTROP's well-protected core research area, however, so trends in population size cannot be identified. Annual monitoring of the status of the region's ape populations and the condition of the forest habitat at a number of sites will (1) improve our knowledge of the region's flagship species; (2) provide key indicators of the success of habitat protection and management activities; and (3) positively support the activities of CIMTROP.

Ape project outcomes

Gibbon densities were calculated after the number of groups in each area was determined by plotting all recorded calls on a map. Calls were recorded by three teams of researchers to triangulate the groups heard. Only where a great call (female call) was heard were the data used, as this indicated that there was a mate pair and not a lone gibbon. Gibbon densities ranged from 1.39 to 3.92 groups/km², and were found to be correlated with canopy cover at 20m, median tree height, density and biomass of large trees and food availability.

Interestingly, there was no correlation between gibbon density and the biomass of the top ten gibbon food species. In addition, the gibbon density varied between the three distinct forest types present in the Sebangau, highlighting the importance of surveying over a large area and not extrapolating from a small study.

These results highlight the importance of large, tall trees and good canopy cover for the gibbon population in the Sebangau Forest; they indicate that conservation efforts should be directed to the preservation of those large trees and the prevention of selective logging, which targets them. It is hoped that the results of this survey will contribute to the preservation of, both, Indonesia's peat-swamp forests and the gibbons that inhabit them.

A training DVD has been produced in Indonesian and English and is now complete. The DVD is in Indonesian with English subtitles and is being distributed among all relevant NGOs in Indonesia. These results have already been presented at the Congress of the International Primatological Society meeting in Edinburgh, 3rd – 8th August 2008. A copy of the DVD accompanies this report.

A full report on the outcomes of this research have been submitted to CIMTROP to be included in their annual report to the Indonesian Department of Forestry and local government. Analysis of the density data on the orang-utans is still underway. Through the results of this study, we are now in an exciting position to be able to ensure that all population monitoring of gibbons and orang-utans is comparable. This study has also enabled us to tease out more detail about how gibbon density is affected by subtle variations in habitat characteristics. These results have therefore provided much-needed information to facilitate better management plans for the National Park, and for other areas where gibbons occur.

Pilot study – The Sabangau Felid Project

The aims of the Sabangau Felid Project are to protect Indonesian Borneo's resident wild cat species, through the creation of a multi-disciplinary project, merging pioneering research, conservation awareness and training. The tropical rainforests of Borneo are home to five species of wild cat: flat-headed cat (*Prionailurus planiceps*); marbled cat (*Pardofelis marmorata*); leopard cat (*Prionailurus bengalensis*); the endemic bay cat (*Catopuma badia*); and the enigmatic clouded leopard (*Neofelis diardi*). These species are all currently threatened, and four are now listed on the 2004 IUCN Red Data List as Endangered or Vulnerable. We will create a national flagship project in Indonesian Borneo based in the Sabangau National Park, focusing on the felid guild to draw international attention to the conservation of Borneo's wild cats and their forest environment. Armed with accurate information regarding the ecological requirements of these felids we can combine this information with the long-term population and ecological data already being collected on both Asian apes.

Distribution of cameras

- Pairs of automatic digital cameras (Cuddeback Expert) are preferential and allow us to survey relative abundance/absolute abundance as well as presence/absence, and maximize logistics in terms of checking cameras. Also there is the back-up if one of the pair fails to fire.
- Cameras were checked every 10 days and batteries changed as necessary.
- Cameras were distributed 500-1000m apart covering an area of 4km².

- From 1st May – 22nd July 2008 only 11 cameras were in place due to lack of appropriate memory cards for the remaining cameras. Thus 5 locations had pairs of cameras and one location had a single camera.
- From 22nd July 2008 all 11 locations had 2 cameras each.
- All cameras were placed in the MSF habitat subtype. This is by far the most common subtype and the one for which we have the most data. The other areas are only accessible for two months a year.

In the first three months of this project we have confirmed that the Sabangau National Park is indeed home to the largest predator on Borneo – the Bornean clouded leopard (*Neofelis diardi*). A great deal remains to be discovered about these cats. Of top priority is finding out more about the population size in the Sabangau National Park, and more about possible threats to them. Unlike the apes, the cats require mammal prey and over-exploitation of bearded pigs (*Sus barbatus*), lesser mouse deer (*Tragulus javanicus*) and pangolins (*Manis javanicus*) for bushmeat could be impacting on the clouded leopards.



Male clouded leopard (© Susan M Cheyne)

Many other animals have also been photographed by the cameras, including Malaysian sun bears (*Helarctos malayanus*), bearded pigs (*Sus barbatus*), yellow throated martens (*Martes flavigula*) and lesser mouse deer (*Tragulus javanicus*). We have also captured one of the first video footages of a flat-headed cat (*Prionailurus planiceps*) and hope to capture photos of other cats of the Sabangau, especially the marbled cat (*Pardofelis marmorata*).

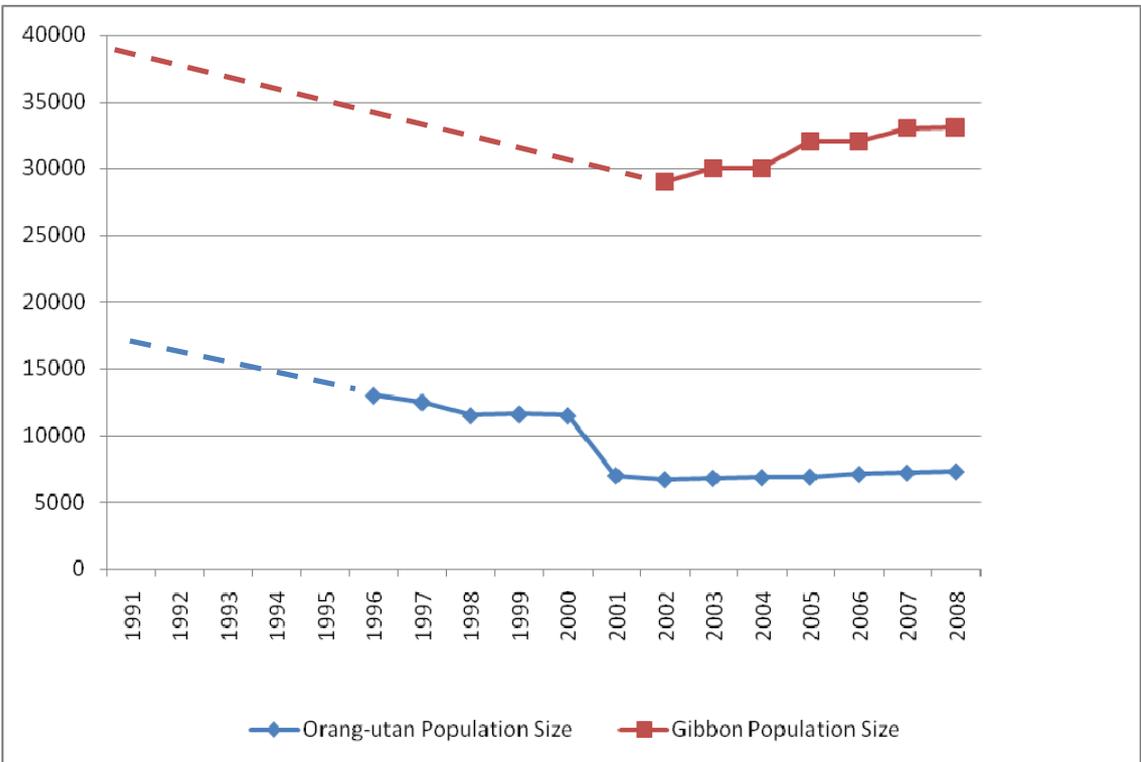
Stakeholder Coordination/Involvement

All activities were coordinated with CIMTROP, including fieldwork, feedback of results, local dissemination of reports and information. We have worked under CIMTROP's umbrella since 1999 and are closely integrated with their programmes. As described earlier, CIMTROP are the local resource managers for the Natural Laboratory for the Study of Peat-swamp Forest (LAHG), and consult locally and regionally on issues of peat-swamp forest management and conservation of the entire Sebangau Forest. CIMTROP draws its research assistants and patrol unit staff from the local community, and these people work alongside us in the forest. Senior research staff are receiving ongoing training in data management, analysis and presentation. Results and reports have been translated and disseminated to local forestry management

authorities, other conservation agencies and through CIMTROP’s education programmr, as well as directly benefiting CIMTROP’s own conservation activities. We maintain a good relationship with all relevant government agencies, including Badan Pengkajian Penerapan dan Teknologi (BPPT), the Ministry for Research and Technology that has overall responsibility for the LAHG; Dinas Kehutanan, the Department of Forestry; Balai Konservasi Sumber Daya Alam (BKSDA), the regional Department for Conservation of Natural Resources; Badan Penelitian dan Pengembangan Daerah (BALITBANGDA), the regional Department for Research and Development; the Indonesian Institute of Sciences (LIPI); and with other conservation groups.

Final Results

The ape populations of the Sabangau are slowly increasing following a likely crash in 2001-03. This is believed to have been caused by a combination of logging threats from the river and large fires burning the centre of the forest, thus the apes were forced to move into very (naturally) low productivity forest and suffered a dramatic population crash as a result.



Solid lines are accurate data from Sabangau (first orang-utan surveys in 1996, first gibbon surveys in 2002). Dashed lines are estimated data based on the impacts of the logging concession on the apes.

To date, the ape populations have not reached their (estimated) pre-disturbance levels but data suggest that a population recovery is underway. These data combined with the detailed habitat surveys (please see attached publication from this work) are very encouraging and provide much more information on the intricate relationship between habitat and populations.

However the continued threats to the apes from fires and logging are placing this recovery in jeopardy.



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