

Indonesian Gibbon Conservation and Management Workshop

20 – 22 February 2008, Sukabumi, West Java, Indonesia

FINAL REPORT



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31 July 2008

Indonesian Gibbon Conservation and Management Workshop

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SECTION 1

Executive Summary

Executive Summary

Seven recognized gibbon taxa are distributed across Kalimantan, Java, Sumatra and the Mentawai Islands of Indonesia, all of which were recently reassessed as Endangered using IUCN Red List criteria. Forest conversion and loss, habitat fragmentation, harvesting of gibbons (either for food or the pet trade), and other human activities threaten the survival of these increasingly fragmented populations. Although numerous research and conservation efforts exist, there is limited collaboration among these efforts to maximize the potential conservation benefit.

To address these issues, an Indonesian Gibbon Conservation and Management Workshop was convened on 20-22 February 2008 at Lido Resort in Bogor, West Java, Indonesia. This workshop was organized by the Indonesian Primatological Association (APAPI), the Indonesian Department of Forest Protection and Nature Conservation (PHKA) and the Silvery Gibbon Project, with financial support from the Perth Zoo and the Silvery Gibbon Project, and was facilitated by the IUCN/SSC Conservation Breeding Specialist Group (CBSG). Fifty-six participants representing government agencies, universities, zoological institutions, and NGOs met to compile the most current information on the status of and threats to gibbons in Indonesia and to develop the framework for a gibbon conservation strategy with recommended goals and actions for each taxon.

This workshop built upon past primate workshops and conservation assessments, including the 1994 Javan Gibbon Population and Habitat Viability Assessment (PHVA), the 2001 Indonesian Primate Conservation Assessment and Management Plan (CAMP), and the 2006 Asian Primate Red List Assessment. After a call to action by Tonny Soehartono, Director for Biodiversity Conservation, PHKA, and informational plenary presentations, the workshop participants divided into regionally-based working groups – Kalimantan, Java, and Sumatra/Mentawai – to review the past assessments and current data to update and revise the Taxon Data Sheet for each taxon from the 2001 CAMP. Areas of focus included revision of population estimates, distribution and taxonomy. These proposed changes were presented to all workshop participants in plenary for discussion and revision.

The next step of the process was for each working group to identify and prioritize the conservation issues/challenges facing their taxa, and to generate goals and recommended actions to address these issues. At this point, the relatively large *Java Working Group* split into one group working on *in situ* population issues and a second, new working group focused on *ex situ* management of Javan gibbons. Each group identified their top priority goals, which were combined for all groups and prioritized by all workshop participants with regard to their importance to the conservation of gibbons. The top four priority goals for Indonesian gibbons (in descending order) were:

1. Minimize population isolation by preserving the metapopulations and connecting habitat fragments.
2. Optimize law enforcement.
3. Promote public awareness and education.
4. Stop or control habitat loss and forest conversion.

Working groups presented their issues, goals and recommended actions in plenary for discussion, then reconvened in their working groups to revise and finalize their reports based on the plenary discussion.

The *Kalimantan Working Group* discussed two gibbon taxa – *Hylobates albibarbis* and *H. muelleri* (3 subspecies) and their hybrids. Forest conversion (to oil palm or acacia plantations), logging (legal and illegal), fire, habitat fragmentation, harvest for the pet trade, and mining were identified as the largest threats to wild gibbon populations on Kalimantan. Eleven top priority goals were identified, and 12 specific actions recommended to address these goals. The highest priority goals for Kalimantan included the cessation of forest conversion to plantations, optimization of law enforcement to stem the harvest of gibbons, and increased public awareness to educate people on the impact of their activities on gibbons and their habitat. A PHVA workshop was recommended for *H. albibarbis*.

The status and threats of the Javan gibbon, *H. moloch*, were addressed by the *Java Working Group*. The primary recommended actions for conservation were to optimize law enforcement, conduct comprehensive surveys and monitoring programs, establish new reserves and create appropriate corridors, improve public awareness campaigns, optimize rescue and rehabilitation centers, and identify potential habitat for releasing rehabilitated gibbons. A PHVA workshop for *H. moloch* is recommended, as well as a workshop in the near future to develop a conservation strategy for Javan gibbons.

The *Sumatra/Mentawai Working Group* addressed the status and threats of four gibbon taxa – the agilis gibbon, *H. agilis* (Sumatra); lar gibbon, *H. lar vestitus* (Sumatra); kloss gibbon, *H. klossii* (Mentawai); and siamang, *Symphalangus syndactylus* (Sumatra). Habitat loss (including land conversion and construction of new roads) and harvesting (for gifts, pet trade or bushmeat) were identified as some of the major threats affecting gibbons in this region. Recommended actions for Sumatra are to stop hunting and trade, control habitat loss, preserve metapopulation structure in fragmented areas, promote capacity building, and establish *ex situ* – *in situ* coordination. Kloss gibbons in Mentawai provide a special challenge due to their isolation and vulnerability; recommended goals for this taxon include revitalization of the Siberut Biosphere Reserve and promoting traditional wisdom.

The *Ex Situ Management Working Group* outlined several challenges for *ex situ* gibbon management and conservation, identifying the top priority issues as lack of captive management standards, lack of release/reintroduction information, and data gaps leading to research needs. For each of the 10 issues, the group outlined several goals (for a total of 42 goals) and specific actions, including responsible parties and timelines. Recommendations not only address captive management issues, such as husbandry guidelines, studbook management, and disease research, but also issues affecting the flow of gibbons into captivity (pet trade) and their potential release back to the wild.

The purpose of this workshop was two-fold: 1) to develop a framework to guide future conservation efforts for gibbons in Indonesia, both *in situ* and *ex situ*; and 2) to promote communication and collaboration among those individuals involved in gibbon management, research and conservation to bring the best expertise to the table to create and implement the recommended conservation actions. For the first time, stakeholders gathered together to discuss their data and expertise on all gibbon populations across Indonesia, leading to the building of new relationships and promoting more effective conservation action. This workshop report provides the initial groundwork that these individuals can use to guide more detailed conservation planning for gibbons in Indonesia.

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SECTION 2

Kalimantan
Working Group Report

Kalimantan Working Group Report

Members: Chanee, Djunwantoko, Susan Cheyne, Kunkun Jaka Gurmaya, Hamdhani, Albert Manurung, Ike Nayasilana, Sugardjito, Claire Thompson, I Made Wedana.

This working group discussed the current status of the two gibbon taxa in Kalimantan and threats to these taxa. Group members reviewed the completed Taxon Data Sheets (TDS) from the 2001 CBSG Indonesian Primate Conservation Assessment and Management Plan (CAMP) Workshop and suggested revisions to the TDS (see Appendix II for modified Taxon Data Sheets). The group then identified and prioritized the primary threats/challenges related to the conservation of these taxa and recommended goals and management actions to address these threats.

Revisions to the Taxon Data Sheets – *Hylobates albibarbis*

Taxonomy / Names

- Formerly known as *Hylobates agilis albibarbis*, this taxon is now accepted as *Hylobates albibarbis* (Groves 2001; Geissmann 2007) and thus is considered a separate species. Family (Hylobatidae), Order (Primata) and Class (Mammalia) remain the same.
- Common names (Indonesian): Owa-owa, uwa-uwa, kalawet, kelampiau (remove wau-wau, kelawes)
- Common names (English): Bornean Southern gibbon (suggested)
The working group recognizes that the Latin translation of *albibarbis* is “white-bearded” but felt that this is a misleading name as many of the individuals do not have any white lower facial hair, and in many cases the white coloration is restricted to eyebrows only. In contrast, the common name for lar gibbon (“white-handed”) applies to all individuals. This working group would like to *strongly recommend* that the English common name for *Hylobates albibarbis* be changed to a more appropriate name and would like to engage taxonomists in this decision. We propose the new name of “Bornean Southern Gibbon”.

Distribution

- Habitat: only Sabangau has proper and recent survey of gibbon populations (Cheyne *et al.* 2007); Tanjung Puting was surveyed in 1974, methods unknown.
- To identify the number of sub-populations, the working group accepted that a viable population must contain a minimum of 500 individuals and, assuming an average territory size of 20ha per mated pair, this results in 3500 ha for a viable sub-population.

Habitat Status

(based on personal observations of the Kalimantan Working Group members)

- We agree that all logging is detrimental to the forest and therefore to the gibbons.
- All types of plantations exist, including palm oil, acacia, rubber and other plantations.
- Fire is a big problem (e.g. Cheyne 2007).

Threats

(based on personal observations of the Kalimantan Working Group members)

- The group was not sure what was really meant by “habitat loss due to exotic plants” in the 2001 CAMP assessment.

- Fragmented forest is a problem for interspecific competition, as gibbons are forced to compete for diminishing resources, leading to increased aggression.
- Global warming is indirectly affecting gibbon populations.

Trade

- In Kalimantan there are still 1000 individual gibbons being kept as pets (approximately 1 gibbon/10 families) (Chanee, Project Kalaweit, personal observation).

Population

- Minimum global population size is 25,000 (Cheyne *et al.* 2007).
- Information on population dynamics is badly lacking. The Kalimantan Working Group recommends more detailed surveys be conducted on population numbers in different locations and that we develop long-term data on population trends.

Recent Field Studies

- Data from studies, monitoring, informal studies and personal observations – Chanee, Kalaweit Project
- Dr. Susan Cheyne, Sabangau Gibbon Project (CIMTROP and Oxford University)
- Biodiversity monitoring at Tuanan (UNAS and University of Zurich)
- Dr. Andrew Marshall, Gibbon Project, Gunung Palung

Status

- Endangered (Geissmann 2007) – The Kalimantan Working Group agrees with this assessment and supports the proposed change in status to Endangered.

Management Recommendations

1. Population surveys throughout Kalteng and Kalbar in all forests, whether already protected or not
2. Monitoring of known populations
3. Public awareness
4. Work in local communities
5. Identification of the continued threats and predominant threats for each gibbon population
6. Genetic work on the “white” albibarbis with different pelage found in the region of Pangkalanbun (Kalteng) (recommended by Chanee, Kalaweit Project)
7. Disease and parasite monitoring in the wild (recommended by Chanee and Susan (Sabangau Gibbon Project)
8. Behavior of gibbons in fragmented forests (recommended by Chanee)
9. Translocation can be done with gibbons in fragments but gibbons must be checked for disease before re-release.

Conservation Measures

1. The working group strongly supports a PHVA for *Hylobates albibarbis*.

Level of Captive Breeding Recommended

1. No *ex situ* breeding is recommended, and all such activities should be done *in situ*.
2. Species propagation is carried out *in situ* with the view to rehabilitation and reintroduction in the historic home range.

Other Recommendations

1. Lobbying of local government and local people. Finding the correct people in local government to approach about the conservation of gibbons.
2. Need to conserve gibbons in non-protected areas.
3. Inter-departmental cooperation to protect gibbons and to ensure the status of all protected areas is clear to all local people.

References

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- Cheyne, S.M., C.J.H. Thompson, A.C. Phillips, R.M.C. Hill and S.H. Limin. 2007. Density and Population Estimate of Gibbons (*Hylobates albibarbis*) in the Sabangau Catchment, Central Kalimantan, Indonesia. *Primates* (DOI: 10.1007/s10329-007-0063-0).
- Geissmann, T. 1007. Status reassessment of the gibbons: Results of the Asian Primate Red List Workshop 2006. *Gibbon Journal* 3: 5-15.
- Groves, C. 2001. *Primate Taxonomy*. Smithsonian Institute Press: Washington, DC.

Revisions to the Taxon Data Sheets – *Hylobates muelleri* (3 subspecies)

The Kalimantan Working Group noted that many of the recommendations for *H. albibarbis* are 100% applicable to all three *H. muelleri* subspecies.

Taxonomy / Names

- There is an error in one subspecies name from the 2001 list – *H. cinerus* should be *H. abbotti*.

Distribution

- Very hard to estimate the range or occupancy of *H. muelleri* as they range into Malaysia and there are very few recent, detailed studies.
- We need to find more information on land cover and use to determine in more detail the number of possible populations (GIS).

Trade

- Information only on trade in Indonesia: 1500-2000 individuals still in trade or being kept as pets (Chanee, Kalaweit Program).

Population

- There is a serious lack of accurate and detailed information on population numbers of *H. muelleri*; the Kalimantan Working Group chose not to guess on the total numbers (for Indonesia only).

Management Recommendations

1. Disease and parasite monitoring in the wild.
2. Behavior of gibbons in fragmented forests.
3. Translocation can be done with gibbons in fragments but gibbons must be checked for disease before re-release.
4. Surveys on all three subspecies are needed.

Kalimantan Working Group Statement about Hybrid Gibbons in Borneo

- The Kalimantan Working Group recognizes that there exists a natural hybrid zone between *Hylobates albibarbis* and *Hylobates muelleri funereus*.
- This area exists in Central Kalimantan north of the Busang River and south of the Muller and Bewai Mountains and west of the Barito River at the head of the Barito River.
- The hybrids are known as *H. albibarbis x muelleri* and do not breed with pure *albibarbis* or *muelleri* gibbons.
- The behavior and songs of the hybrids are different from species-pure gibbons (McConkey et al. 2002; McConkey et al. 2003; Cheyne, personal observation).
- The hybrid gibbons currently have no status within Indonesia, on the IUCN Red List, or in CITES.
- It is the strong recommendation of this working group that population surveys be carried out on the hybrid gibbons and that they be given recognition as a viable population of gibbons. Hybrid gibbons face the same threats as other gibbon species in Kalimantan.
- We suggest that hybrid gibbons should be added to the list of Indonesian primates and a case be made to have them included on IUCN Red List.

References

- McConkey, K.R., F.Aldy, A. Ario, and D.J. Chivers. 2002. Selection of fruit by gibbons (*Hylobates muelleri x agilis*) in the rain forests of Central Borneo. *International Journal of Primatology* 23(1): 123-145.
- McConkey, K.R., A. Ario, F.Aldy, and D.J. Chivers. 2003. Influence of forest seasonality on gibbon food choice in the rain forests of Barito Ulo, Central Kalimantan. *International Journal of Primatology* 24(1): 19-32.

Conservation Threats/Challenges and Recommended Goals/Actions

– *Hylobates albibarbis* and *Hylobates muelleri* subspecies

Threats are prioritized from highest to lowest in order of those most pressing for conservation. While only *albibarbis* and *muelleri* gibbons are considered here, the threats listed are equally applicable to the (natural) hybrid gibbons.

Forest Conversion

Oil Palm Plantations

Challenges:

- New oil palm concessions are given without feasibility surveys.
- Permission is given to palm oil companies to clear high biodiversity forest when there is already cleared land that can be used without clearing more gibbon habitat.

Goal: There must be a feasibility study to determine if the proposed plantation will be planted on forested area before permission is granted. If forest is present, no permission should be given for a plantation. No more forested land should be cleared for plantations as there are already large areas of cleared land that can be developed, thus no more natural forest conversion for oil palm plantation even if the forest has “production forest” status.

Acacia plantation

Challenges:

- New acacia concessions are given without feasibility surveys.
- Permission is given to acacia companies to clear high biodiversity forest when there is already cleared land that can be used without clearing more gibbon habitat.

Goal: There must be a feasibility study to determine if the proposed plantation will be planted on forested area before permission is granted. If forest is present, no permission should be given for a plantation. No more forested land should be cleared for plantations as there is already large areas of cleared land that can be developed, thus no more natural forest conversion for acacia plantation even if the forest has “production forest” status.

Goal: Plantations must not be a monoculture but should strive for a mosaic approach to planting to conserve biodiversity and encourage re-growth of natural and endemic species within the plantation.

Logging

Legal logging (e.g. HPH, HPT, HTI)

Challenge: Permission is obtained for logging but companies do not follow the rules of logging concession – the implementation of the logging permit is not legal. There is no control of logging companies to ensure that they follow the rules of the permit.

Goal: IUCN and ITTO have written guidelines on biodiversity conservation and sustainable use of tropical timber production forest. This needs to be adopted by Indonesian government and implemented in Indonesia.

Organized illegal logging in protected and unprotected areas (e.g. by companies or by local people contracted by companies)

Challenges:

- Not respecting the boundaries of the concession areas and taking trees from these areas. There is little control of the forest by the government.
- The status and condition of forest outside protected areas is very unclear.

Goal: The government agrees to adopt gibbon home range habitat into district, provincial and national land use planning.

Goal: Development and implementation of a control system by the Department of Forestry and local government (DINAS Kehutanan) to the logging concession and plantation companies.

Goal: Ensure that the logging and plantation companies implement the mandatory good practice as stated by the government to protect biodiversity in their concession areas.

Goal: Consider forest outside of protected areas and logging concessions and logged-over areas as potential gibbon habitat.

Statement: The working group members recognize that local people cut trees for subsistence purposes. We accept that this is not a threat to gibbons unless it becomes large-scale.

Fire

Challenges:

- Illegal fires started by palm oil companies to aid expansion.
- Fires started by local people to clear land can get out of control.
- Fires destroy gibbon habitat and create palls of smoke that can last for several months and are detrimental to gibbon health (and to humans).

Goal: Enforce concession permits to prevent illegal burning.

Goal: Palm oil companies must accept responsibility to fight fires near their concession and to aid fire-fighting by local people.

Habitat Fragmentation

Challenges:

- Gibbons cannot disperse from small fragments to create new groups; thus small fragments reach carrying capacity very quickly.
- Gibbons are very territorial and fragmentation causes their home ranges to be compressed, increasing inter-group aggression.

Goal: Gibbon social structure and territoriality should be considered in forest planning, construction and development.

Goal: Create corridors between fragments within the gibbons' home range by encouraging forest re-growth.

Pet Trade

Challenges:

- For each gibbon that reaches the market, about 5 individuals have died (3 adult females and 2 infants); thus the pet trade is contributing to population decline of gibbons.
- The death of an adult female causes social problems within the group. The adult male and surviving offspring are unable to defend the territory, leading to group breakdown and possible associated deaths of the remaining group members.
- Opening of gibbon habitat for oil palm and other plantations allows increased access to hunt gibbons for the pet trade and increases conflict between humans and gibbons.

Goal: Optimize law enforcement in protected areas by BKSDA to stem the flow of gibbons to the market.

Goal: Education about problems of keeping gibbons as pets.

Mining

Challenge: Forest is cleared to expose large areas of land for open-cast mining and oil drilling.

Goal: The rule to fill in any mine and replant trees after mining has finished, i.e. return area to natural status (reforestation), must be enforced. Companies must ensure that top

soil is returned to pre-mining conditions. The forest must be returned to same condition as pre-mining or as close as possible to natural.

Goal: Mining areas must be cleared and mined step-by-step, i.e. the whole area is not cleared but only working areas are cleared, then reforested before a new area is opened.

Goal: New mines should not be opened on current gibbon habitat.

Goal: There should be no mining in protected forest and other conservation areas.

Goal: The joint agreement between the departments of forestry, energy and natural resources must be stopped.

Goal: Permission for small-scale mining should be stopped.

Goal: Illegal mining needs to be stopped.

NOTE: The group recognizes that mining is more of an issue for Müller's gibbon subspecies due to the location of their range in the mountains and uplands.

Global Warming and Climate Change

Challenge: Indirect effects through increased intensity of fires and direct effects through unpredictable food availability for gibbons.

Goal: Plant native fire-break trees, which are ideally also food resources for gibbons.

Goal: Encourage the communities to plant trees that are useful for both people and the gibbons based on studies about gibbon feeding ecology.

Clearing of Forest for Urbanization (expansion)

Challenges:

- Gibbon habitat is being encroached upon to allow expansion of villages, towns and cities.
- Status of protected gibbon habitat is changed to allow for urban expansion.

Goal: Address the problem of land-use planning. Determine clear boundaries between protected areas and districts agreed between local government and the forestry management.

Hunting Gibbons (not for pet trade)

Challenge: Adult gibbons are hunted by local communities for bush meat, thus contributing to population decline. While this practice is not presently very intensive, the practice is gaining in popularity as a status symbol.

Goal: Educate local communities about alternative sources of meat, about the ecological importance of gibbons, and about the disease risks of eating gibbons.

Harvest of Non-timber Forest Products

Challenge: Gibbon habitat is encroached upon by people gathering orchids, hunting flying foxes, gemur tree (anti-malarial properties), agar wood.

Goal: Promote sustainable use of non-timber forest products and improve the development of alternatives.

Goal: Education of people about the impacts of their activities on gibbon habitat and gibbon populations.

Goal: Increase implementation of law enforcement for protected areas

Dam Development for Electricity

Challenge: Gibbon habitat is flooded when dams are built.

Goal: For future dams, ensure that the results of the Environmental Impact Assessment are followed.

Goal: Gibbon conservation needs to be considered when dams are being built.

Goal: Promote alternative sources of electricity, e.g. solar power.

We recognize that the damming of rivers is more of a problem for the Müller's gibbon as their range encompasses more river sources.

Top Priority Conservation Goals

The working group considered all of the goals outlined above, and prioritized them in relative to conservation of gibbons in Kalimantan. Below is a list of the top priority goals for further consideration by the working group.

1. No more forested land should be cleared for plantations as there is already large areas of cleared land that can be developed, thus no more natural forest conversion for oil palm plantation even if the forest has "production forest" status.
2. Optimize law enforcement in protected areas by BKSDA to stem the flow of gibbons to the market.
3. Education of people about the impacts of their activities on gibbon habitat and gibbon populations.
4. Consider forest outside of protected areas and logging concession and logged-over areas as potential gibbon habitat.
5. No more mining in gibbon habitat (including open cast or oil).
6. Address the problem of land-use planning. Determine clear boundaries between protected areas and districts agreed between local government and the forestry management.
7. Prevent fires in gibbon habitat.
8. Built corridors between fragments.
9. Improve law enforcement for protected areas.
10. Implement IUCN and ITTO guidelines on biodiversity conservation and sustainable use of tropical timber production forest.
11. Development and implementation of a control system by the Department of Forestry and local government (DINAS Kehutanan) for logging concession and plantation companies.

Recommended Actions for Top Priority Goals

After identified the top priority conservation goals, the working group discussed and recommended specific actions to initiate the realization of the top five priority goals. Case studies are presented of actions already taking place and which may serve as examples to be used in other areas of Indonesia.

GOAL 1: No more forested land should be cleared for plantations as there is already large areas of cleared land that can be developed, thus no more natural forest conversion for oil palm plantation even if the forest has “production forest” status.

Action: Assist local communities to take action to protect their forest (outside current conservation/protected areas) and be involved as stakeholders. NGOs in the field have more contact with local people, have developed good relations and are in a unique position to be able to assist local communities. Kalaweit is already doing this and will continue to work to empower local people. Kalaweit will continue to work with people in Kapuas Kalteng to protect forest from fragmentation.

Case study: Hampapak Wildlife Reserve, Kalaweit Project

This area of forest (2500ha) has been protected through a joint project between local people and the Kalaweit Gibbon Project. This area is home to wild gibbons and orangutans and had no protected status before the Kalaweit agreement. By seeking the support and agreement of all local stakeholders, this project was successful.

Action: Large NGOs have to lobby RSPO (Round Table for Sustainable Palm Oil) to make membership easier and cheaper for small local NGOs to make their voice heard and to be a part of the decision-making and negotiations with palm oil companies and their consumers (e.g. supermarkets and producers). Large NGOs and conservation groups should contact RSPO to encourage them to accept the membership of small, local NGOs. Small NGOs' valuable input should not be ignored, nor should membership of RSPO.

Responsible party: Dr Susan Cheyne will start the process to contact RSPO and determine their position on this. Also to compile a list of small NGOs that could bring important information to the RSPO and who should be included but cannot afford the membership fee. Find the contact person for RSPO and get an answer.

Action: Lobby BAPEDA/Forestry Department/PEMDA to stop giving concessions on forested land. Concessions must be developed on already cleared land and the status of the land needs to be verified before permission is given to create a plantation.

Responsible party: Pak Kun will lobby for clearer land use maps for BAPEDA Kalbar.

GOAL 2: Optimize law enforcement in protected areas.

Action: The best protection of areas seems to come from NGO initiatives to create local patrol teams to protect small areas of forest. These small and local teams are currently more effective than government departments.

Case study: Sabangau NP – CIMTROP

Sabangau - CIMTROP (Centre for the International Cooperation in Management of Tropical Peatlands) have created a local Patrol Team (TPS) who protect the area and enforce the laws against hunting, logging and fires.

Case study: Kalaweit Project

Kalaweit Project helps law enforcement by protecting an area for wild animals in Kelurahan Marang, Kalteng.

GOAL 3: Education of people about the impacts of their activities on gibbon habitat and gibbon populations.

Action: Raising awareness of gibbons by making information about them accessible to local people. The format of education needs to be varied and wide-reaching to educate all levels of education and ages.

Action: Raising awareness of how human activities impact gibbons, i.e. cutting trees destroys their home, taking a baby gibbon kills the mother, keeping gibbons in cages is not natural for them.

Examples are leaflets, films, posters, t-shirts and education workshops by local NGOs.

Case study: Kalaweit FM (KFM)

This radio station broadcasts on FM 24/7, playing the latest music hits from Indonesia and around the world as well as news, comedy shows and information. Additionally, 5 times each hour, conservation messages are broadcast to disseminate information about relevant conservation issues. E.g. why gibbons belong in the forest and not as pets, the disease risks of bat hunting, the problems of fires for the forest and human health, messages to not hunt and keep any wild animal as a pet. This format appeals to a wide range of ages including children and is an excellent system for reaching a large number of people with minimum cost. This initiative will be followed in 2008 by Kalaweit Music TV (KMTV).

Case study: Forest Protection Primary School, Kalaweit Project

Forest Protection Primary School set up by Kalaweit Project to provide a normal school and environmental education in the village of Marang, Kota Palangka Raya.

Case study: Yayasan Cakrawala Indonesia and Orang-utan Tropical Peatland Project and CIMTROP.

Research and conservation project working with local education NGO. The NGO benefits from receiving accurate and detailed information about gibbons and orangutans, including photos to demystify these apes. The local NGO has developed education workshops and projects to improve understanding of the environment.

Case study: OuTrop and CIMTROP

OuTrop and CIMTROP work with local high schools around Palangka Raya to facilitate field trips to the forest to help understanding of the flora and fauna.

GOAL 4: Forest outside protected areas, logging concessions and logged-over areas is potential gibbon habitat and needs to be surveyed.

Action: General improvement of research on conservation strategies and population estimates. Need to know more about the 2 species and what threats are the most urgent.

Action: Heart of Borneo (HoB) needs much more accurate population surveys for both *H. albibarbis* and *H. muelleri*.

Action: Population and habitat surveys are needed to determine which forests have gibbons and to determine the size of the population if gibbons are present.

Case study: Sabangau National Park Kalteng

Ongoing population number and trends study in Sabangau National Park Kalteng (began in 2005). In 2008 Dr. Susan Cheyne and the Sabangau Gibbon Project team will start to film a training DVD designed to help train people to survey gibbons in all parts of Kalimantan (this can also be used throughout Indonesia). This should help greatly to survey gibbons in both protected and non-protected areas, as everyone will be using the same methods so population numbers can be compared. This will be distributed free of charge to any NGO/conservation group, etc. who wants it.

Case study: Unmul (Kaltim) (Maplofa)

Case study: KP3 in Kutai NP (FHut, UGM)

Case study: Sungai Runggan, Kel Marang, Rawet (Kalaweit Project)

GOAL 5: No more mining in (protected?) gibbon habitat, including open cast or oil drilling.

HoB is internationally recognized, but mining concessions are still being given permission to operate there, e.g. coal mining near Barito watershed (near Project Barito Ulu).

Action: Assist local communities to lobby against mining in their areas through NGOs. Assist local communities to take action to protect their forest (outside current conservation/protected areas) and be involved as stakeholders. NGOs in the field have more contact with local people, have developed good relations, and are in a unique position to be able to assist local communities.

Action: Large NGOs have to lobby mining companies to have good practice and to only create new mines in non-forested areas. Also they must regenerate the area once the mining has finished.

Action: Lobby DEPTAMBEN to stop giving mining permission on forested land. Concessions must be developed on already cleared land, and the status of the land needs to be verified before permission is given to create a plantation.

Indonesian Gibbon Conservation and Management Workshop

Sukabumi, West Java, Indonesia
20 – 22 February 2008

Final Report



SECTION 3

Java
Working Group Report

Java Working Group Report

Members: Anton Ario, Jarot Arisona, Pudji Astuti, Clare Campbell, Leif Cocks, Amos Courage, Dani Darunawan, Eva Famurianty, Agus Fatlas, Ery Gukhorie, Entang Iskandar, Ipan Juanda, Heri Oktavinalis, Joko Pamungkas, Karen Payne, M. Saepudin, Uus Sugiarto, Herry Djoko Susilo, Ern Thetford, Holly Thompson, Yohana Tri Hastuti, Bambang Triana, Wawan, Yohannes Wibisono.

This working group discussed and reviewed the Taxon Data Sheet (TDS) from the 2001 CBSG Indonesian Primate Conservation Assessment and Management Plan (CAMP) Workshop. There was considerable discussion regarding taxonomy and a review of surveys currently in progress assessing Javan gibbon habitat and populations.

Revisions to the Taxon Data Sheets – *Hylobates moloch*

Taxonomy / Names

- Currently recognized as a single species, *Hylobates moloch* (Groves 2001; Geissmann 2007). Family (*Hylobatidae*), Order (*Primata*) and Class (*Mammalia*) remain the same.
- Common names (Indonesian): Owa jawa, wau wau, uwo uwo, kuweng . Common names (English): Javan gibbon, silvery gibbon.
- The Javan Gibbon Working Group recognizes that there is some confusion with regard to potential subspecies; *Hylobates moloch pangoalson* (Central Java) and *Hylobates moloch moloch* (West Java).
- There appears to be distinct differences in pelage between West and Central Java, but in the middle of the range they are all quite similar. Some of the working group members commented that there have been distinct exceptions to this general difference in pelage and, especially in the *ex situ* population, it could not be used to distinguish between potential subspecies. *Ex situ* animals would need to be managed at the species level because of this difficulty.
- There seems to be no gradual change in DNA between West and Central populations. There is not enough evidence at this stage to separate subspecies and further studies are required.
- The working group noted that if we are to supplement a wild population in the future, we would need to ensure correct subspecies; however, if we were re-establishing a population then it would be acceptable to do this at species level.
- The working group also noted that for conservation purposes it may be beneficial to argue that there are subspecies as it may increase opportunities for protection of Central Java populations. NB. There are currently no protected areas within Central Java.

In summary, the working group agreed that there appears to be evidence that there are two subspecies; however, further research is required. For conservation purposes, until a decision can be made on a scientific basis we should propose that there are two subspecies.

Distribution

- Habitat: New data suggest that Javan gibbons will live in secondary as well as primary forest. Current research also suggests a revision on maximum altitude to 1900m (Ref Wawan Djum, Tim JGM, 2006).

- Members of the working group commented that recent research has shown some groups of gibbons that appear to be utilizing the lower level of the forest as well as the upper canopy. While primarily occupying the middle to upper canopy, gibbons have been noted to occasionally go down to the bushes in Maroko, South Garut Region, West Java (Konus, 2008). There is also camera trap evidence in Gunung Halimun Salak (TNGHS, 2003).

Geographic Extent

- The working group proposed that Banten Province be included in the geographic extent as well as West and Central Java.

Number of Locations or Subpopulations

- Possibly 63 areas (previously cited 18; however, this calculation did not include populations <10).

Habitat Status

Based on very recent short-term surveys, the working group reviewed the status of individual locations.

Location	Habitat Status	Population (# individuals)	Size	Comments
Burangrang - fairly remote area.	Based on study still good habitat. Status = Nature reserve. (Protected by law) Some logging occurring and also hunting (but not of gibbon)	9 (3 groups)	2700ha – half avail.	Should be a priority area. Should upgrade from Nature Reserve. Note: 2008 ongoing study being conducted by KONUS team to update the data.
Tangkuban Perahu	Nature Reserve Still good habitat. Still hunting of gibbons but low.	9 (3 groups)	1,290ha	
Bukit Tunggul	Protection Forest	5 (? groups) KONUS team observed 5 gibbons in 2008, field study ongoing	1,000ha	2003-YABSHI- there were gibbons here. Potential reintroduction site? Maybe need to check again?- in Summer
Saugga Buana	Protection Forest (logging, hunting)	9 (3 groups)	2,000ha	Used for army military base? If this area can recover and be protected, then it is potentially the largest area/population. May be worth some attention. Note: 2008 ongoing study being conducted by KONUS team to update the data.
Mt Limbung	Nature Reserve	13 (6 groups)	2,000ha	Note: 2008 ongoing study being conducted by KONUS team to update the data.

Papandayan	Nature Reserve	527 (Yabshi, 2004) Current surveys = 35 (10 groups) (based on visual) in rainy season by KONUS	13,000 ha	Note: 2008 ongoing study being conducted by KONUS team to update the data for dry season.
Gunung Ciremai	National Park	0 (no evidence of Javan gibbon population in this area during 2008 KONUS field study)	15,000ha	
Leweung Sancang	Nature Reserve	26 (8 groups) (Malone, 2005)	2,175ha	Long-term study was conducted by N. Malone and KONUS in 2005
Gunung Simpang	Nature Reserve	132 (40 groups) (P. Magenda, 1998)	15,000ha	Long-term study conducted by Pipo Magenda in 1998
Ujung Kulon	National Park Some threat to the habitat, already some encroachment	45 Visual Previous study approx 400-500??	15,000ha	Based on potential habitat should be about 300 individuals. But already 3000ha encroached? Maybe okay to extrapolate in this case given NP status of habitat. This is the largest population of Javan gibbon- encroachment cannot continue!
Gunung Tilu	Nature Reserve	45 (15 groups)	8,000ha	KONUS final study (2008) (conducted in dry season in 3 different blocks). Small scale logging and hunting occurs in NR.
Gunung Halimun / Gunung Salak	National Park	2,318 (Iskandar, pers. comm.)	28,274ha available (of total 113,357ha)	Based on Dec.2004 to Sept. 2005 study by E. Iskandar
Gunung Gede Pangrango	National Park			
Telagawarna (CA)				
Gunung Slamet				
Dieng Utara/ Batang				
Dieng Barat (Linggo Asri, Soka Kembang)- Gng Kendeng				

Several members of the Java Working Group were involved in current surveys of Javan gibbon habitat throughout West and Central Java. Many figures were offered on potential population sizes in many of these areas. Survey methods appeared confusing, and the session did not provide adequate time to properly assess the situation. The above table remains

incomplete due to time constraints and confusion over consistency in terms of the reference to 'Population' as individual numbers or group numbers.

The working group recognized that the current population study was done over a very short period during the wet season as opposed to long-term studies by YABSHI. These surveys were based on extrapolations from direct sightings. It should be noted that gibbons do not tend to occupy the entire forest, so we must be careful when using this tool as a population estimate. For example, Gunung Halimun was thought to be one of the largest populations (~1000) based on extrapolated results. However, a PhD student who studied the area for two years found the population to be around 100 individuals (J. Supriatna, pers. comm.).

Both results should be treated with a degree of caution.

Threats

(based on personal observations of the Java Working Group members)

- Grazing does not appear to be a significant threat at present but may be in the future.
- Habitat loss due to exotic animals is not a significant threat at present but may be in the future.
- Overexploitation is both a threat now and in future.
- Several group members noted that power lines continue to be a threat to Javan gibbon habitat and that this has increased in recent times.
- Members of the Java Working Group noted that people in central Java are hunting Javan gibbon to eat (Mt Slamet).
- There was some confusion among group members in regard to 'trampling' and what this meant exactly. The group felt this was not a threat to Javan gibbon habitat.
- The group commented that in terms of genetic issues, inbreeding was likely to be a problem in future due to small population sizes.
- Hybridization was not recognized as a threat to Javan gibbons.
- In terms of catastrophic threats the group agreed that both drought and El Nino were not current threats but could be in future, and that fire, landslide and tsunami remained both current and future threats to Javan gibbons.

Trade

- Trade was described as local and domestic. There is no evidence of international trade.

Population

- Population is generally declining.
- The past decline was suggested at >80% over a period of 10 years. The Java Working Group agreed that there had been a decline but perhaps not to this extent over this period. This figure may need revision based on solid data, and the group recommends more detailed surveys be conducted on population numbers in different locations and that we develop long-term data on population trends.

Recent Field Studies

- Data from studies, monitoring, informal studies and personal observations.
- Preliminary study on updating Javan gibbon population and distribution in West and Central Java (Made *et al.* 2008).

Status

- The species was recently downgraded to Endangered (Geissmann 2007) – Some members of the Java Working Group did not agree with this proposed change, but however accepted the decision until further information on population trends and habitat status becomes available.

Research Recommendations

- The Java Working Group recommended research on genetics, taxonomy, life history, population trends, and habitat status as well as further research on diseases such as Hepatitis B, Tb and Herpes simplex in both *in situ* and *ex situ* populations.
- Acquisition of current satellite imagery for more accurate assessment of habitat quality.
- A PHVA was also recommended for Javan gibbon in the immediate future.

Conservation Measures

- The working group strongly supports the development of a conservation and action strategy for *Hylobates moloch*.

Captive Breeding

- The Java Working Group recognized that due to numbers of animals available in rehabilitation centers, captive bred animals could be considered for future release programs.

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Conservation Threats/Challenges and Recommended Goals/Actions – *Hylobates moloch*

Once the working group members completed the review and discussion of the Taxon Data Sheet for the Javan gibbon, the participants divided into two smaller working groups: several participants formed a new *Ex Situ* Management Working Group to discuss issues related to *ex situ* conservation of Javan gibbons, while the remaining members of the Java Working Group outlined the problems and challenges for wild Javan gibbon populations. This group then developed a series of recommended goals and actions to address these problems for wild gibbon populations (see following tables).

Priority Matrix for Javan Gibbon Populations (*Matrik Prioritas Isu Populasi OJ*)

Problem	Underlying Cause(s)	Recommendation(s)	Goal(s)	Recommended Action(s)
<p>Although most Javan gibbon populations in West Java live inside protected areas, they are still facing a serious threat from fragmentation (e.g., road construction in Gunung Halimun National Park), encroachment, hunting, and illegal trading.</p> <p><i>Populasi owa di JB berada di kawasan konservasi namun mengalami ancaman yang cukup signifikan dari fragmentasi (contoh pembuatan jalan di TNGH), perambahan, perburuan dan perdagangan.</i></p>	<p>1. Public's need for economic and infrastructure developments. <i>Tuntutan masyarakat untuk membangun infrastuktur wilayah.</i></p> <p>2. Public's knowledge and awareness of gibbon conservation is low. <i>Rendahnya pemahaman dan kesadaran masyarakat.</i></p>	<p>1. Law must be enforced to maintain park boundary and to stop illegal hunting and trading. <i>Penegakan hukum terkait tata batas kawasan konservasi dan juga terhadap para pelaku perburuan dan perdagangan OJ.</i></p> <p>2. Continue programs on public education and campaign. <i>Terus melanjutkan program kampanye dan edukasi kepada masyarakat.</i></p> <p>3. Improve knowledge and skill of law enforcement personnel (police, judge, and army) on conservation law and regulations. <i>Peningkatan kapasitas penegak hukum (staf TN, Polisi, dan Jaksa).</i></p>	<p>1. Protected areas are secured, no more encroachment and fragmentation in Javan gibbon habitats. <i>Areal konservasi tidak berkurang, tidak lagi perambahan dan fragmentasi habitat owa di kawasan konservasi.</i></p> <p>2. No more illegal trading and hunting. <i>Tidak adalagi perdagangan dan perburuan.</i></p> <p>3. Public's participation in Javan gibbon conservation is increased. <i>Meningkatnya kesadaran masyarakat untuk tidak memburu dan memperdagangkan OJ.</i></p> <p>4. Law and regulation are enforced consistently. <i>Meningkatnya kinerja penegak hukum.</i></p>	<p>1. Establish a Javan gibbon patrol unit at the Natural Resource Conservation Bureau (BKSDA) and National Park involving local community and NGOs. <i>Membentuk Patroli Unit Owa Jawa pada Balai KSDA dan Balai TN dengan melibatkan masyarakat dan LSM.</i></p> <p>2. Conduct population survey and monitoring across protected areas other than national parks. <i>Melakukan survey dan monitoring npopulasi dan distribusi owa jawa di dalam kawasan konservasi di luar Balai TN.</i></p>
<p>Javan gibbons in Central Java live in non-protected areas and show a steady decline; most notable are the gibbons in Dieng, which have been forced to live in production forest and plantation.</p> <p><i>Populasi OJ di JT berada di luar kawasan konservasi dan cenderung menurun. Khususnya untuk OJ di Dieng terdesak ke daerah yang bukan sebaran alaminya (misal di hutan produksi dan perkebunan).</i></p>	<p>1. Non-protected status for Javan gibbon habitats promotes: -- encroachment -- hunting -- illegal logging <i>Ketiadaan status perlindungan kawasan mengakibatkan terjadinya:</i> -- Perambahan -- Perburuan -- Penebangan liar</p>	<p>1. Assign conservation status for potential habitats with significant number of gibbons. <i>Meningkatkan status perlindungan kawasan.</i></p>	<p>Conservation area system in Central Java is established. <i>Terbentuknya kawasan konservasi untuk perlindungan habitat owa di Jawa Tengah.</i></p>	<p>1. Organize a multi-stakeholder meeting, which involves Perhutani, local government, local community, etc., to discuss the needs of developing a protected area system supported by all stakeholders. <i>Mengadakan pertemuan dengan stakeholder (perhutani, pemda, masyarakat lokal dll) untuk kemungkinan menentukan status perlindungan kawasan yang tepat.</i></p> <p>2. Establish a Javan gibbon patrol unit outside national park. <i>Membentuk OJ Patroli Unit pada habitat OJ di luar kawasan konservasi</i></p>

<p>Small, isolated populations living outside protected areas might go extinct due to low habitat carrying capacity (food abundance, competition) and inbreeding.</p> <p><i>Beberapa sub populasi yang terisolasi dan berada di luar konservasi terancam tidak dapat bertahan terkait dengan daya dukung habitatnya rendah (ketersediaan pakan, kompetisi) dan ancaman inbreeding.</i></p>	<p>1. Encroachment causes populations to become isolated from each other. <i>Perambahan yang menyebabkan sub populasi terisolasi dari populasi utama.</i></p>	<p>1. Develop a corridor system to connect isolated subpopulations. <i>Membangun koridor yang menghubungkan sub populasi dengan populasi utamanya.</i></p> <p>2. Translocation <i>Tanslokasi</i></p>	<p>1. Gene flow among sub-populations is resumed. <i>Terhubungkannya subpopulasi yang terisolasi dengan populasi utama.</i></p> <p>2. Extinction possibility for small, isolated populations is avoided. <i>Menyelamatkan populasi-populasi yang terisolasi.</i></p>	<p>1. Connect forest blocks between Simpang – Tilu, East Honje – South Honje in West Java, and between Linggo Asri – Soka Kembang in Central Java in 2009. <i>Membentuk koridor hutan antara kantong-kantong habitat owa jawa di beberapa kawasan terutama Simpang-Tilu, Honje Timur-Selatan, Linggo Asri dan Soka Kembang mulai tahun 2009.</i></p> <p>2. Relocate nonviable populations into major protected areas starting in 2009. <i>Memindahkan populasi yang tidak viable ke dalam kawasan konservasi mulai tahun 2009.</i></p>
<p>Hunting and illegal trading still pose a serious threat to Javan gibbons.</p> <p><i>Perburuan dan perdagangan OJ.</i></p>	<p>1. Market demand for Javan gibbons is still high. <i>Adanya permintaan pasar (untuk suap/gift, gengsi/prestise dll).</i></p> <p>2. People capture and trade Javan gibbon to solve economic problems. <i>Faktor ekonomi</i></p> <p>3. People do not understand that the Javan gibbon is protected by law. <i>Kurangnya pemahaman masyarakat tentang status konservasi OJ sebagai satwa yang dilindungi.</i></p> <p>4. Law enforcement is weak. <i>Lemahnya penegakan hukum.</i></p>	<p>1. Conduct campaign and education program to discourage people from keeping Javan gibbons. <i>Kampanye dan edukasi kepada masyarakat mengenai kepemilikan OJ.</i></p> <p>2. Develop alternative income for community. <i>Pengembangan pendapatan alternative masyarakat (ComDev).</i></p> <p>3. Improve the capacity of national army, police, and prosecutor to enforce conservation law and regulation. <i>Peningkatan kapasitas penegak hukum (staf TN, Polisi, dan Jaksa).</i></p>	<p>1. People stop capturing and trading Javan gibbons. <i>Meningkatnya kesadaran masyarakat untuk tidak memburu dan memperdagangkan dan memelihara OJ.</i></p> <p>2. Community's income from alternative economic activities is increased, relieving pressure to forest resources. <i>Peningkatan perekonomian masyarakat sehingga tidak lagi tergantung pada sumberdaya hutan secara langsung.</i></p> <p>3. Laws and regulations pertaining to the conservation of the Javan gibbon and its habitat are implemented consistently. <i>Meningkatnya kinerja penegak hukum dalam menjalankan tugasnya.</i></p>	<p>1. Increase campaign and education programs for urban and local communities around Javan gibbon habitat through television, news-papers, and posters, in addition to school visits. Activities planned for 2008. <i>Meningkatkan kampanye dan edukasi bagi masyarakat sekitar desa hutan dan masyarakat kota melalui media cetak dan elektronik, poster dan kunjungan ke sekolah sejak tahun 2008.</i></p> <p>2. Appoint a Javan gibbon ambassador to gain people's support for its conservation. <i>Mengangkat Duta Owa jawa untuk meningkatkan kepedulian masyarakat terhadap owa jawa.</i></p> <p>3. Mainstream Javan gibbon conservation into provincial and regency development plan. <i>Mengarus utamakan konservasi Owajawa kedalam perencanaan pembangunan wilayah kabupaten dan propinsi.</i></p>

<p>Population and demographic data from West and Central Java are incomplete.</p> <p><i>Kekurangan data mengenai estimasi populasi dan demografi owa secara keseluruhan di JB dan JT.</i></p>	<p>1. Existing data cannot be compared, due to differences in survey methods and locations, while current survey is still on going. <i>Data-data yang ada tidak dapat dibandingkan karena perbedaan metode dan lokasi penelitian, sedangkan survei terbaru masih sedang berjalan.</i></p> <p>2. There is no study on predation and competition of Javan gibbons. <i>Belum ada studi mengenai pengaruh predator dan kompetitor terhadap populasi OJ.</i></p>	<p>1. Continue comprehensive surveys to include previous and new potential locations. <i>Melanjutkan survey secara komprehensif baik di lokasi yang sudah di survey maupun lokasi-lokasi baru yang berpotensi sebagai habitat OJ.</i></p> <p>2. Develop a Javan gibbon data-base coordinated by APAPI <i>Menyusun data base populasi OJ dengan APAPI sebagai coordinator, Region JB dan JT.</i></p>	<p>1. Comprehensive data on Javan gibbon population and demography are available. <i>Tersediannya data yang komprehensif dan akurat mengenai populasi dan demografi OJ.</i></p> <p>2. A comprehensive and accessible database system for Javan gibbons is set up. <i>Terbentuknya Data base OJ dan dapat di akses dengan mudah.</i></p>	<p>1. Complete baseline data on Javan gibbon populations and distribution across the current geographic range, starting in 2008. <i>Menyelesaikan base line data populasi dan distribusi di seluruh daerah sebaran Owa jawa, dimulai tahun 2008.</i></p>
<p>Mass tourism threatens Javan gibbon populations and behavior.</p> <p><i>Dampak wisata masal terhadap populasi dan perilaku OJ.</i></p>	<p>1. Large scale ecotourism can potentially disturb Javan gibbon populations (e.g., Cibodas, Selabintana, TNGP, Baturaden, Gunung Slamet). <i>Wisata alam yang bersifat mass tourism yang berpotensi mengganggu populasi OJ (contoh kasus: Cibodas Selabintana-TNGP; Baturaden-G.Slamet).</i></p> <p>2. Lack of knowledge from tourists and park staff about Javan gibbon existence in the area. <i>Ketidak mengertian wisatawan dan pengelola kawasan wisata tentang keberadaan owa di lokasi-lokasi wisata.</i></p> <p>3. Infrastructure development can potentially reduce and disturb Javan gibbon habitat if built without considering conservation principles. <i>Berkurangnya dan terganggunya habitat OJ di lokasi wisata akibat pembangunan infrastruktur yang tidak memperhatikan prinsip-prinsip konservasi.</i></p>	<p>1. Apply a restrictive ecotourism system that regulates the number of visitors and type of activities. <i>Penerapan Ekowisata yang terbatas yang mengatur jumlah pengunjung dan jenis aktifitas di kawasan wisata.</i></p> <p>2. Continue campaign and education programs to improve visitors' knowledge and attitude toward gibbon conservation. <i>Terus melanjutkan program kampanye dan edukasi kepada wisatawan tentang pentingnya keberadaan owa di kawasan wisata.</i></p>	<p>1. Improved skills and knowledge to manage and design ecotourism programs around Javan gibbon habitat. <i>Peningkatan pemahaman dan kapasitas pengelola wisata dalam mengelola wisata, mendesign infrastruktur dan aktifitas wisata yang sesuai prinsip konservasi OJ.</i></p>	<p>1. Develop guidelines for sustainable ecotourism program around Javan gibbon habitats. <i>Membuat guideline untuk kegiatan wisata yang lestari yang terkait dengan habitat owajawa.</i></p>

Top Priority Actions

1. To conduct population survey and monitoring programs inside and outside protected areas across the Javan gibbon's geographic range in Banten, West, and Central Java every two years.

Melakukan survey, monitoring populasi dan distribusi di Banten, Jawa Barat dan Jawa Tengah di dalam dan di luar kawasan konservasi setiap dua tahun.

2. To develop a comprehensive database on Javan gibbon population and demography in 2008, which will be periodically updated every two years.

Membangun database yang komprehensif dan akurat mengenai populasi dan demografi OJ mulai tahun 2008 dan di update setiap dua tahun secara periodik.

Priority Matrix for Javan Gibbon Habitat (*Matrik Prioritas Isu OJ Habitat*)

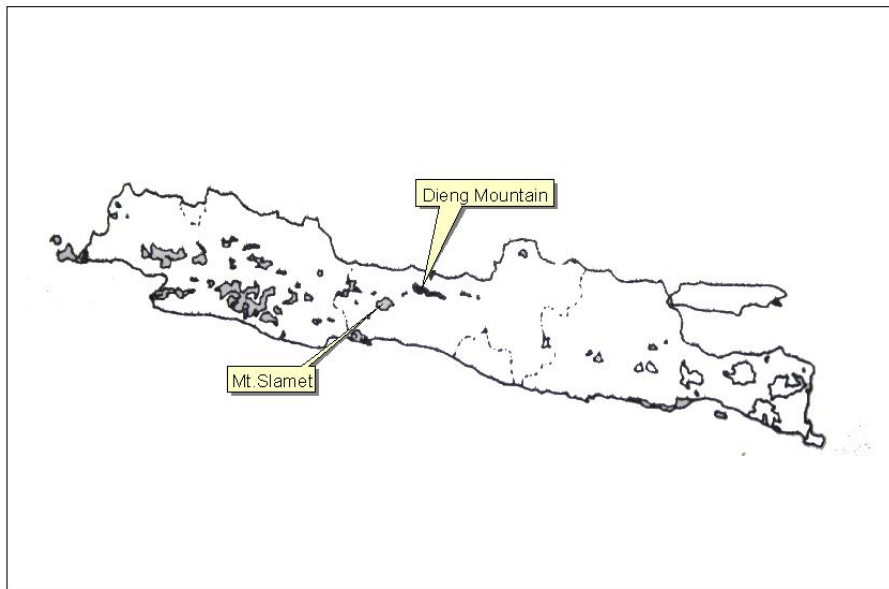
Problem	Underlying Cause(s)	Recommendation(s)	Goal(s)
<p>Land conversion in most Javan gibbon habitat inside conservation areas and protected forest.</p> <p><i>Konversi Lahan di sebagian besar habitat OJ di dalam kawasan konservasi dan hutan lindung.</i></p>	<p>Mining and geothermal activities</p> <p><i>Aktifitas geothermal dan penambangan</i></p>	<p>Negotiate the importance of creating a corridor system to reconnect fragmented Javan gibbon populations with mining company.</p> <p><i>Melakukan pendekatan kepada perusahaan terkait tentang pentingnya menyambungkan kembali koridor yang terputus akibat adanya pembangunan infrastruktur bagi penambangan.</i></p>	<p>A corridor system to reconnect fragmented gibbon population is established.</p> <p><i>Terbangunnya koridor habitat OJ.</i></p>
		<p>Review mining company license that operates inside conservation area and protected forest.</p> <p><i>Peninjauan kembali ijin penambangan yang dilakukan di dalam kawasan konservasi dan hutan lindung.</i></p>	<p>A protocol to collaboratively manage Javan gibbon habitat between mining operators and park managers is developed.</p> <p><i>Terbentuknya dokumen protocol pengelolaan bersama habitat OJ antar pihak pengelola tambang dan pengel kawasan.</i></p>
	<p>Illegal logging, encroachment, and illegal settlers inside conservation area and protected forest.</p> <p><i>Illegal logging, perambahan hutan dan pemukiman liar di dalam kawasan konservasi dan hutan lindung.</i></p>	<p>Enforce law, promote resettlement, and continue education and awareness programs.</p> <p><i>Law enforcement, resettlement, pembinaan.</i></p>	<p>Encroachment and illegal settlement are stopped.</p> <p><i>Tidak ada lagi perambahan dan pemukiman liar di dalam kawasan konservasi dan hl.</i></p>
	<p>Human-induced forest fire.</p> <p><i>Kebakaran hutan yg disebabkan oleh manusia.</i></p>	<p>Enforce law and awareness.</p> <p><i>Law enforcement dan awareness</i></p>	<p>Forest fire is stopped.</p> <p><i>Tidak ada lagi kasus kebakaran hutan.</i></p>

Recommended Actions for Javan Gibbons (Rekomendasi Aksi Owa Jawa)

Recommended Actions	Rekomendasi Aksi
1. Optimize law enforcement through establishing a Javan Gibbon Patrol Unit and increasing capacity of wildlife investigator officers.	1. Mengoptimalkan penegakan hukum, melalui pembentukan patroli unit owa jawa (koordinasi antara Balai KSDA, Balai TN, LSM dan masyarakat), optimalisasi kapasitas petugas PPNS Dephut untuk dapat menangani kasus dan koordinasi dengan unsur penegak hukum lain.
2. Establish baseline data for Javan gibbon habitats and populations by conducting comprehensive surveys and monitoring population and distribution of Javan gibbons inside and outside of conservation areas starting in 2008.	2. Melakukan survey dan monitoring npopulasi dan distribusi owa jawa di dalam kawasan konservasi di luar Balai TN, Menyelesaikan base line data populasi dan distribusi di seluruh daerah sebaran Owa jawa, dimulai tahun 2008.
3. Establish new reserves for Javan gibbons in central Java, and create forest corridors to connect fragmented gibbon habitats especially at Simpang-Tilu, Honje Timur-Selatan, Linggo Asri dan Soka Kembang forests, and if possible translocate some of the nonviable populations into conservation areas starting in 2008.	3. Mengadakan pertemuan dengan stakeholder (perhutani, pemda, masyarakat lokal dll) untuk kemungkinan menentukan status perlindungan kawasan yang tepat, membentuk koridor hutan antara kantong-kantong habitat owa jawa di beberapa kawasan terutama Simpang-Tilu, Honje Timur-Selatan, Linggo Asri dan Soka Kembang dan memindahkan populasi yang tidak viable ke dalam kawasan konservasi mulai tahun 2009.
4. Improve awareness campaign and education programs through electronic and printed media, posters and school visits; propose the Javan gibbon as province mascot; mainstream conservation of Javan gibbons into regional planning of districts and provinces; and adopt IUCN Guidelines on development of wildlife tourism development at the parks.	4. Meningkatkan kampanye dan edukasi bagi masyarakat melalui media cetak dan elektronik, poster dan kunjungan ke sekolah sejak tahun 2008, Mengangkat Duta Owa jawa untuk meningkatkan kepedulian masyarakat terhadap owa jawa, Memasukan owa jawa sebagai maskot daerah, Mengarus utamakan konservasi Owajawa kedalam perencanaan pembangunan wilayah kabupaten dan propinsi, Membuat guideline untuk kegiatan wisata yang lestari yang terkait dengan habitat owajawa.
5. Optimize rescue centers and rehabilitation centers to host confiscated Javan gibbons in order to be used for court process and identify the potential habitat for releasing rehabilitated gibbons.	5. Optimalisasi rescue center dan Pusat-Pusat Rehabilitasi untuk menampung satwa sitaan dan pengamanan barang bukti selama proses peradilan, serta Mengidentifikasi habitat potensial untuk pelepasliaran owa jawa dari Pusat Rehabilitasi.

Top Five Recommended Priority Actions

1. Optimize law enforcement through establishing a Javan Gibbon Patrol Unit and increasing capacity of wildlife investigator officers.
2. Establish baseline data for Javan gibbon habitats and populations by conducting comprehensive surveys and monitoring population and distribution of Javan gibbon inside and outside of conservation areas starting in 2008.
3. Establish new reserves for Javan gibbon in central Java, and create forest corridors to connect fragmented gibbon habitats especially at Simpang-Tilu, Honje Timur-Selatan, Linggo Asri dan Soka Kembang forests, and if possible translocating some of the nonviable populations into conservation areas starting in 2008.
4. Improve awareness campaign and education programs through electronic and printed media, posters and school visits; propose the Javan gibbon as province mascot; mainstream conservation of Javan gibbons into regional planning of districts and provinces; and adopt IUCN Guidelines on development of wildlife tourism.
5. Optimize rescue centers and rehabilitation centers to host confiscated Javan gibbons in order to be used for court process and identify the potential habitat for releasing rehabilitated gibbons.



Indonesian Gibbon Conservation and Management Workshop

Sukabumi, West Java, Indonesia
20 – 22 February 2008

Final Report



SECTION 4

Sumatra
Working Group Report

Sumatra Working Group Report

Members: Harry Alexander, Noviar Andayani, Anton, Asferi Ardiyanto, Ermayanti, Firman, Fitri, Barita Manullang, Allan Mootnick, Luca Morino, Meyner Nusalawo, Gono Semiadi, Jatna Supriatna, Achmad Yanuar.

This working group discussed the current status of the four gibbon taxa in Sumatra and the Mentawai Islands and threats to these taxa:

1. agile gibbon (Sumatran *agilis*), *Hylobates agilis*
2. lar gibbon (Sumatran lar), *H. lar vestitus*
3. siamang, *Symphalangus syndactylus*
4. kloss's gibbon, *H. klossii* (Mentawai)

Group members reviewed the completed Taxon Data Sheets (TDS) from the 2001 CBSG Indonesian Primate Conservation Assessment and Management Plan (CAMP) Workshop and suggested revisions to the TDS (see Appendix II for modified Taxon Data Sheets). The group then identified and prioritized the primary threats/challenges related to the conservation of these taxa and recommended goals and management actions to address these threats.

Revisions to the Taxon Data Sheets – Summary

The Sumatra group decided that the discussion is only to the species level since a published paper on the subspecies of any species is not available (*H. agilis*). There is only a minor change of the information between the 2001 CAMP and 2008, e.g. habitat, population distribution (#2), and some additional information on the local name. Clarification on the definition of some terms is needed, e.g. #2 (habitat type as compared to notes on habitat #2B and niche #2C). The GIS data (#5B) are still blank as data are not available. Clarification is needed on the dispute on the siamang population status and occupancy area.

Revisions to the Taxon Data Sheets – *Hylobates agilis*

Taxonomy / Names

- *H. agilis agilis* and *H. a. unko* (A. Mootnick, in prep.) is awaiting the completion of a genetic study; for the time being *H. agilis* as one species.

Habitat and Distribution

- There was confusion in determining the definition of habitat type (#2), notes on habitat (#2B) and niche (#2C).
 - a. Swamp forest 0-50m asl; lowland forest 0-500m asl; hill dipterocarp forest 500-800m asl; submontane 800-1200m asl.
 - b. Abandoned mixed agro-forestry (cocoa, tea, coffee, sorea, acacia) and fragmented forest (8 ha) areas are the extension habitat.

Area of Occupancy

- The increasing area of occupancy compared to the 2001 CAMP is based on new surveys between 2001 to 2007.

Subpopulation Areas

- Definition of most important area (#5) in this paper is as the most secure area for the animals to live, which is in the protected areas.

Habitat Status

- For #6B, the group used data of WCS-IP for 10 years (2.5% /year).

Revisions to the Taxon Data Sheets – *Hylobates lar vestitus*

Habitat Status

- For #6B, the habitat is stable only in Leuser, but not in other areas.

Revisions to the Taxon Data Sheets – *Symphalangus syndactylus*

Taxonomy / Names

- There was confusion whether the group needed to work up to subspecies level for this species since *S.s. continentis* is present only in Malaysia (A. Mootnick) and not appropriate to be put as synonyms as in the 2001 CAMP taxon data sheet.

Distribution

- Siamang can be found up to 2700m asl in Gunung Tujuh (Kerinci) (A. Yanuar, pers. comm.). There was some disagreement whether siamang could live higher than 2500m asl.(B. Manullang).

Area of Occupancy / Trends

- Dispute by Griffith's paper that siamang is under threat (supported by B. Manullang), BUT the current field observers (WCS, CI) believe it is still abundant, and occupancy area is still okay (the trend is not declining sharply) – dissenting opinion among the group members.

Revisions to the Taxon Data Sheets – *Hylobates klossii*

Habitat

- Swamp forest only occurs in North Siberut (Firman)

Subpopulations

- The definition of extreme fluctuation (#5) is very confusing for such a small geographical region like that of the Kloss's gibbon, which is restricted to Siberut.
- In Bagai area, only left 30% of the subpopulation, BUT it is not a conservation area.

References

KALAWAIT. 2007. Investigation on gibbon in Siberut.

WCS-IP. Monitoring data, Way Canguk Research Station 1998-2007, Bukit Barisan Selatan National Park, Lampung.

WCS-IP. Survey 2007-2008 in Lampung and Bengkulu.

Yanuar, A. 2001. The population distribution and abundance of primates in Kerinci-Seblat National Park, Sumatera. M.S. Thesis. University of Cambridge, Cambridge, UK.

Yanuar, A. 2007. Effect of fragmented forest on siamang (*Symphalangus syndactylus*) and agilis gibbon (*Hylobates agilis*) around Kerinci Seblat National Park, West Central Sumatera, Indonesia. Ph.D. Dissertation. University of Cambridge, Cambridge, UK.

Conservation Threats/Challenges and Recommended Goals/Actions – *Hylobates agilis agilis*

Habitat Loss

Challenges:

- Land conversion of gibbon habitat into monoculture plantation such as *Acacia*, oil palm, rubber.
- Local enclaves illegally encroach in protected forest in Gunung Leuser.
- Construction of new roads in protected areas (published reports confirm that many populations abandon the forested areas near roads – see also the “Ladiagalaska Issue”).
- Mining: The group is not aware of a gold mining threat, whereas coal mining is thought to be a problem in Bukit Rimbang and Bukit Baling (Riau).

Harvesting

Challenges:

- Hunting (existing problem, though less pressing than in siamangs).
 - a. Gifts: agile gibbons are a common gift among military people in Aceh.
 - b. Pet trade: both locally and outside of Indonesia

Other Human-Related Problems

- War: The group is happy to announce that war is no longer a threat for gibbon populations in Aceh.
- Sound pollution (related to the construction of new roads)

Natural Threats

Challenges:

- Forest fires affected mortality rates in populations in Bukit Barisan Selatan NP (related to El Nino events).
- Droughts are reported from Riau and Jambi.
- Predation (python)
- Interspecific competition as a result of overcrowding due to habitat loss (siamang vs. *agilis* in Bukit Barisan Selatan)
- Hybridization: There is a hybrid zone (*lar/agilis*) in Dairi and Pakpak Bharat regencies.

GOALS to address threats

1. Stop hunting and trading activities.
2. Preserve agile gibbon populations by:
 - a. Controlling hunting activity.
 - b. Controlling habitat loss.
 - c. Preserving populations in forest fragments.

Conservation Threats/Challenges and Recommended Goals/Actions – *Hylobates lar vestitus*

Habitat Loss

Challenges:

- Land conversion of gibbon habitat into monoculture plantation such as *Acacia*, oil palm, rubber.
- Local enclaves illegally encroach in protected forest in Gunung Leuser.
- Construction of new roads in protected areas (published reports confirm that many populations abandon the forested areas near roads – see also the “Ladiagalaska Issue”).

Harvesting

Challenges:

- Hunting (existing problem, though less pressing than in siamangs).
 - a. Gifts: lar gibbons are a common gift among military people in Aceh.
 - b. Pet trade: both locally and outside of Indonesia

Other Human-Related Problems

- War: The group is happy to announce that war is no longer a threat for gibbon populations in Aceh.
- Sound pollution (related to the construction of new roads)
- Although there are no data on the construction of power lines inside protected areas, reports from Medan suggest that this could become a problem in the future.
- Dams: not a problem anymore
- Exotic plants: The group is not sure about what this is referring to in the 2001 CAMP report.
- Pesticides: The group does not consider pesticides to be a current threat, but they probably will be in the future.

Natural Threats

Challenges:

- Forest fires may represent a potential threat for this species in the future.
- There is no confirmed data on predation.
- Hybridization: There is a hybrid zone (*lar/agilis*) in Dairi and Pakpak Bharat.

GOALS to address threats

1. Stop hunting and trading activities.
2. Preserve lar gibbon populations by:
 - a. Controlling hunting activity.
 - b. Controlling habitat loss.
 - c. Preserving populations in forest fragments.

The working group believes that this is the least threatened species of the four Sumatran hylobatids.

Conservation Threats/Challenges and Recommended Goals/Actions – *Symphalangus syndactylus*

Habitat Loss

Challenges:

- Land conversion of siamang habitat into monoculture plantation such as *Acacia*, oil palm, rubber, cinnamon.
- Local enclaves illegally encroach in many protected forests.
- Construction of new roads in protected areas (published reports confirm that many populations abandon the forested areas near roads – see also the “Ladiagalaska Issue”).

Harvesting

Challenges:

- Hunting
 - a. Gifts: siamangs are a common and appreciated gift among local people.
 - b. Pet trade: both locally and outside of Indonesia.
 - c. Traditional medicine was indicated in the 2001 CAMP; the group confirms this as a threat, as no new information is available.

Other Human-Related Problems

- War: The group is happy to announce that war is no longer a threat for gibbon populations in Aceh.
- Sound pollution (related to the construction of new roads)
- Although there are no data on the construction of power lines inside protected areas, reports from Medan suggest that this could become a problem in the future.

Natural Threats

Challenges:

- Predation: There is one confirmed case of predation by clouded leopard.
- Drought is not thought to be a current problem.
- Forest fires affected mortality rates in populations of Bukit Barisan Selatan NP (related to El Nino events).
- Landslides and volcanoes still represent a potential threat.

GOALS to address threats

1. Stop hunting and trading activities.
2. Preserve siamang populations by:
 - a. Controlling hunting activity.
 - b. Controlling habitat loss.
 - c. Preserving populations in forest fragments.
3. For siamangs in rescue centers:
 - a. Stop hunting activity to stop the influx of siamangs in rescue centers.
 - b. Raise public awareness.
 - c. Fundraising at the centers.
 - d. Euthanasia to reduce overcrowding and potential disease spread.
 - e. Improve reintroduction and rehabilitation efforts.

Recommended Goals / Actions for Sumatra

Sumatra is the only island that has sympatric gibbon species (*H. lar*, *H. agilis*, *S. syndactylus*). Many of the same threats affect all three species, and therefore these species will benefit from many of the same conservation actions. Five major goals were identified for Sumatra; these goals and associated recommended actions are outlined below.

GOAL 1: Stop hunting and trade.

Action: Strengthen effective law enforcement.

Action: Improve monitoring and management of hunting activities.

Action: Strengthen legal culture (compliance).

Action: Work collaboratively with the media.

GOAL 2: Control habitat loss.

Action: Stop land conversion on primary habitat.

Action: Stop (not control) encroachments.

Action: Stop illegal logging

Action: Stop development of new road infrastructure in the conservation protected forest.

Action: Promote forest restoration projects.

Action: Communicate with new land use planning office (BAPPEDA) with respect to opening of new road access and assisting in prioritizing development projects (logging concession, land conversion)

Action: Increase involvement and commitment of UNESCO.

GOAL 3: Preserve population and metapopulation in fragmented forest areas.

Action: Monitor and manage population, especially where gibbons live sympatrically.

Action: Protect the area from further fragmentation.

Action: Support and involve local NGOs in fragmented areas.

Action: Involve oil palm companies for best practice adoption.

Action: Develop “corridor” forest.

GOAL 4: Capacity building and coordination (Sumatra and Mentawai).

Action: Identify and target key stakeholders (park managers, media, NGOs, law enforcement agencies, local government).

Action: Strengthen coordination among relevant stakeholders.

GOAL 5: Establish coordination between *ex situ* institutions and management authority (Sumatra and Mentawai).

Action: Raise public awareness.

Action: Capacity building to rescue center.

Action: Strengthen coordination between Animal Rescue Center and GOI.

Action: Reinforce SOP on release procedure.

Action: Utilize the official/”legal conservation institution”

All *ex situ* institutions should have a tangible link to *in situ* conservation, e.g. funding, direct rehabilitation, releases.

Conservation Threats/Challenges and Recommended Goals/Actions

– *Hylobates klossi*

The Kloss gibbon is the only gibbon on the Mentawai islands and is the only Indonesian gibbon species that is extensively hunted for food by local people. There is active logging in north Siberut (two large companies account for 100,000ha out of 400,000ha of the island area, for the next 20 years). In the southern part, only 25% is left for forest. Encroachment (land tenure problem) is a traditional right without having to get a permit from Jakarta. Economy development and oil palm plantation in Sipora affect gibbons. Mentawai has been dedicated as a cagar biosphere.

Habitat Loss

Challenges:

- Economic development: Forest will be cut down, as the government is planning the building of new infrastructures (after declaration of the new district of Mentawai, in 2003?).
- Forest conversion: Logging concessions (already granted) cover one fourth of Siberut Island. Additionally, land conversion plans (e.g. oil palm, *Acacia*) also affect large parts of the island.

Harvesting

Challenges:

- Hunting: Indigenous people in Mentawai have established hunting limitations, but hunting is still reported from several parts of the islands. Among the reasons for hunting are:
 - a. Gifts: Kloss gibbons are a common and appreciated gift among local people.
 - b. Bushmeat is still reported from southern Siberut.
 - c. Pet trade: Although only on a limited scale, trade still represents an important threat. Gibbons are traded as pets (mothers are killed to obtain the babies).

Management Issues

Challenges:

- Lack of knowledge and awareness about how to manage wild primate populations. This problem is especially severe in *H. klossi* as it is an endemic species and thus presents special challenges.
- There are only a limited number of populations/individuals that can be the target of conservation action.
- The creation of the new district creates the potential for new problems but also opportunities.

Natural Threats

Challenges:

- There is no indication that disease can be an acute threat (except for the increased vulnerability of small populations).
- Genetics: A small population is under threat due to genetic drift effects.
- Predation: Documented attacks from python and eagle.
- Fire, which was mentioned in the 2001 CAMP, is not considered a significant problem.
- Earthquakes/tsunamis are instead considered active threats to Kloss populations.

GOALS to address threats

1. Revitalize Siberut Biosphere Reserve:
 - a. Increase awareness among local population and authorities.
 - b. Strengthen Indonesian Government commitment.
 - c. Strengthen international community involvement (e.g. WHC, UNESCO)
2. Bring back traditional or local wisdom.
3. Give incentives as a way to preserve Kloss gibbon (e.g. carbon trade, conservation funding, forest restoration funding, ecotourism).

The working group wants to stress the particular challenges that are due to *H. klossii* being an endemic species.

Recommended Goals / Actions for Mentawai

The following three conservation goals and associated recommended actions were identified for the Kloss gibbon in Mentawai.

GOAL 1: Revitalize Siberut as a Biosphere Reserve.

Action: Increase capacity building of the local regency government (Kabupaten).

Action: Strengthen GOI commitment.

Action: Reaffirm international commitment

GOAL 2: Bring back the traditional wisdom (no hunting of Kloss gibbons).

Action: Promote capacity building of the local culture/wisdom.

GOAL 3: Provide incentive as a way to preserve *H. klossii*.

Action: Involve in carbon trade, ecotourism.

Action: Initiate conservation fund.

Action: Allocate land restoration.

Action: Recommend Pagai Selatan and Utara as a special local conservation area.

Indonesian Gibbon Conservation and Management Workshop

Sukabumi, West Java, Indonesia
20 – 22 February 2008

Final Report



SECTION 5

Ex Situ Management
Working Group Report

Ex Situ Management Working Group Report

Members: Pudji Astuti, Clare Campbell, Leif Cocks, Alan Mootnick, Karen Payne, Joko Pamungkas, Ern Thetford, Holly Thompson, Yohana Trihastuti.

This working group was convened after the geographically-based working groups reviewed and revised the Taxon Data Sheets. At this point, several members of the Java Working Group formed an *Ex Situ* Management Working Group to address issues related specifically to *ex situ* conservation and management of gibbons in Indonesia, focusing primarily on the Javan gibbon. The group identified and prioritized the primary issues facing *ex situ* management and then outlined management goals and actions related to these issues.

Current Issues

The following issues were identified by the working group members:

1. Small number of founders: In the captive population outside of Java there are a very small number of founders. In terms of the captive population within Indonesia, we do not know the relatedness of the founders that are coming into the population;
2. Complications in setting up *ex situ* facilities;
3. Possibly two subspecies: There is not enough evidence at this stage to determine if this is the case. There are political implications associated with splitting the subspecies, and it may provide improved opportunities for protection. It may also, however, create difficulties in management of *ex situ* populations as there no distinct differences in pelage;
4. Lack of knowledge of relatedness of Indonesian captive animals;
5. Reintroduction;
6. Captive husbandry, disease management;
7. Training and record keeping;
8. Pet trade, quality of animals coming into rescue centers, potential for release;
9. Limited human resources and funding;
10. Limited funding within Indonesia;
11. No identified release sites devoid of gibbons, lack of good knowledge on wild populations impacts on decisions made in regard to captive management;
12. Reliable individual identification, relative isolation of Indonesian and international captive populations;
13. Exchange of animals internationally and associated issues;
14. Difficulties with international exchanges;
15. Lack of research on reproductive biological issues; and
16. Education

Issue Statements

The current issues were discussed, consolidated, prioritized, and developed into the following issue statements. Issue statements are presented in order of priority (using the dot ranking method), based on the conservation benefit to wild gibbon populations and the contribution to the welfare of captive gibbons. The first three (lack of captive management standards, lack of release/reintroduction information, and research needs) were identified as the top priority issues.

Lack of Captive Management Standards

There are currently no consistent standards in captive management in terms of captive husbandry, reproductive management, disease management, nutrition, enclosure design and behavioral enrichment. Best practice standards need to be applied globally to ensure the health, welfare and the viability of the captive population of Javan gibbon. (11 dots)

Lack of Release / Reintroduction Information

Successful release/reintroduction of Javan gibbons is hampered by lack of knowledge of suitable release sites as well as best practice standards for rehabilitation, release and monitoring. (10 dots)

Research Needs

Further research is required into reproduction and for diseases affecting captive Javan gibbons to allow informed decisions regarding *ex situ* management and potential release. Current decisions are made based on assumptions. (9 dots)

Pet Trade

There is an inability to adequately address the issue of the pet trade in Javan gibbons due to a lack of information on numbers, origin and destinations of these animals. (5 dots)

Staffing Issues

There are a limited number of people with suitable expertise and interest (and/or funding to employ these people). There is a need for motivated people who are proactive and knowledgeable who will stay in these positions and make things happen. Funding (amount and duration) is often a limiting factor. Ongoing training is important. Positions include veterinarians, zookeepers, researchers, fundraisers, records officers, and managers/curators. (5 dots)

Lack of Public Awareness

There is a lack of knowledge in the general public on gibbon conservation and welfare, particularly relating to keeping as pets. (4 dots)

Small Number of Founders

It is currently difficult to manage the entire captive population globally due to the small number of founders and difficulties associated with the international transfer of Javan gibbons (particularly to/from Indonesia, but also between international institutions). (3 dots)

Inadequate Funding

Funding is a stumbling block for *ex situ* conservation. Pooling of funding and resources may be more effective. Consistent and adequate levels of funding are required that need to be utilized effectively and not wasted. (2 dots)

Participants noted the successful golden lion tamarin (GLT) model, in which *ex situ* institutions that hold the species must sign over ownership of these animals to the Brazilian Government and make a contribution to the conservation program.

Lack of Records / Population Data

The lack of completeness of the studbook, record keeping, poor communication and the inability to identify individuals from the studbook makes the population difficult to manage and potentially nonviable. (1 dot)

Communication needs to be improved. Also, accurate and honest historical information is needed. Often this information is lost when there is a changeover in staff (e.g., animals may have been acquired from the wild and are recorded differently). Currently there is poor utilization of Javan gibbons in Indonesian zoos in terms of their contribution to the global captive population.

Legal / Legislative Constraints

It can sometimes be difficult to manage the population due to lack of support as well as legal, legislative & bureaucratic restrictions which may hamper establishment and management of *ex situ* populations. (0 dots)

Recommended Goals / Actions

After identifying the issues of concern for *ex situ* management of gibbons, the working group discussed and developed recommended goals and specific actions to initiate the realization of these goals.

Captive Management Standards

Best practice standards need to be applied globally to ensure the health, welfare and the viability of captive population of Javan gibbon.

GOAL 1: Produce a husbandry manual to include best practice that includes information such as nutrition, stress, enclosure design, spacing, pair formation, socialization, enrichment, breeding, disease transmission, etc.

GOAL 2: Ensure that this information is applied. This document should be produced in Bahasa Indonesia, and someone with sufficient expertise needs to assist Indonesian institutions to apply best practice. This version may also need modification to suit Indonesian situations.

GOAL 3: Some level of monitoring and communication should take place to ensure that these standards are maintained.

GOAL 4: There needs to be an assessment of the success of the implementation of best practice. Some consideration is needed with regard to what happens when facilities do not comply. Institutions should not receive further animals if conditions are not being met; however, some level of support should be given to ensure the welfare of the animals that they hold.

ACTION	WHO	WHEN	COMMENTS
Produce husbandry standards in English	Clare Campbell and Holly Thompson	August 2008	Liaison between Clare and Joko. Include information relevant to zoos and rehabilitation centers (i.e. different purposes for enclosures, nutrition, etc.)
Translate husbandry standards in Bahasa	Joko Pamungkas	February 2009	
Apply these guidelines at each institution	Holly Thompson and Indonesian representatives	February 2010	
Follow up monitoring and assessment of standards	To discuss with Made Wedana	February 2010	
Facilitate access to web-based forums (e.g., gibbon keepers network) for Indonesian staff working with gibbons	Clare Campbell	August 2008	Send out information via an email.

Reintroduction/Release

Increased knowledge of suitable release sites and other relevant issues per IUCN Reintroduction Guidelines will promote the successful release/reintroduction of Javan gibbons. Also needed is the development of best practice standards for rehabilitation, release and monitoring.

GOAL 1: Identify suitable habitat for the release/ reintroduction of ex-captive Javan gibbons (i.e. areas that are able to be protected, are of suitable size, have suitable flora (vegetation surveys), have no wild gibbons or virtually no wild gibbons).

GOAL 2: Identify the reason for extinction and control those reasons before attempting reintroduction.

GOAL 3: Identify the presence and prevalence of diseases in the wild population to determine the significance of disease for release in ex-captive gibbons.

GOAL 4: Clarify subspecies issues and if/how taxonomic issues impact release.

GOAL 5: Establish guidelines for release, including which animals should be released. Guidelines should address disease, behavior, age, release method (groups/individuals, soft/hard timing), pre-release management (stages of rehabilitation), and post-release monitoring (how and for how long).

GOAL 6: Increase the pool of animals available for selection for reintroduction (i.e. not restricted to animals held within Indonesia).

GOAL 7: Expand current facilities, both centers and land.

GOAL 8: Increase the pool of animals available for release.

ACTION	WHO	WHEN	COMMENTS
Establish guidelines	Karen Payne	December 2008	In consultation with other parties. Use IUCN Great Ape Guidelines as a guide.
Clarify subspecies (Western and Central Java)	Alan Mootnick and Colin Groves; possibly also Primate Research Center, IPB		DNA studies, vocalizations, etc. need to be known/ evidence. Blood/hair samples. Use same criteria used before when establishing subspecies.
Establish communication among all parties regarding new/expansion areas for reintroduction and rehabilitation centers	Clare Campbell and Amos Courage	August 2008	
Secure human resources and funding of surveys to locate suitable release sites	Clare Campbell and Karen Payne (SGP) to liaise with JGF	August 2008	

Reproductive and Disease Research

Further research is required into reproduction and for diseases affecting captive Javan gibbons to allow informed decisions regarding *ex situ* management and potential release.

GOAL 1: Increase and disperse current knowledge of the reproductive cycle/activity to enable assessment of fertility/reproductive management.

GOAL 2: Conduct research to determine/clarify the significance of diseases affecting gibbons (Hep B, HSV and HAV).

GOAL 3: Develop tests for easy and accurate identification of diseases (GiHBV and TB) in the field or less developed areas.

GOAL 4: Establish serum banking from gibbons to allow further research without further interference.

GOAL 5: Recommend treatment protocols/management guidelines for disease in captive and potential release animals.

ACTION	WHO	WHEN	COMMENTS
Develop breeding guidelines for Javan Gibbon	Ern Thetford	August 2008	Can be slotted into the husbandry manual. Need to include information on breeding ages, time from pairing to conception.
Produce flowchart for strategies to assess fertility, etc.	Karen Payne	July 2008	Distribute this information ASAP.
Produce a list of diseases that are currently significant and summarize knowledge. Conduct literature review	Karen Payne	February 2009	
Develop simple field tests	Karen Payne	TB: 6 months HBV: 12-18 months	Expand trials of current TB test GiHBV
Encourage serum banking across institutions	Karen Payne	June 2008	KP to speak to institutions, spreadsheet
Protocols for disease/management	Karen Payne and Holly Thompson	August 2008	Will be added to husbandry manual to circulate

Pet Trade

Better information on the numbers, origin and destinations of pet gibbons is needed in order to adequately address the issue of the pet trade of Javan gibbons.

GOAL 1: We need an accurate and up-to-date survey by a dedicated and knowledgeable person to determine the current status (e.g., how many gibbons are in homes? where are they coming from? where are they going?)

GOAL 2: Keep a register of pets and try to convince/educate people to donate their gibbons rather than confiscate them to prevent further continuation of cycle.

GOAL 3: Possible pre-screening testing and health checks of pet gibbons.

GOAL 4: Educate local law enforcement officers.

GOAL 5: Remove animals to a recognized program (rehabilitation centers).

GOAL 6: Establish stricter penalties and law enforcement for illegal possession, sale and trade in Javan gibbons.

ACTION	WHO	WHEN	COMMENTS
Discuss with TRAFFIC and local authorities	Clare Campbell	August 2008	Prof. Ir. Ani Mardiasuti, MSc, PhD Email:aniipb@indo.net.id
Seek clarification on current laws and enforcement	Clare Campbell		Consultation with Javan Gibbon Foundation (JGF), Anton Ario, Karmele Sanchez. Include information from Alan Mootnick in regard to acquiring DNA samples to determine subspecies status

Human Resources

GOAL 1: Invest more money into human resources.

GOAL 2: Secure more money to allow long-term adequate funding of skilled positions to attract the right people and keep them.

GOAL 3: Provide training as required to keepers and others.

ACTION	WHO	WHEN	COMMENTS
Develop staff exchange between relevant institutions such as Perth, Howletts, Gibbon Conservation Center.	All relevant parties	Establish program within 2008	Establish which institutions want to be involved
Indonesian studbook keeper to seek training in Singapore Zoo	Fathul Bari	March 2008	Who will be paying for this?
Approach government to see if they will fund a veterinarian to service all of the rescue centers	Karen Payne	August 2008	Need to identify which rescue centers require assistance. (Holly to follow up as part of studbook surveys); 6 ex gibbon foundation, what else?

Education

GOAL 1: Create better signage at zoos to educate public about gibbons and their threats.

GOAL 2: Provide signage at animal markets.

GOAL 3: Educate local people who live near Javan gibbon habitat regarding the importance of gibbon conservation in terms relevant to them.

GOAL 4: Educate government officials about the importance of gibbon conservation (habitat protection, pet trade enforcement, etc.) in terms relevant to them.

GOAL 5: Provide education targeting young people to change current thinking.

ACTION	WHO	WHEN	COMMENTS
Develop strategy for signage and educational program within Indonesia.	Amos Courage to follow up with Made Wedana	August 2008	Maybe need to subcontract this to KONUS. Aspinall Foundation already has this process underway.

Global Population Management

GOAL 1: Develop a global captive management plan using the Golden Lion Tamarin (GLT) as a model.

GOAL 2: Transfer gibbons back into Indonesia from international zoos.

ACTION	WHO	WHEN	COMMENTS
Circulate GLT plan amongst group	Leif Cocks	6 months	
Development of plan	Leif Cocks	12 months	In consultation with the rest of the group
Establish agreed strategies for rehabilitation centers.	Clare Campbell in consultation with other relevant parties		Include in strategy to pay above minimum wages to ensure security of good staff and to provide ongoing training to keepers and others.

Funding

GOAL 1: Improve communication and collaboration among NGOs, zoos and government departments to allow pooling of funding and resources.

GOAL 2: Develop an agreement on strategy among zoos, NGOs and government departments, including a tangible outcome for wild populations.

GOAL 3: Establish an inclusive management team to oversee and monitor the distribution of pooled funds and resources and ensure they are used efficiently.

ACTION	WHO	WHEN	COMMENTS
Approach JGF about securing more funding within Indonesia	Karen Payne and Clare Campbell	February 2008	Meeting at workshop
Develop grant applications	Karen Payne and Clare Campbell	Date to be confirmed	
Communication between zoos/government departments to allow/allocate pooling of funds for <i>ex situ</i> conservation	Clare Campbell meeting with officials/JGF/Aspinall	February 2008 and to continue	Interest from Aspinall foundation to help. Meeting to take place after workshop. Alan to look at American sources for funding

Studbook Management

GOAL 1: Update studbook with accurate information, ensuring that all animals currently held in Indonesian institutions are added to the studbook with as much information as possible.

GOAL 2: Ensure ongoing communication between Indonesian and International studbook keepers and institutions.

GOAL 3: Ensure that the studbook keeper and species coordinator in Indonesia has access to appropriate training and resources.

GOAL 4: Obtain DNA information on Indonesian gibbons of unknown parentage.

GOAL 5: Microchip all gibbons in studbook.

GOAL 6: Conduct Hep B testing of all animals in studbook (as well as other diseases).

GOAL 7: Fingerprint and photograph all gibbons in studbook.

ACTION	WHO	WHEN	COMMENTS
Update current international studbook and ensure ongoing communication, ensure animals are microchipped.	Holly Thompson	June 2008	
Create list of User Defined Fields relevant to the studbook	Holly Thompson in consultation with Leif Cocks	August 2008	Pass on to relevant institutions
Obtain nuclear DNA information on Indonesian gibbons of unknown parentage	Joko Pamungkas and Noviar Andayani	August 2008	There is some question about the feasibility of this research but considered very important. This research may need to tie in with possible translocations as information will be extremely difficult to acquire. May need to see if possible to look at other species.
Develop template for acquiring relevant information about each gibbon.	Holly Thompson	August 2008, follow up 2009	Fingerprinting, micro-chipping and training for disease testing.
Begin to develop dialogue with legislative bodies to streamline processes for the transfer of animals.	Amos Courage to discuss with Made Wedana if he is interested in following up. Clare Campbell to also discuss with JGF.	July 2008	Mainly in relation to transfers between institutions within Indonesia.

Legislation

Include in above actions

Combined Group Discussion

The following points resulted from a combined group discussion between the Java (*in situ*) Working Group and the *Ex Situ* Management Working Group, with respect to *in situ* – *ex situ* conservation connections for Javan gibbons:

1. Organizations such as SGP need information as far in advance as possible in terms of funds needed for surveys, etc. There is potential to assist with these funds, but organizations need to know ahead of time.
2. *Ex situ* groups are keen to move toward gibbon release but need help in establishing protocols, guidelines and suitable release sites. Kalaweit staff could help with this.
3. The identification of priority areas for habitat protection is needed. Funding is likely to come from international sources, so we need to provide guidance and direction so we know where to work.
4. Everything needs to be thrashed out prior to even looking for habitat for release. These will need to occur in the upcoming Javan gibbon meeting. Funds are available to develop a Conservation Strategy and Action Plan for the Javan Gibbon. We are still waiting for results in the field but the meeting is scheduled for August 2008. It is hoped that the action plan will be endorsed by the Minister and then can be implemented.

ACTION: A representative of the IUCN Reintroduction Specialist Group must attend this meeting. Fred Launay would be a likely candidate.

5. We may be able to prioritize protection units based on information gained from a pet trade survey. This may identify areas where most gibbons are being poached for pets and therefore where the greatest level of protection is required.
6. Further discussion about subspecies occurred. Genetic research may be needed to establish whether this is the case, as this has consequences for management of the captive population. It will be important to get chromosome samples from gibbons from known locations. Taking blood from unknown animals is fairly pointless. We also need to include information on vocalization and pelage. We need to take these criteria and apply to other known species and see if this matches up. Researchers need support with materials to collect DNA information. Alan Mootnick has a contact in Germany who would be able to give advice on what to collect, etc.
7. Noviar Andayani, Alan Mootnick and Joko Pamungkas will work together in the primate lab. Wawan Djum will send samples to the lab from the current survey. Hiro from Japan could also be involved.
8. Mining issues need to be discussed with the government in terms of the effects on gibbon habitat.

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SECTION 6

Group Prioritization of
Top Priority Goals

Plenary Session: Group Prioritization of Goals

Each of the four working groups was requested to bring their top priority goals to the plenary session. These goals were discussed and consolidated to form the following list of 20 high priority goals across Indonesia. Workshop participants then prioritized these goals with respect to their positive impact on Indonesian gibbon conservation using the dot method of group prioritization. This process led to the resulting prioritized list of goals; numbers in parentheses indicate the number of dots, or ‘votes’, that each goal received.

It should be noted that ALL of these goals are considered important and were identified as high priority by at least one working group. The purpose of this prioritization exercise was to determine those goals that the workshop participants as a group believed to be vital to gibbon conservation, and to ensure that all working groups considered these goals within their own scope of recommendations as appropriate.

Prioritized Workshop Goals

1. Preserve metapopulation / connect fragments (57 pts).
2. Optimize law enforcement (46 pts).
3. Promote public awareness and education (34 pts).
4. Stop or control habitat loss / forest conversion (31 pts).
5. Continue survey and monitoring efforts (20 pts).
6. Revitalize Siberut Biosphere Reserve (14 pts).
7. Identify potential habitat for reintroduction (10 pts).
8. Provide incentives to preserve klossi (9 pts).
9. Optimize rescue and rehabilitation center (8 pts).
10. Consider non-protected forest as gibbon habitat (6 pts).
11. Develop a captive husbandry manual (6 pts).
12. Update information about pet trade (5 pts).
13. Stop hunting and trade (3 pts).
14. Develop gibbon reintroduction guidelines (2 pts).
15. Update International Studbook (2 pts).
16. Promote capacity building and coordination (1 pts).
17. Promote coordination between *ex situ* and management authority.
18. Bring back traditional wisdom.
19. Stop future mining.
20. Develop a global captive management program.

Those goals of highest priority for workshop participants included efforts to prevent further habitat loss and population fragmentation, to control human activities that negatively impact gibbons, and to address data gaps that hinder effective conservation management strategies. *Ex situ* management and reintroduction efforts also are valued for their potential to contribute to *in situ* gibbon conservation.

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APPENDIX I

Workshop Participants / Agenda

Workshop Participant List

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WORKSHOP AGENDA

20 Feb.

Plenary presentations:

- Gibbon conservation and an Indonesian national conservation strategy (Tonny Soehartono, Dir. Biodiversity Conservation, PHKA)
- Silvery Gibbon Project (Karen Payne, SGP)
- Gibbon taxonomy (Alan Mootnick, GCC)
- 2001 Indonesian Primate CAMP Overview (Noviar Andayani, APAPI)
- Introduction to CBSG & workshop process (Kathy Traylor-Holzer, CBSG)

Formation of working groups (geographic):

- Sumatra / Mentawai (4 taxa)
- Java (*H. moloch*)
- Kalimantan (2 taxa)

Group Task 1: Update Taxon Data Sheets for each taxon.

Plenary session: Working group reports / discussion

21 Feb.

Plenary presentations:

- Land-use planning in Kalimantan Barat (Rusnawir Hamid, BAPPEDA)
- Trade in gibbons (Ani Mardiasuti, WCS)
- Captive management at Howletts (Ern Thetford, Howletts)
- Captive management at PSSP (Entang Iskandar, PSSP)

Formation of working groups:

- Sumatra / Mentawai (4 taxa)
- Java (*H. moloch*)
- Kalimantan (2 taxa)
- *Ex situ* management

Group Task 2: Identify and prioritize issues/challenges for gibbon conservation.

Group Task 3: Identify goals to address top priority issues.

Plenary session: Working group reports / discussion

22 Feb.

Group Task 4: Develop recommended actions to meet top priority goals.

Plenary session: Working group reports / discussion

Plenary Task: Group prioritization of goals across taxa

Group Task 4 (cont.): Completion of recommended actions to address top priority issues.

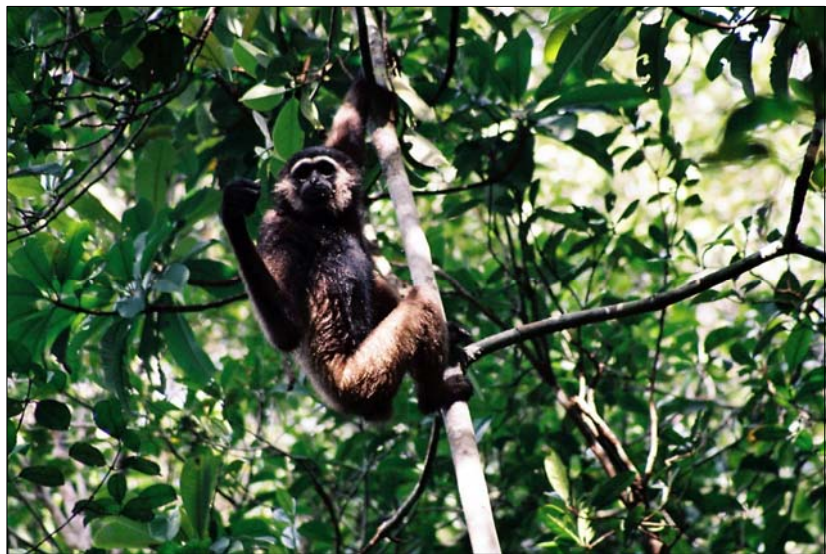
Plenary session: Working group reports / discussion

Closing

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APPENDIX II

Revised Taxon Data Sheets

**Conservation Assessment Management Plan
Taxon Data Sheet**

CAMP: _____ Date: 20-22 February 2008

This assessment is a national/regional assessment
 a global assessment

1. Scientific Name Hylobates albibarbis Authority (date): Groves 2001, Geissmann, 2005

1A. Synonyms: Scientific synonym / ambiguities Authority (date)

1B. Scientific nomenclature:
FAMILY: Hylobatidae
ORDER: Primata
CLASS: Mammalia

1C. Common Names: Name/synonym Language
White-bearded gibbon, albibarbis gibbon English BUT Kalimantan Working

Group propose a name change, both in Latin name and common English name.
Uwa-uwa, kelampiau, kalawet

1D. Taxonomic level: Species Notes: _____
 Subspecies _____
 Variety _____
 Form _____

Indigenous? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Countries: _____ Primary? <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>

2. Habitat and Distribution of the Taxon (rank 1st, 2nd, & 3rd only)

Habitat Type (see Habitat sheet)	Score	Comment
<u>Tropical rain forest</u>	<u>—</u>	<u>—</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

2A. Life form (plant): dipterocarp forest, pandan shrub, Moraceae, Myrtaceae, Clusiaceae
 2B. Notes on habitat: Both in protected and non-protected areas
 2C. Niche: primary lowland forest, peat swamp forest
 2D. Historical distrib: Indonesia
 2E. Current distrib: Indonesia
 2F. Geograph. extent: east of Kapuas River (west Kalimantan), west of Barito River (central Kalimantan), south of Busang River (central Kalimantan), north and west of Schwaner Mountains
 2G Migration regions: _____
Provinces: Central Kalimantan, West Kalimantan

3. Approximate Area of Occurrence of the Taxon in and Around the Area of Study/ Sighting/ Collection

(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)
 Occurrence area: < 100 km² 101-5,000 km² 5,001 – 20,000 km² >20,000 km² UNKNOWN
 Notes (Occurrence) KalTeng: Sabangau National Park, Tanjung Puting National Park, Bukit Baka Bukit Raya National Park, Hampapak Tahura, Lamandau, Tuanan, Kendawangan NR, Arut Blantikan. KalBar: Rongga Perai LH, Gunung Palung NP, Sungai Putri (Kalbar)

4. Approximate Area of Occupancy of the taxon in and Around the Area of Study/ Collection

(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')
 Area of Occupancy: < 10 km² 11-500 km² 501 – 2,000 km² >2,001 km²
 Notes (Occupancy): While areas of occupancy are known, there are many unsurveyed areas and we would not like to guess at the total area without further surveys.

5. No. of Subpopulations in which the Taxon is Distributed: 10-20

- Is there a continuous decline in subpopulations? Yes No
- Are there extreme fluctuations in subpopulations? Yes No Unknown
- Percentage of population that lives in most important sub area: UNKNOWN %

Notes (subpopulations)_ To identify the number of sub-populations we (Kalimantan Group) accept that a viable population must contain minimum 500 individuals assuming an average territory size 20ha per mated pair thus 3500ha for a viable sub-population.

5b. Specific Description of Major Subpopulations and Sub Areas – SEE GIS MAP

Sabangau National Park
 AreaSize: 5300 Km² GIS latitude _____ Longitude _____ Geographic Location: Kalteng
 Population (best est.) High: 32000 Low: 20000 Habitat: peat-swamp forest (secondary)
 Notes: Cheyne et al (2007) reference

Bukit Baka Bukit Raya National Park
 AreaSize: 1800 Km² GIS latitude _____ Longitude _____ Geographic Location: Kalteng
 Population (best est.) High: _____ Low: _____ Habitat: primary dipterocarp forest
 Notes: No population estimate

Tanjung Puting National Park
 AreaSize: 3040 Km² GIS latitude _____ Longitude _____ Geographic Location: Kalteng
 Population (best est.) High: _____ Low: _____ Habitat: lowland forest, peat-swamp forest
 Notes: No population estimate

Gunung Palung National
 AreaSize: 900 Km² GIS latitude _____ Longitude _____ Geographic Location: Kalbar
 Population (best est.) High: _____ Low: _____ Habitat: lowland forest
 Notes: No population estimate

NOTES – additional areas for this species mentioned in section 3 are confirmed areas but data are not available on size of area or population numbers.

For additional sub areas, use extension sheet

6. Habitat Status: Contiguous Fragmented Not known

- 6A. Is there any change in the habitat where the taxon occurs? Yes No
- If yes, Decrease in area Increase in area Stable in area Unknown

- 6B. If decreasing, what has been the decrease in Habitat area? UNKNOWN
- approximate change Less than 20 % over how many years: _____ Years
- 21 - 50 %
- 51 - 80 %
- >80 %

- 6C. If stable or unknown, do you predict a decline in habitat?
- Approximate change Less than 20 % for how many years: _____ Years
- 21 - 50 %
- 51 - 80 %
- > 80 %

6D. State primary cause of change: kelapa sawit (palm oil), Acacia mangium and HTI plantations, logging, fires, mining.

6E. Is there any change in the quality of the habitat where the taxon occurs? Yes No

- If yes, Describe: Decrease in Quality
- Increase in Quality
- Stable
- Unknown

6F. State primary cause of change: plantations, logging and fire

Notes: _____

9-10. Population Numbers and Trends

9A. Generation (average age of parents in population) NA Years Range/qualifier: _____

	<u>Total</u>	<u>Mature Breeding Pairs</u>		
9B. Global Population:	> 25,000 but unknown max _____	_____	_____	
	<input checked="" type="checkbox"/> Declining	<input type="checkbox"/> Declining	<input type="checkbox"/> <50	
10. Recent past trends:	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input type="checkbox"/> <250	
	<input type="checkbox"/> Stable	<input type="checkbox"/> Stable	<input type="checkbox"/> <2500	
	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<input type="checkbox"/> <10,000	
Rate of decline (past)	_____%	_____%	<input type="checkbox"/> >10,000	
For how many years?	_____years	_____years		
Will population decline (future)?	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no	<u>% Mat. individuals in one sub-population</u>	
Predicted decline rate	_____%	_____%		<input type="checkbox"/> 100 <input type="checkbox"/> >95
For how many years?	_____years	_____years		<input type="checkbox"/> >90 <input type="checkbox"/> <90

Notes on Population: Detailed data only available for Sabangau and data only since 2005 so no long-term demographic data are available _____

11. Population Data Quality

Qualifiers:	<input type="checkbox"/> Observed	<input type="checkbox"/> Inferred	<input type="checkbox"/> Suspected	<input type="checkbox"/> Estimated	<input type="checkbox"/> Projected
Uncertainty	<input type="checkbox"/> 95% confidence	<input type="checkbox"/> Minimum/Maximum value	<input type="checkbox"/> Range of Opinion	<input type="checkbox"/> Evidentiary	
	<input type="checkbox"/> Precautionary	<input type="checkbox"/> Subjective	<input type="checkbox"/> Hypothetical	<input type="checkbox"/> Point estimate	<input type="checkbox"/> Range estimate
Are population estimates based on:	<input checked="" type="checkbox"/> Census or monitoring	<input checked="" type="checkbox"/> Field study	<input checked="" type="checkbox"/> Informal sightings	<input type="checkbox"/> Literature	<input type="checkbox"/> Hearsay/belief
	<input type="checkbox"/> Indirect information	<input type="checkbox"/> Museum records			

Notes on Data Quality: _____

12. Recent Field Studies

Researcher names, Location, Dates, Topics:
 Dr Susan Cheyne – Sabangau Gibbon Project – CIMTROP and Oxford University _____
 Biodiversity Monitoring Tuanan (UNAS) _____
 Dr Andrew Marshall, Gibbon Project Gunung Palung – UC Davis _____

13. Status (Red List)

13A. Prior to Workshop:	<u>Status</u>	<u>Criteria</u>	<u>Red List Version</u>	<u>Date of Assessment</u>
Global:	_____ LR/nt _____	_____	2003 _____	_____
National:	_____	_____	_____	_____
13B. Cites:	_____	13C. Natl wildlife Legislation:	_____	
13D. Natl Red Data Book:	_____	13E. Intl Red Data Book:	_____	
13F. Other legislation:	_____			
13G. Protected area presence:	_____			
13H. Endorsed protection plan:	_____			

13I Current (this workshop)

We support the conclusions of Geissmann (2007) and recommend that the provisional new status of Endangered be ratified.
 IUCN Red List Cat ENDANGERED Criteria: _____ Version: _____
 Notes: _____

If Regional Assessment, enter regional supplementary information:

a. Regional population is ____ percent of global population of ____.

b. Is the regional population isolated? Yes No

c. Migration between regional and neighboring populations? Yes No

d. Regional population enhanced by in-migration? Yes No

e. Regional population stabilized by in-migration? Yes No

f. Is Regional population a sink? Yes No

g. Has global population decreased in recent years? Yes No
If yes, has decreased ____% over ____ years

h. Will global population decrease in future years? Yes No
If yes, will decrease ____% over ____ years

If the IUCN Red List assignment for the regional/national population was upgraded or downgraded due to the influence of neighboring populations shown above, list both original and adjusted categories and give an explanation for the adjustment made.

Original Category: _____ Adjusted Category: _____

Explanation for adjustment: _____

14. Conservation Measures and Research Recommendations (see Conservation measures sheet)

	In	Needed	Old in	Needed
A. Conservation Measure/Description	Place		Place	
Habitat protection _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locating and protecting populations _____	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Research Recommendations	Is research recommended for taxon? <input checked="" type="checkbox"/> Yes			
<i>Specify:</i>	<input type="checkbox"/> Genetic research	<input checked="" type="checkbox"/> Taxonomic research	<input type="checkbox"/> Life history	
<input checked="" type="checkbox"/> Survey studies	<input type="checkbox"/> Limiting factor research	<input type="checkbox"/> Epidemiology	<input checked="" type="checkbox"/> Trade	
C. Is Population and Habitat Viability Assessment recommended?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
D. PHVA Notes:	_____			

15. Management Recommendations for the Taxon

<input checked="" type="checkbox"/> Habitat management	<input checked="" type="checkbox"/> Wild pop management	<i>Specify:</i> <input checked="" type="checkbox"/> Monitoring	<input checked="" type="checkbox"/> Translocation
<input type="checkbox"/> Sustainable utilization	<input checked="" type="checkbox"/> Public education	<input type="checkbox"/> Genome Resource Banking	
<input type="checkbox"/> Limiting factor mgt.	<input type="checkbox"/> Captive breeding	<input checked="" type="checkbox"/> Work in local communities	

10. Notes: Disease monitoring in the wild as well as parasites and Look at behaviour of gibbons in fragmented forests
 Translocation can be done with gibbons in fragments but gibbons must be checked for disease before re-release

16. Captive Management Recommendations

If captive breeding recommended in Q15, is it for:

<input type="checkbox"/> Species recovery	<input checked="" type="checkbox"/> Education	<input checked="" type="checkbox"/> Reintroduction	<input type="checkbox"/> Benign introduction
<input checked="" type="checkbox"/> Research	<input checked="" type="checkbox"/> Husbandry/welfare	<input type="checkbox"/> Sustainable use	<input type="checkbox"/> Preservation of live genome

Notes: _____

17. Do Captive Stocks Already Exist?

Yes No

17A. Names of facilities: Kalaweit Gibbon Project – Kalimantan Tengah (where detailed information is known about the individuals) _____

17B. No. in captivity:	<u>Males</u>	<u>Females</u>	<u>Unsexed</u>	<u>Total</u>	<u>Unknown</u>
	_____	_____	_____	80	_____

17C. Does a coordinated species management program exist for this species? Yes **NO**

If yes, specify _____

17D. Is a coordinated Species Management Program recommended for range country(ies)? Yes

If yes, specify To clarify the status and future of *Hylobates albibarbis* _____

18. Level of Captive Breeding/Cultivation Recommended

- Initiate ex situ program in 3 years
- Initiate ex situ program within 3 years
- No ex situ program recommended
- Ongoing ex situ program decreased
- Ongoing ex situ program intensified or increased
- Pending recommendations of PHVA workshop

19. Are Techniques Established to Propagate the Taxon?

- Techniques known for this taxon or similar taxon
- Some techniques known for taxon or similar taxon
- Techniques not known at all
- Information not available with this group

Comments - Species propagation is carried out *in situ* with the view to rehabilitation and reintroduction in the historic home range.

20. Other Comments

Lobbying of local government and local people. Finding the correct people in local government to approach about the conservation of gibbons. Need to conserve gibbons in non-protected areas as there are many gibbons in viable forest which has no protected status. Inter-departmental cooperation to protect gibbons and to ensure the status of all protected areas is clear to all local people.

21. Sources:

Cheyne, S. M., C. J. H. Thompson, A. C. Phillips, R. M. C. Hill and S. H. Limin 2007. Density and Population Estimate of Gibbons (*Hylobates albibarbis*) in the Sabangau Catchment, Central Kalimantan, Indonesia. Primates(DOI: 10.1007/s10329-007-0063-0).

Geissmann, T. 2007. Status reassessment of the gibbons: Results of the Asian Primate Red List Workshop 2006. Gibbon Journal 3: 5-15.

Groves, C. 2001. Primate Taxonomy. Washington DC, Smithsonian Institute Press.

22. Compilers:

23. Reviews: Date Reviewers Results and Outcome

Date Completed: __

Compiler: _____

**Conservation Assessment Management Plan
Taxon Data Sheet**

CAMP: _____ Date: 20-22 February 2008

This assessment is a national/regional assessment
 a global assessment

1. Scientific Name Hylobates muelleri **Authority (date):** _____

1A. Synonyms: Scientific synonym / ambiguities Authority (date)
SUB SPECIES

Hylobates muelleri muelleri
Hylobates muelleri funerus
Hylobates muelleri abbotti

1B. Scientific nomenclature:
FAMILY: Hylobatidae
ORDER: Primata
CLASS: Mammalia

1C. Common Names: Name/synonym Language
Bornean gray, Müellers gibbon, English
Uwa-uwa, kelampiau, kalawet, kaliawat Indonesian/local names

1D. Taxonomic level: Species Notes: _____
 Subspecies _____
 Variety _____
 Form _____

Indigenous? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Countries: _____ Primary? <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>

2. Habitat and Distribution of the Taxon (*rank 1st, 2nd, & 3rd only*)

Habitat Type (<i>see Habitat sheet</i>)	Score	Comment
<u>Tropical rain forest</u>	—	—
_____	_____	_____
_____	_____	_____
_____	_____	_____

2A. Life form (plant): dipterocarp forest, pandan shrub, Moraceae, Myrtaceae, Clusiaceae, kerangas forest
 2B. Notes on habitat: Both in protected and non-protected areas
 2C. Niche: primary lowland forest, peat swamp forest
 2D. Historical distrib: Indonesia
 2E. Current distrib: Indonesia
 2F. Geograph. extent: west of Kapuas River (west Kalimantan), east of Barito River (central Kalimantan), Busang River (central Kalimantan) – gibbons found in west and south Kalimantan
 2G Migration regions: _____
Provinces: West Kalimantan, South Kalimantan

3. Approximate Area of Occurrence of the Taxon in and Around the Area of Study/ Sighting/ Collection

(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: < 100 km² 101-5,000 km² 5,001 – 20,000 km² >20,000 km² UNKNOWN

Notes (Occurrence) KalTim: Bukit Suharto, Kutai NP, Gunung Lumut HL, Gunung Beratus HL, PT KEM (Gold mining area). East of Sungai Barito (Kalsel), north of Busang River. Betung Kerihun TN (Kalbar). Kec. Tali Sayan (Berau – Kaltim). Kab. Malinau (Kaltim), Danau Sentarum (north Kapuas, Kalbar), Bengalon (Kaltim), Kayan Mentarang NP (Kaltim).

4. Approximate Area of Occupancy of the taxon in and Around the Area of Study/ Collection

(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: < 10 km² 11-500 km² 501 – 2,000 km² >2,001 km²

Notes (Occupancy): While areas of occupancy are known, there are many unsurveyed areas and we would not like to guess at the total area without further surveys.

7. Threats (See threats sheet)

(Indicate Rank and check boxes as needed)

	Rank	past effect	pres eff.	fut eff.	lead to decline pop	under stood	rever sible	have ceased	Notes
1. Habitat Loss (Human Induced)									
logging		[x]	[x]	[x]	[x]	[]	[]	[]	primary threat
plantation		[x]	[x]	[x]	[x]	[]	[]	[]	
mining		[x]	[x]	[x]	[x]	[]	[]	[]	
fire		[x]	[x]	[x]	[x]	[]	[]	[]	
2. Alien Species									
		[]	[]	[]	[]	[]	[]	[]	
		[]	[]	[]	[]	[]	[]	[]	
3. Harvest/Exploitation									
Pet trade		[x]	[x]	[x]	[x]	[]	[]	[]	
Hunting gibbons		[x]	[x]	[x]	[x]	[]	[]	[]	
Harvest other forest products		[x]	[x]	[x]	[x]	[]	[]	[]	
4-5 Natural/Induced									
Fragmentation		[x]	[x]	[x]	[x]	[]	[]	[]	
Climate change		[]	[x]	[x]	[x]	[]	[]	[]	
6-10 Other threats									
		[]	[]	[]	[]	[]	[]	[]	
		[]	[]	[]	[]	[]	[]	[]	

For the most serious threat(s) indicate **number of 'locations'** (defined as a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present.) _____

Comment on Threats: _____

8. Trade:

8A. Is the taxon in trade? [x]Yes Type of trade: [x] Local [] Commercial [x] National [x] International

8b Parts in Trade: (See list)

Purpose	Parts	How removed	Barter	Local	Natl	Intl
Pet trade	Live animal	Kill mother& remove infant	[x]	[x]	[x]	[x]
_____	_____	_____	[]	[]	[]	[]
_____	_____	_____	[]	[]	[]	[]
_____	_____	_____	[]	[]	[]	[]

Comment: Information only on trade in Indonesia 1500-2000 individuals still in trade or being kept as pets _____

8c. Which form of trade is resulting in a perceived or inferred population decline? (Specify form)

The pet trade is contributing to population decline due to the method of capture. _____

- | Parts List |
|------------------|
| Bones |
| Fur |
| Flowers |
| Glands |
| Hair |
| Horn |
| Live animal |
| Meat |
| Organ |
| Products |
| Roots |
| Seeds |
| Skin |
| Taxidermy models |
| Whole parts |

9-10. Population Numbers and Trends

9A. Generation (average age of parents in population) NA Years Range/qualifier: NA

	<u>Total</u>	<u>Mature Breeding Pairs</u>		
9B. Global Population:	UNKNOWN _____	_____	_____	
10. Recent past trends:	<input checked="" type="checkbox"/> Declining	<input type="checkbox"/> Declining	<input type="checkbox"/> <50	
	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input type="checkbox"/> <250	
	<input type="checkbox"/> Stable	<input type="checkbox"/> Stable	<input type="checkbox"/> <2500	
	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<input type="checkbox"/> <10,000	
Rate of decline (past)	_____%	_____%	<input type="checkbox"/> >10,000	
For how many years?	_____years	_____years		
Will population decline (future)?	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no	<u>% Mat. individuals in one sub-population</u>	
Predicted decline rate	_____%	_____%		<input type="checkbox"/> 100 <input type="checkbox"/> >95
For how many years?	_____years	_____years		<input type="checkbox"/> >90 <input type="checkbox"/> <90

Notes on Population: Detailed data not available so no long-term demographic data are available _____

11. Population Data Quality

Qualifiers: Observed Inferred Suspected Estimated Projected

Uncertainty 95% confidence Minimum/Maximum value Range of Opinion Evidentiary

Precautionary Subjective Hypothetical Point estimate Range estimate

Are population estimates based on: Census or monitoring Field study Informal sightings

Indirect information Museum records Literature

Hearsay/belief

Notes on Data Quality: There is a serious lack of accurate and detailed information on population numbers of muelleri_ _____

12. Recent Field Studies

Researcher names, Location, Dates, Topics:

Teruki Oka (1997) – JICA

Expedition Betung Kerihun (1997) - ITTO

13. Status (Red List)

13A. Prior to Workshop: Status Criteria Red List Version Date of Assessment

Global: endangered _____

National: _____

13B. Cites: _____ 13C. Natl wildlife Legislation: _____

13D. Natl Red Data Book: _____ 13E. Intl Red Data Book: _____

13F. Other legislation: _____

13G. Protected area presence: _____

13H. Endorsed protection plan: _____

13I Current (this workshop)

IUCN Red List Cat ENDANGERED Criteria: _____ Version: _____

Notes: _____

If Regional Assessment, enter regional supplementary information:

a. Regional population is ____ percent of global population of ____.

b. Is the regional population isolated? Yes No

c. Migration between regional and neighboring populations? Yes No

d. Regional population enhanced by in-migration? Yes No

e. Regional population stabilized by in-migration? Yes No

f. Is Regional population a sink? Yes No

g. Has global population decreased in recent years? Yes No
If yes, has decreased ____% over ____ years

h. Will global population decrease in future years? Yes No
If yes, will decrease ____% over ____ years

If the IUCN Red List assignment for the regional/national population was upgraded or downgraded due to the influence of neighboring populations shown above, list both original and adjusted categories and give an explanation for the adjustment made.

Original Category: _____ Adjusted Category: _____

Explanation for adjustment: _____

14. Conservation Measures and Research Recommendations (see Conservation measures sheet)

	In		Old in	
<u>Conservation Measure/Description</u>	<u>Place</u>	<u>Needed</u>	<u>Place</u>	<u>Needed</u>
Habitat protection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locating and protecting populations	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Research Recommendations Is research recommended for taxon? Yes

Specify:

<input type="checkbox"/> Genetic research	<input checked="" type="checkbox"/> Taxonomic research	<input type="checkbox"/> Life history	
<input checked="" type="checkbox"/> Survey studies	<input type="checkbox"/> Limiting factor research	<input type="checkbox"/> Epidemiology	<input checked="" type="checkbox"/> Trade

C. Is Population and Habitat Viability Assessment recommended? Yes No

D. PHVA Notes: _____

15. Management Recommendations for the Taxon

<input checked="" type="checkbox"/> Habitat management	<input checked="" type="checkbox"/> Wild pop management	<input checked="" type="checkbox"/> Monitoring	<input checked="" type="checkbox"/> Translocation
<input type="checkbox"/> Sustainable utilization	<input checked="" type="checkbox"/> Public education	<input checked="" type="checkbox"/> Genome Resource Banking	
<input type="checkbox"/> Limiting factor mgt.	<input type="checkbox"/> Captive breeding	<input checked="" type="checkbox"/> Work in local communities	

Specify:

11. Notes: Disease monitoring in the wild as well as parasites and Look at behaviour of gibbons in fragmented forests
 Translocation can be done with gibbons in fragments but gibbons must be checked for disease before re-release. Surveys on all three sub-species are needed.

16. Captive Management Recommendations

If captive breeding recommended in Q15, is it for:

<input type="checkbox"/> Species recovery	<input checked="" type="checkbox"/> Education	<input checked="" type="checkbox"/> Reintroduction	<input type="checkbox"/> Benign introduction
<input checked="" type="checkbox"/> Research	<input checked="" type="checkbox"/> Husbandry/welfare	<input type="checkbox"/> Sustainable use	<input type="checkbox"/> Preservation of live genome

Notes: _____

17. Do Captive Stocks Already Exist?

Yes No

17A. Names of facilities: Kalaweit Gibbon Project – Kalimantan Tengah, Samboja-Lestari, Taman Binatang Ragunan (where detailed information is known about the individuals)

17B. No. in captivity:	<u>Males</u>	<u>Females</u>	<u>Unsexed</u>	<u>Total</u>	<u>Unknown</u>
	_____	_____	_____	90 (data from Kalaweit only)	
				4 (data from Samboja-Lestari)	
				1 (data from Ragunan only)	_____

17C. Does a coordinated species management program exist for this species? Yes **NO**

If yes, specify _____

17D. Is a coordinated Species Management Program recommended for range country(ies)? Yes

If yes, specify To clarify the status and future of *Hylobates albibarbis* _____

18. Level of Captive Breeding/Cultivation Recommended

- Initiate ex situ program in 3 years
- Initiate ex situ program within 3 years
- No ex situ program recommended
- Ongoing ex situ program decreased
- Ongoing ex situ program intensified or increased
- Pending recommendations of PHVA workshop

19. Are Techniques Established to Propagate the Taxon?

- Techniques known for this taxon or similar taxon
- Some techniques known for taxon or similar taxon
- Techniques not known at all
- Information not available with this group

Comments - Species propagation is carried out *in situ* with the view to rehabilitation and reintroduction in the historic home range.

20. Other Comments

Lobbying of local government and local people. Finding the correct people in local government to approach about the conservation of gibbons. Need to conserve gibbons in non-protected areas as there are many gibbons in viable forest which has no protected status. Inter-departmental cooperation to protect gibbons and to ensure the status of all protected areas is clear to all local people.

21. Sources:

Personal observations of members of the Kalimantan Working Group 2008.

22. Compilers:

23. Reviews: Date Reviewers Results and Outcome

Date Completed: __

Compiler: _____

**Conservation Assessment Management Plan
Taxon Data Sheet**

CAMP: _____ Date: _____

This assessment is a national/regional assessment
 a global assessment

1. Scientific Name: *Hylobates agilis* Authority (date): F. Cuvier 1821
 1A. Synonyms: Scientific synonym / ambiguities Authority (date)
H. rafflei Geoffroy 1821
H. unko Lesson 1840

1B. Scientific nomenclature:
 FAMILY: Hylobatidae _____
 ORDER: Primata _____
 CLASS: Mammalia _____

1C. Common Names: Name/synonym Language
 Agile gibbon ; black handed gibbon, dark-handed gibbon English
 Ungko (West Sumatra), Unka (Jambi), Waw wau lengan hitam (Indonesia)

1D. Taxonomic level: Species Notes: There is a dispute on H.a. as one species _____
 Subspecies or 2 (two) subspecies (A. Mootnick 2006 and C. Groves 2001)) _____
 Variety Ongoing genetic and morphological studies will determine this.
 Form

2. Habitat and Distribution of the Taxon (rank 1st, 2nd, & 3rd only)

Habitat Type (see Habitat sheet)	Score	Comment
Submontana	_____	800-1200 _____
Hill forest	_____	500-800 _____
Lowland forest	_____	0 - 500 _____
Swamp forest	_____	0 - 50 _____

Indigenous? <input type="checkbox"/> Yes <input type="checkbox"/> No
Countries: Primary?
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>

2A. Life form (plant): _____
 2B. Notes on habitat: H.a can also be found in mixed agro-forestry blocks and fragmented forest areas (less than 8 Ha) _____
 2C. Niche: upper, middle and lower canopy, and sometime on the ground. _____
 2D. Historical distrib: Indonesia (Sumatra and Java); Malay Peninsula and southern Thailand _____
 2E. Current distrib: Indonesia (Sumatra), Malay Peninsula and southern Thailand _____
 2F. Geograph. extent: All region in Sumatra except Riau Archipelago, Aceh and North Lake Toba _____
 2G. Migration regions: - _____
Provinces: North Sumatra, Riau, Jambi, West Sumatra, South Sumatra, Bengkulu, and Lampung.

3. Approximate Area of Occurrence of the Taxon in and Around the Area of Study/ Sighting/ Collection
 (Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: < 100 km² 101-5,000 km² 5,001 – 20,000 km² >20,000 km²
 Notes (Occurrence) _____

4. Approximate Area of Occupancy of the taxon in and Around the Area of Study/ Collection
 (Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: < 10 km² 11-500 km² 501 – 2,000 km² >2,001 km²
 Notes (Occupancy): larger than CAMP 2001 data based on new surveys _____

5. No. of Subpopulations in which the Taxon is Distributed: _____

Is there a continuous decline in subpopulations? Yes No

Are there extreme fluctuations in subpopulations? Yes No

Percentage of population that lives in most important sub area: ___80___ %

Notes (subpopulations)_The group agrees that around 80 % of H.a live in Protected Areas system in Sumatra _____

5b. Specific Description of Major Subpopulations and Sub Areas

AreaSize: ___ Km² GIS latitude _____ Longitude _____ Geographic Location: Kulai Tangang (Padang aro, Solok Selatan) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: in NP _____

AreaSize: ___ Km² GIS latitude _____ Longitude _____ Geographic Location: Sungai Mangun (Solok selatan) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: exist in fragmented forest _____

AreaSize: 60 ha GIS latitude _____ Longitude _____ Geographic Location) Lorong Gambir (Bangko, Merangin)_

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: fragment forest _____

AreaSize: 346.8 Km² GIS latitude _____ Longitude _____ Geographic Location: TN BBS (Lampung) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: in NP _____

AreaSize: ___ Km² GIS latitude _____ Longitude _____ Geographic Location: TN Way Kambas (Lampung) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: in NP _____

AreaSize: 600 Km² GIS latitude _____ Longitude _____ Geographic Location: TN Batang Gadis _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: in NP _____

AreaSize: 300 Km² GIS latitude _____ Longitude _____ Geographic Location: Batang Toru (Hutan Lindung) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: in protected forest _____

AreaSize: 300 Km² GIS latitude _____ Longitude _____ Geographic Location: SM Rimbang Baling (Riau) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: in game reserve _____

AreaSize: ___ Km² GIS latitude _____ Longitude _____ Geographic Location:) Bukit Balerejang (Bengkulu) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: _____

AreaSize: ___ Km² GIS latitude _____ Longitude _____ Geographic Location:) Tahura Minas (Kab. Minas, Riau) _____

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: Secondary forest _____

AreaSize: 200 Km² GIS latitude _____ Longitude _____ Geographic Location:) BBS-1 (Hutan Raya Bung Hatta-Lembah Anai)

Population (best est:) High: _____ Low: _____ Habitat: _

Notes: _____

For additional sub areas, use extension sheet

6. Habitat Status: Contiguous Fragmented Not known

6A. Is there any change in the habitat where the taxon occurs? Yes No

 If yes, Decrease in area Increase in area Stable in area Unknown

6B. If decreasing, what has been the decrease in Habitat area?

- approximate change Less than 20 % over how many years: ___10___ Years
- 21 - 50 %
- 51 - 80 %
- >80 %

6C. If stable or unknown, do you predict a decline in habitat?

- Approximate change Less than 20 % for how many years: 10 Years
 21 - 50 %
 51 - 80 %
 > 80 %

6D. State primary cause of change:

land conversion (oil palm, coffee, rubber, cinnamon) illegal logging, forest fire, encroachment

6E. Is there any change in the quality of the habitat where the taxon occurs? Yes No

- If yes, Describe: Decrease in Quality
 Increase in Quality
 Stable
 Unknown

6F. State primary cause of change: Change composition of vegetation, illegal logging, forest fire, land clearing, coal mining

7. Threats (See threats sheet)

(Indicate Rank and

check boxes as needed)

	Rank	past effect	pres eff.	fut eff.	lead to decline pop	under stood	rever sible	have ceased	Notes
1. Habitat Loss (Human Induced)									
Land conversion_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Encroachment_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Coal mining_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Alien Species									
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Harvest/Exploitation									
Hunting_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
4-5 Accidental/Persecution									
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
6-10 Other threats									
Hybridization_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

For the most serious threat(s) indicate **number of 'locations'** (defined as a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present.) _____

Comment on Threats: _____

8. Trade:

8A. Is the taxon in trade? Yes Type of trade: Local Commercial
 National International

8b Parts in Trade: (See list)

Purpose	Parts	How removed	Barter	Local	Natl	Intl
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment: _____

8c. Which form of trade is resulting in a perceived or inferred population decline? (Specify form)

Pet trade _____

Parts List
Bones
Fur
Flowers
Glands
Hair
Horn
Live animal
Meat
Organ
Products
Roots
Seeds
Skin
Taxidermy models
Whole parts

9-10. Population Numbers and Trends

9A. Generation (average age of parents in population) 15 Years Range/qualifier: _____

	<u>Total</u>	<u>Mature Breeding Pairs</u>		
9B. Global Population:	_____	_____	_____	
	<input checked="" type="checkbox"/> Declining	<input checked="" type="checkbox"/> Declining	<input type="checkbox"/> <50	
10. Recent past trends:	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input type="checkbox"/> <250	
	<input type="checkbox"/> Stable	<input type="checkbox"/> Stable	<input type="checkbox"/> <2500	
	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<input type="checkbox"/> <10,000	
Rate of decline (past)	_____%	_____%	<input type="checkbox"/> >10,000	
For how many years?	_____years	_____years		
Will population decline (future)?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	% Mat. individuals in one sub-population	
Predicted decline rate	_____%	_____%		<input type="checkbox"/> 100 <input type="checkbox"/> >95
For how many years?	_____years	_____years		<input type="checkbox"/> >90 <input type="checkbox"/> <90

Notes on Population: _____

11. Population Data Quality

Qualifiers:	<input checked="" type="checkbox"/> Observed	<input checked="" type="checkbox"/> Inferred	<input type="checkbox"/> Suspected	<input checked="" type="checkbox"/> Estimated	<input type="checkbox"/> Projected
Uncertainty	<input type="checkbox"/> 95% confidence	<input type="checkbox"/> Minimum/Maximum value	<input checked="" type="checkbox"/> Range of Opinion	<input type="checkbox"/> Evidentiary	
	<input type="checkbox"/> Precautionary	<input type="checkbox"/> Subjective	<input type="checkbox"/> Hypothetical	<input type="checkbox"/> Point estimate	<input type="checkbox"/> Range estimate
Are population estimates based on:	<input checked="" type="checkbox"/> Census or monitoring	<input checked="" type="checkbox"/> Field study	<input checked="" type="checkbox"/> Informal sightings	<input checked="" type="checkbox"/> Literature	<input type="checkbox"/> Hearsay/belief
	<input checked="" type="checkbox"/> Indirect information	<input type="checkbox"/> Museum records			

Notes on Data Quality: _____

12. Recent Field Studies

Researcher names, Location, Dates, Topics:

A. Elder, BBS, 2006-, Ecology _____

13. Status (Red List)

13A. Prior to Workshop:	<u>Status</u>	<u>Criteria</u>	<u>Red List Version</u>	<u>Date of Assessment</u>
Global:	Endangered _____	_____	_____	_____
National:	Protected _____	_____	_____	_____

13B. Cites: Appendix I _____ 13C. Natl wildlife Legislation: Law n.5 1990, PP7/1999

13D. Natl Red Data Book: _____ 13E. Intl Red Data Book: Vulnerable _____

13F. Other legislation: _____

13G. Protected area presence: BBS, Way Kambas, Bukit Rimbang, Bukit Baling, TNKS, and others _____

13H. Endorsed protection plan: National species action plan (draft) _____

13I Current (this workshop)

IUCN Red List Cat _____ Criteria: _____ Version: _____

Notes: _____

If Regional Assessment, enter regional supplementary information:

a. Regional population is ____ percent of global population of ____.

b. Is the regional population isolated? Yes No

c. Migration between regional and neighboring populations? Yes No

d. Regional population enhanced by in-migration? Yes No

e. Regional population stabilized by in-migration? Yes No

f. Is Regional population a sink? Yes No

g. Has global population decreased in recent years? Yes No
If yes, has decreased ____% over ____ years

h. Will global population decrease in future years? Yes No
If yes, will decrease ____% over ____ years

If the IUCN Red List assignment for the regional/national population was upgraded or downgraded due to the influence of neighboring populations shown above, list both original and adjusted categories and give an explanation for the adjustment made.

Original Category: _____ Adjusted Category: _____

Explanation for adjustment: _____

14. Conservation Measures and Research Recommendations (see Conservation measures sheet)

	In	Needed	Old in	Needed
A. <u>Conservation Measure/Description</u>	<u>Place</u>		<u>Place</u>	
Stop hunting _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control habitat loss _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Research Recommendations Is research recommended for taxon? Yes

Specify:

<input checked="" type="checkbox"/> Survey studies	<input checked="" type="checkbox"/> Genetic research	<input checked="" type="checkbox"/> Taxonomic research	<input checked="" type="checkbox"/> Life history
	<input checked="" type="checkbox"/> Limiting factor research	<input checked="" type="checkbox"/> Epidemiology	<input checked="" type="checkbox"/> Trade

C. Is Population and Habitat Viability Assessment recommended? Yes No

D. PHVA Notes: To be conducted as soon as possible _____

15. Management Recommendations for the Taxon

<input checked="" type="checkbox"/> Habitat management	<input checked="" type="checkbox"/> Wild pop management	<input checked="" type="checkbox"/> Monitoring	<input checked="" type="checkbox"/> Translocation
<input type="checkbox"/> Sustainable utilization	<input checked="" type="checkbox"/> Public education	<input checked="" type="checkbox"/> Genome Resource Banking	
<input type="checkbox"/> Limiting factor mgt.	<input checked="" type="checkbox"/> Captive breeding	<input checked="" type="checkbox"/> Work in local communities	

Notes: _____

16. Captive Management Recommendations

If captive breeding recommended in Q15, is it for:

<input checked="" type="checkbox"/> Species recovery	<input checked="" type="checkbox"/> Education	<input checked="" type="checkbox"/> Reintroduction	<input type="checkbox"/> Benign introduction
<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Husbandry	<input type="checkbox"/> Sustainable use	<input type="checkbox"/> Preservation of live genome

Notes: _____

**Conservation Assessment Management Plan
Taxon Data Sheet**

CAMP: _____ Date: _____

This assessment is a national/regional assessment
 a global assessment

1. Scientific Name: *Hylobates lar*

Authority (date): Linnaeus 1771

1A. Synonyms: Scientific synonym / ambiguities

Authority (date)

H. entelloides

Geoffroy 1842

H. albimanus vestitus

Miller 1942

P. variegatus

Geoffroy 1812

Phitecus varius

Latreille 1801

1B. Scientific nomenclature:

FAMILY: Hylobatidae

ORDER: Primata

CLASS: Mammalia

1C. Common Names:

Name/synonym

Language

Sumatran lar gibbon ; white-handed gibbon, English
Ungko lengan putih (North Sumatra), Sarudung (Aceh), Waw wau lengan putih (Indonesia)

1D. Taxonomic level: Species Notes: _____

Subspecies

Variety

Form

Indigenous? Yes No

Countries: Primary?

2. Habitat and Distribution of the Taxon (rank 1st, 2nd, & 3rd only)

Habitat Type (see Habitat sheet)	Score	Comment
<u>Submontana</u>	_____	800-1200
<u>Hill forest</u>	_____	500-800
<u>Lowland forest</u>	_____	0 - 500
<u>Swamp forest (based on new survey)</u>	_____	_____

2A. Life form (plant): _____

2B. Notes on habitat: H.a can also be found in mixed agro-forestry blocks (rubber and oil palm) and fragmented forest areas (less than 0,08 sq km).

2C. Niche: upper, middle and lower canopy.

2D. Historical distrib: Indonesia, Malay Peninsula, Thailand, Myanmar, and Southern China

2E. Current distrib: Indonesia, Malay Peninsula, Thailand, Myanmar, and Southern China

2F. Geograph. extent: Aceh and North Sumatra

2G Migration regions: -

Provinces: North Sumatra and Aceh (NAD).

3. Approximate Area of Occurrence of the Taxon in and Around the Area of Study/ Sighting/ Collection

(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: < 100 km² 101-5,000 km² 5,001 – 20,000 km² >20,000 km²

Notes (Occurrence) _____

4. Approximate Area of Occupancy of the taxon in and Around the Area of Study/ Collection

(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: < 10 km² 11-500 km² 501 – 2,000 km² >2,001 km²

Notes (Occupancy): _____

5. No. of Subpopulations in which the Taxon is Distributed: _____

Is there a continuous decline in subpopulations? Yes No

Are there extreme fluctuations in subpopulations? Yes No

Percentage of population that lives in most important sub area: _____70 - 80____ %

Notes (subpopulations)_The group agrees that around 70-80 % of H.I live in Protected Areas system in Northern Sumatra_

5b. Specific Description of Major Subpopulations and Sub Areas

AreaSize:_____Km² GIS latitude _____ Longitude _____ Geographic Location:_____

Population (best est:) High:_____ Low:_____ Habitat:_____

Notes:_____

AreaSize:_____Km² GIS latitude _____ Longitude _____ Geographic Location:_____

Population (best est:) High:_____ Low:_____ Habitat:_____

Notes:_____

AreaSize:_____Km² GIS latitude _____ Longitude _____ Geographic Location:_____

Population (best est:) High:_____ Low:_____ Habitat:_____

Notes:_____

For additional sub areas, use extension sheet

6. Habitat Status: Contiguous Fragmented Not known

6A. Is there any change in the habitat where the taxon occurs? Yes No

If yes, Decrease in area Increase in area Stable in area Unknown

6B. If decreasing, what has been the decrease in Habitat area?

approximate change Less than 20 % over how many years: _____10____ Years
 21 - 50 %
 51 - 80 %
 >80 %

6C. If stable or unknown, do you predict a decline in habitat?

Approximate change Less than 20 % for how many years: _____10____ Years
 21 - 50 %
 51 - 80 %
 > 80 %

6D. State primary cause of change:

land conversion (oil palm, coffee, rubber) illegal logging, encroachment

6E. Is there any change in the quality of the habitat where the taxon occurs? Yes No

If yes, Describe: Decrease in Quality
 Increase in Quality
 Stable
 Unknown

6F. State primary cause of change: Change composition of vegetation, illegal logging and land clearing

Notes: _____

9-10. Population Numbers and Trends

9A. Generation (average age of parents in population) 18 Years Range/qualifier: _____

	<u>Total</u>	<u>Mature Breeding Pairs</u>		
9B. Global Population:	<u>30000</u>	<u>10000</u>	_____	
	<input checked="" type="checkbox"/> Declining	<input checked="" type="checkbox"/> Declining	<input type="checkbox"/> <50	
10. Recent past trends:	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input type="checkbox"/> <250	
	<input type="checkbox"/> Stable	<input type="checkbox"/> Stable	<input type="checkbox"/> <2500	
	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<input type="checkbox"/> <10,000	
Rate of decline (past)	<u>20</u> %	<u>20</u> %	<input type="checkbox"/> >10,000	
For how many years?	<u>10</u> years	<u>10</u> years		
Will population decline (future)?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	% Mat. individuals in one sub-population	
Predicted decline rate	<u>N/A</u> %	_____%		<input type="checkbox"/> 100 <input type="checkbox"/> >95
For how many years?	_____ years	_____ years		<input type="checkbox"/> >90 <input type="checkbox"/> <90

Notes on Population: Since we don't have new information, we report those listed in CAMP 2001 _____

11. Population Data Quality

- Qualifiers: Observed Inferred Suspected Estimated Projected
- Uncertainty 95% confidence Minimum/Maximum value Range of Opinion Evidentiary
- Precautionary Subjective Hypothetical Point estimate Range estimate
- Are population estimates based on: Census or monitoring Field study Informal sightings
- Indirect information Museum records Literature
- Hearsay/belief

Notes on Data Quality: _____

12. Recent Field Studies

Researcher names, Location, Dates, Topics:

13. Status (Red List)

13A. Prior to Workshop:	<u>Status</u>	<u>Criteria</u>	<u>Red List Version</u>	<u>Date of Assessment</u>
Global:	Endangered _____	_____	_____	_____
National:	Protected _____	_____	_____	_____

13B. Cites: Appendix I _____ 13C. Natl Wildlife Legislation: Law n.5 1990, PP7/1999

13D. Natl Red Data Book: _____ 13E. Intl Red Data Book: Vulnerable _____

13F. Other legislation: _____

13G. Protected area presence: Gunung Leuser NP _____

13H. Endorsed protection plan: National species action plan (draft) _____

13I Current (this workshop)

IUCN Red List Cat: Endangered _____ Criteria: _____ Version: _____

Notes: _____

If Regional Assessment, enter regional supplementary information:

a. Regional population is ____ percent of global population of ____.

b. Is the regional population isolated? Yes No

c. Migration between regional and neighboring populations? Yes No

d. Regional population enhanced by in-migration? Yes No

e. Regional population stabilized by in-migration? Yes No

f. Is Regional population a sink? Yes No

g. Has global population decreased in recent years? Yes No
If yes, has decreased ____% over ____ years

h. Will global population decrease in future years? Yes No
If yes, will decrease ____% over ____ years

If the IUCN Red List assignment for the regional/national population was upgraded or downgraded due to the influence of neighboring populations shown above, list both original and adjusted categories and give an explanation for the adjustment made.

Original Category: _____ Adjusted Category: _____

Explanation for adjustment: _____

14. Conservation Measures and Research Recommendations (see Conservation measures sheet)

	In		Old in	
A. <u>Conservation Measure/Description</u>	<u>Place</u>	<u>Needed</u>	<u>Place</u>	<u>Needed</u>
Stop hunting _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control habitat loss _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Research Recommendations Is research recommended for taxon? Yes

Specify:

<input checked="" type="checkbox"/> Survey studies	<input checked="" type="checkbox"/> Genetic research	<input checked="" type="checkbox"/> Taxonomic research	<input checked="" type="checkbox"/> Life history
	<input checked="" type="checkbox"/> Limiting factor research	<input checked="" type="checkbox"/> Epidemiology	<input checked="" type="checkbox"/> Trade

C. Is Population and Habitat Viability Assessment recommended? Yes No

D. PHVA Notes: To be conducted as soon as possible _____

15. Management Recommendations for the Taxon

<input checked="" type="checkbox"/> Habitat management	<input checked="" type="checkbox"/> Wild pop management	<input checked="" type="checkbox"/> Monitoring	<input checked="" type="checkbox"/> Translocation
<input type="checkbox"/> Sustainable utilization	<input checked="" type="checkbox"/> Public education	<input checked="" type="checkbox"/> Genome Resource Banking	
<input type="checkbox"/> Limiting factor mgt.	<input checked="" type="checkbox"/> Captive breeding	<input checked="" type="checkbox"/> Work in local communities	

Notes: _____

16. Captive Management Recommendations

If captive breeding recommended in Q15, is it for:

<input checked="" type="checkbox"/> Species recovery	<input checked="" type="checkbox"/> Education	<input checked="" type="checkbox"/> Reintroduction	<input type="checkbox"/> Benign introduction
<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Husbandry	<input type="checkbox"/> Sustainable use	<input type="checkbox"/> Preservation of live genome

Notes: _____

**Conservation Assessment Management Plan
Taxon Data Sheet**

CAMP: _____ Date: _____

This assessment is a national/regional assessment
 a global assessment

1. Scientific Name: *Symphalangus syndactylus* **Authority (date):** Raffles 1821
 1A. Synonyms: Scientific synonym / ambiguities Authority (date)
Hylobates syndactylus Raffles
Symphalangus syndactylus synda ???
Simia syndactyla Raffles

1B. Scientific nomenclature:
 FAMILY: Hylobatidae
 ORDER: Primata
 CLASS: Mammalia

1C. Common Names: Name/synonym Language
 Siamang English
 Siamang, Imbo (North Sumatra), Amang (Bengkulu) (Indonesia)

1D. Taxonomic level: Species Notes: _____
 Subspecies
 Variety
 Form

2. Habitat and Distribution of the Taxon (*rank 1st, 2nd, & 3rd only*)

<u>Habitat Type</u> (<i>see Habitat sheet</i>)	<u>Score</u>	<u>Comment</u>
<u>Subalpine</u>	_____	<u>2300-2500</u>
<u>Montana</u>	_____	<u>2000-2300</u>
<u>Submontana</u>	_____	<u>>1000</u>
<u>Hill forest</u>	_____	_____
<u>Lowland forest</u>	_____	_____
<u>Swamp forest</u>	_____	_____

Indigenous? <input type="checkbox"/> Yes <input type="checkbox"/> No
Countries: _____
Primary? <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>
_____ <input type="checkbox"/>

2A. Life form (plant): _____
 2B. Notes on habitat: There is disagreement among group whether siamang can be found above 2000 m or not. This report came from Kerinci Seblat National Park (A. Yanuar, personal communication)
 2C. Niche: upper, middle, lower canopy and on the ground _____
 2D. Historical distrib: All of Sumatra, Indonesia, Malay peninsula, _____
 2E. Current distrib: Along Bukit Barisan mountain range in Sumatra, Indonesia, and Malay peninsula _____
 2F. Geograph. extent: Along Bukit Barisan mountain range in Sumatra, Indonesia, and Malay peninsula _____
 2G Migration regions: - _____
Provinces: Aceh, North Sumatra, Riau, Jambi, West Sumatra, South Sumatra, Bengkulu, and Lampung.

3. Approximate Area of Occurrence of the Taxon in and Around the Area of Study/ Sighting/ Collection

(*Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon*)
 Occurrence area: < 100 km² 101-5,000 km² 5,001 – 20,000 km² >20,000 km²
 Notes (Occurrence) There is dissenting opinion on this issue _____

4. Approximate Area of Occupancy of the taxon in and Around the Area of Study/ Collection

(*Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence'*)
 Area of Occupancy: < 10 km² 11-500 km² 501 – 2,000 km² >2,001 km²
 Notes (Occupancy): There is dissenting opinion on this issue _____

7. Threats (See threats sheet)

(Indicate Rank and check boxes as needed)

	Rank	past effect	pres eff.	fut eff.	lead to decline pop	under stood	rever sible	have ceased	Notes
1. Habitat Loss (Human Induced)									
Land conversion_____		[x]	[x]	[x]	[x]	[x]	[x]	[]	[] _____
Encroachment_____		[x]	[x]	[x]	[x]	[x]	[]	[]	_____
Coal mining_____		[x]	[x]	[x]	[x]	[x]	[]	[]	_____
2. Alien Species									
_____		[]	[]	[]	[]	[]	[]	[]	_____
_____		[]	[]	[]	[]	[]	[]	[]	_____
3. Harvest/Exploitation									
_____		[]	[]	[]	[]	[]	[]	[]	_____
_____		[]	[]	[]	[]	[]	[]	[]	_____
4-5 Accidental/Persecution									
_____		[]	[]	[]	[]	[]	[]	[]	_____
_____		[]	[]	[]	[]	[]	[]	[]	_____
6-10 Other threats									
_____		[]	[]	[]	[]	[]	[]	[]	_____
_____		[]	[]	[]	[]	[]	[]	[]	_____

For the most serious threat(s) indicate **number of 'locations'** (defined as a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present.) _____

Comment on Threats: _____

8. Trade:

8A. Is the taxon in trade? Yes Type of trade: Local Commercial
 National International

8b Parts in Trade: (See list)

Purpose	Parts	How removed	Barter	Local	Natl	Intl
_____	_____	_____	[]	[]	[]	[]
_____	_____	_____	[]	[]	[]	[]
_____	_____	_____	[]	[]	[]	[]
_____	_____	_____	[]	[]	[]	[]

Comment: _____

8c. Which form of trade is resulting in a perceived or inferred population decline? (Specify form)

Parts List
Bones
Fur
Flowers
Glands
Hair
Horn
Live animal
Meat
Organ
Products
Roots
Seeds
Skin
Taxidermy models
Whole parts

9-10. Population Numbers and Trends

9A. Generation (average age of parents in population) _____ Years Range/qualifier: _____

	<u>Total</u>	<u>Mature Breeding Pairs</u>		
9B. Global Population:	_____	_____	_____	
	<input type="checkbox"/> Declining	<input type="checkbox"/> Declining	<input type="checkbox"/> <50	
10. Recent past trends:	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input type="checkbox"/> <250	
	<input type="checkbox"/> Stable	<input type="checkbox"/> Stable	<input type="checkbox"/> <2500	
	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<input type="checkbox"/> <10,000	
Rate of decline (past)	_____ %	_____ %	<input type="checkbox"/> >10,000	
For how many years?	_____ years	_____ years		
Will population decline (future)?	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no	% Mat. individuals in one sub-population	
Predicted decline rate	_____ %	_____ %		<input type="checkbox"/> 100 <input type="checkbox"/> >95
For how many years?	_____ years	_____ years		<input type="checkbox"/> >90 <input type="checkbox"/> <90

Notes on Population: _____

11. Population Data Quality

Qualifiers: Observed Inferred Suspected Estimated Projected

Uncertainty 95% confidence Minimum/Maximum value Range of Opinion Evidentiary

Precautionary Subjective Hypothetical Point estimate Range estimate

Are population estimates based on: Census or monitoring Field study Informal sightings

Indirect information Museum records Literature

Hearsay/belief

Notes on Data Quality: _____

12. Recent Field Studies

Researcher names, Location, Dates, Topics:

13. Status (Red List)

13A. Prior to Workshop: Status _____ Criteria _____ Red List Version _____ Date of Assessment _____

Global: _____

National: _____

13B. Cites: _____ 13C. Natl wildlife Legislation: _____

13D. Natl Red Data Book: _____ 13E. Intl Red Data Book: _____

13F. Other legislation: _____

13G. Protected area presence: _____

13H. Endorsed protection plan: _____

13I Current (this workshop)

IUCN Red List Cat _____ Criteria: _____ Version: _____

Notes: _____

If Regional Assessment, enter regional supplementary information:

a. Regional population is ____ percent of global population of ____.

b. Is the regional population isolated? Yes No

c. Migration between regional and neighboring populations? Yes No

d. Regional population enhanced by in-migration? Yes No

e. Regional population stabilized by in-migration? Yes No

f. Is Regional population a sink? Yes No

g. Has global population decreased in recent years? Yes No
If yes, has decreased ____% over ____ years

h. Will global population decrease in future years? Yes No
If yes, will decrease ____% over ____ years

If the IUCN Red List assignment for the regional/national population was upgraded or downgraded due to the influence of neighboring populations shown above, list both original and adjusted categories and give an explanation for the adjustment made.

Original Category: _____ Adjusted Category: _____

Explanation for adjustment: _____

14. Conservation Measures and Research Recommendations (see Conservation measures sheet)

A. <u>Conservation Measure/Description</u>	In		Old in	
	<u>Place</u>	<u>Needed</u>	<u>Place</u>	<u>Needed</u>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Research Recommendations Is research recommended for taxon? Yes

Specify: Genetic research Taxonomic research Life history
 Survey studies Limiting factor research Epidemiology Trade

C. Is Population and Habitat Viability Assessment recommended? Yes No

D. PHVA Notes: _____

15. Management Recommendations for the Taxon

Specify:

Habitat management Wild pop management Monitoring Translocation
 Sustainable utilization Public education Genome Resource Banking
 Limiting factor mgt. Captive breeding Work in local communities

Notes: _____

16. Captive Management Recommendations

If captive breeding recommended in Q15, is it for:

Species recovery Education Reintroduction Benign introduction
 Research Husbandry Sustainable use Preservation of live genome

Notes: _____

17. Do Captive Stocks Already Exist? Yes No

17A. Names of facilities: _____

17B. No. in captivity: Males Females Unsexed Total Unknown

17C. Does a coordinated species management program exist for this species? Yes
If yes, specify _____

17D. Is a coordinated Species Management Program recommended for range country(ies)? Yes
If yes, specify _____

18. Level of Captive Breeding/Cultivation Recommended

- Initiate ex situ program in 3 years
- Initiate ex situ program within 3 years
- No ex situ program recommended
- Ongoing ex situ program decreased
- Ongoing ex situ program intensified or increased
- Pending recommendations of PHVA workshop

19. Are Techniques Established to Propagate the Taxon?

- Techniques known for this taxon or similar taxon
- Some techniques known for taxon or similar taxon
- Techniques not known at all
- Information not available with this group

20. Other Comments

21. Sources:

22. Compilers:

23. Reviews: Date Reviewers Results and Outcome

Date Completed: _

Compiler: _____

**Conservation Assessment Management Plan
Taxon Data Sheet**

CAMP: _____ Date: _____

This assessment is a national/regional assessment
 a global assessment

1. Scientific Name: *Hylobates klossii* Authority (date): Miller 1903

1A. Synonyms: Scientific synonym / ambiguities Authority (date)
- _____

1B. Scientific nomenclature:
FAMILY: Hylobatidae _____
ORDER: Primata _____
CLASS: Mammalia _____

1C. Common Names: Name/synonym Language
Kloss's gibbon; Mentawai Gibbon English _____
Bilou, Siamang kerdil Indonesia _____

1D. Taxonomic level: Species Notes: _____
 Subspecies
 Variety
 Form

2. Habitat and Distribution of the Taxon (rank 1st, 2nd, & 3rd only)

Habitat Type (see Habitat sheet)	Score	Comment
Lowland forest	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Indigenous? Yes No
Countries:
Primary?

2A. Life form (plant): _____
2B. Notes on habitat: North Siberut based on new survey
2C. Niche: upper, middle and lower canopy.
2D. Historical distrib: Mentawai islands (Siberut, Sipora, Pagai Utara and Pagai Selatan)
2E. Current distrib: Mentawai islands (Siberut, Sipora, Pagai Utara and Pagai Selatan)
2F. Geograph. extent: Mentawai islands (Siberut, Sipora, Pagai Utara and Pagai Selatan)
2G Migration regions: -
Provinces: West Sumatra

3. Approximate Area of Occurrence of the Taxon in and Around the Area of Study/ Sighting/ Collection

(Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary encompassing all known, inferred or projected sites of present occurrence of the taxon)

Occurrence area: < 100 km² 101-5,000 km² 5,001 – 20,000 km² >20,000 km²
Notes (Occurrence) _____

4. Approximate Area of Occupancy of the taxon in and Around the Area of Study/ Collection

(Area of occupancy is defined as the area occupied by the taxon within the 'extent of occurrence')

Area of Occupancy: < 10 km² 11-500 km² 501 – 2,000 km² >2,001 km²
Notes (Occupancy): _____

5. No. of Subpopulations in which the Taxon is Distributed: _____

Is there a continuous decline in subpopulations? Yes No

Are there extreme fluctuations in subpopulations? Yes No

Percentage of population that lives in most important sub area: _____60_____ %

Notes (subpopulations)_____

5b. Specific Description of Major Subpopulations and Sub Areas

AreaSize:_____Km² GIS latitude _____ Longitude _____ Geographic Location:_____

Population (best est:) High:_____ Low:_____ Habitat:_____

Notes:_____

AreaSize:_____Km² GIS latitude _____ Longitude _____ Geographic Location:_____

Population (best est:) High:_____ Low:_____ Habitat:_____

Notes:_____

AreaSize:_____Km² GIS latitude _____ Longitude _____ Geographic Location:_____

Population (best est:) High:_____ Low:_____ Habitat:_____

Notes:_____

For additional sub areas, use extension sheet

6. Habitat Status: Contiguous Fragmented Not known

6A. Is there any change in the habitat where the taxon occurs? Yes No

If yes, Decrease in area Increase in area Stable in area Unknown

6B. If decreasing, what has been the decrease in Habitat area?

approximate change Less than 20 % over how many years: _____10_____ Years
 21 - 50 %
 51 - 80 %
 >80 %

6C. If stable or unknown, do you predict a decline in habitat?

Approximate change Less than 20 % for how many years: _____10_____ Years
 21 - 50 %
 51 - 80 %
 > 80 %

6D. State primary cause of change:

Forest concessions, land conversion, illegal logging, encroachment

6E. Is there any change in the quality of the habitat where the taxon occurs? Yes No

If yes, Describe: Decrease in Quality
 Increase in Quality
 Stable
 Unknown

6F. State primary cause of change: **illegal logging**

Notes: _____

7. Threats (See threats sheet)

(Indicate Rank and check boxes as needed)

	Rank	past effect	pres eff.	fut eff.	lead to decline pop	under stood	rever sible	have ceased	Notes
1. Habitat Loss (Human Induced)									
_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
2. Alien Species									
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Harvest/Exploitation									
_____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
4-5 Accidental/Persecution									
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
6-10 Other threats									
endemic species _____		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See issues sheet _____
tsunami _____		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

For the most serious threat(s) indicate **number of 'locations'** (defined as a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present.) _____

Comment on Threats: The group wants to stress the particular challenges that are due to *H. klossii* being an endemic species.

8. Trade

8A. Is the taxon in trade? Yes Type of trade: Local Commercial
 National International

8b Parts in Trade: (See list)

Purpose	Parts	How removed	Barter	Local	Natl	Intl
Pets _____	Whole parts	_____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment: _____

8c. Which form of trade is resulting in a perceived or inferred population decline? (Specify form)

Pet trade _____

Parts List
Bones
Fur
Flowers
Glands
Hair
Horn
Live animal
Meat
Organ
Products
Roots
Seeds
Skin
Taxidermy models
Whole parts

9-10. Population Numbers and Trends

9A. Generation (average age of parents in population) 17 Years Range/qualifier: _____

	<u>Total</u>	<u>Mature Breeding Pairs</u>		
9B. Global Population:	<u>20000-25000</u>	<u>N/A</u>	<u>N/A</u>	
	<input checked="" type="checkbox"/> Declining	<input checked="" type="checkbox"/> Declining	<input type="checkbox"/> <50	
10. Recent past trends:	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input type="checkbox"/> <250	
	<input type="checkbox"/> Stable	<input type="checkbox"/> Stable	<input type="checkbox"/> <2500	
	<input type="checkbox"/> Unknown	<input type="checkbox"/> Unknown	<input type="checkbox"/> <10,000	
Rate of decline (past)	<u>> 50</u> %	<u>> 50</u> %	<input type="checkbox"/> >10,000	
For how many years?	<u>10</u> years	<u>10</u> years		
Will population decline (future)?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	% Mat. individuals in one sub-population	
Predicted decline rate	<u>N/A</u> %	<u>N/A</u> %		<input type="checkbox"/> 100 <input type="checkbox"/> >95
For how many years?	<u> </u> years	<u> </u> years		<input type="checkbox"/> >90 <input type="checkbox"/> <90

Notes on Population: _____

11. Population Data Quality

Qualifiers:	<input checked="" type="checkbox"/> Observed	<input type="checkbox"/> Inferred	<input type="checkbox"/> Suspected	<input type="checkbox"/> Estimated	<input type="checkbox"/> Projected
Uncertainty	<input type="checkbox"/> 95% confidence	<input checked="" type="checkbox"/> Minimum/Maximum value	<input type="checkbox"/> Range of Opinion	<input type="checkbox"/> Evidentiary	
	<input type="checkbox"/> Precautionary	<input type="checkbox"/> Subjective	<input type="checkbox"/> Hypothetical	<input type="checkbox"/> Point estimate	<input type="checkbox"/> Range estimate
Are population estimates based on:	<input checked="" type="checkbox"/> Census or monitoring	<input checked="" type="checkbox"/> Field study	<input checked="" type="checkbox"/> Informal sightings	<input type="checkbox"/> Museum records	<input type="checkbox"/> Literature
	<input type="checkbox"/> Indirect information		<input type="checkbox"/> Hearsay/belief		

Notes on Data Quality: _____

12. Recent Field Studies

Researcher names, Location, Dates, Topics:

D. Whittaker, Mentawai Islands, 2000-2003, Evolutionary genetics of the Kloss gibbon _____

S. Suryadi, Y. Istiadi, Supardiyono, 1998. Ecology of endemic Siberut Primates and eco-tourism _____

Firman, Siberut Utara, 2003, Population ecology of Mentawai primates _____

13. Status (Red List)

13A. Prior to Workshop:	<u>Status</u>	<u>Criteria</u>	<u>Red List Version</u>	<u>Date of Assessment</u>
Global:	<u>Endangered</u>	_____	_____	_____
National:	<u>Protected</u>	_____	_____	_____

13B. Cites: Appendix I _____ 13C. Natl wildlife Legislation: Law n.5 1990, PP7/1999

13D. Natl Red Data Book: _____ 13E. Intl Red Data Book: Vulnerable _____

13F. Other legislation: _____

13G. Protected area presence: Siberut NP _____

13H. Endorsed protection plan: National species action plan (draft) _____

13I Current (this workshop)

IUCN Red List Cat: Endangered _____ Criteria: _____ Version: _____

Notes: _____

If Regional Assessment, enter regional supplementary information:

a. Regional population is ____ percent of global population of ____.

b. Is the regional population isolated? Yes No

c. Migration between regional and neighboring populations? Yes No

d. Regional population enhanced by in-migration? Yes No

e. Regional population stabilized by in-migration? Yes No

f. Is Regional population a sink? Yes No

g. Has global population decreased in recent years? Yes No
If yes, has decreased ____% over ____ years

h. Will global population decrease in future years? Yes No
If yes, will decrease ____% over ____ years

If the IUCN Red List assignment for the regional/national population was upgraded or downgraded due to the influence of neighboring populations shown above, list both original and adjusted categories and give an explanation for the adjustment made.

Original Category: _____ Adjusted Category: _____

Explanation for adjustment: _____

14. Conservation Measures and Research Recommendations (see Conservation measures sheet)

	In		Old in	
A. Conservation Measure/Description	Place	Needed	Place	Needed
Increase awareness (biosphere) _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solicit Government commitment _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Give incentives for conservation _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Research Recommendations Is research recommended for taxon? Yes

Specify: Genetic research Taxonomic research Life history
 Survey studies Limiting factor research Epidemiology Trade

C. Is Population and Habitat Viability Assessment recommended? Yes No

D. PHVA Notes: To be conducted as soon as possible _____

15. Management Recommendations for the Taxon

		<i>Specify:</i>
<input checked="" type="checkbox"/> Habitat management	<input checked="" type="checkbox"/> Wild pop management	<input checked="" type="checkbox"/> Monitoring <input type="checkbox"/> Translocation
<input type="checkbox"/> Sustainable utilization	<input checked="" type="checkbox"/> Public education	<input checked="" type="checkbox"/> Genome Resource Banking
<input checked="" type="checkbox"/> Limiting factor mgt.	<input checked="" type="checkbox"/> Captive breeding	<input checked="" type="checkbox"/> Work in local communities

Notes: _____

16. Captive Management Recommendations

If captive breeding recommended in Q15, is it for:

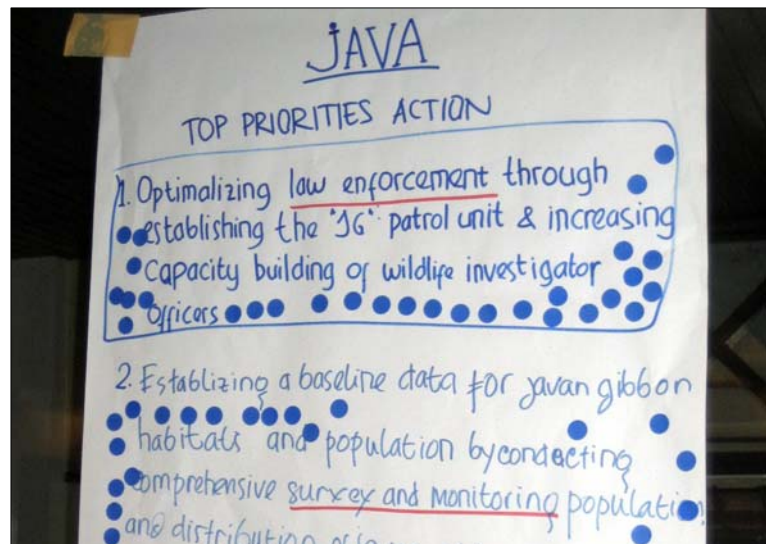
<input checked="" type="checkbox"/> Species recovery	<input checked="" type="checkbox"/> Education	<input checked="" type="checkbox"/> Reintroduction	<input type="checkbox"/> Benign introduction
<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Husbandry	<input type="checkbox"/> Sustainable use	<input checked="" type="checkbox"/> Preservation of live genome

Notes: _____

Indonesian Gibbon Conservation and Management Workshop

Sukabumi, West Java, Indonesia
20 – 22 February 2008

Final Report



APPENDIX III

Introduction to CBSG Processes

CBSG Workshop and Training Processes

Information on capabilities of the Conservation Breeding Specialist Group (CBSG/SSC/IUCN)

Introduction

There is a lack of generally accepted tools to evaluate and integrate the interaction of biological, physical, and social factors on the population dynamics of threatened species and populations. There is an urgent need for tools and processes to characterize the risk of species and habitat extinction, on the possible impacts of future events, on the effects of management interventions, and on how to develop and sustain learning-based cross-institutional management programs.

The Conservation Breeding Specialist Group (CBSG) of IUCN's Species Survival Commission (SSC) has more than 15 years of experience in developing, testing and applying a series of scientifically-based tools and processes to assist risk characterization and species management decision making. These tools, based on small population and conservation biology (biological and physical factors), human demography, and the dynamics of social learning are used in intensive, problem-solving workshops to produce realistic and achievable recommendations for both *in situ* and *ex situ* population management.

Our workshop processes provide an objective environment, expert knowledge, and a neutral facilitation process that supports sharing of available information across institutions and stakeholder groups, reaching agreement on the issues and available information, and then making useful and practical management recommendations for the taxon and habitat system under consideration. The process has been remarkably successful in unearthing and integrating previously unpublished information for the decision making process. Their proven heuristic value and constant refinement and expansion have made CBSG workshop processes one of the most imaginative and productive organizing forces for species conservation today (Conway 1995; Byers and Seal 2003; Westley and Miller 2003).

Integration of Science, Management, and Stakeholders

The CBSG PHVA Workshop process is based upon biological and sociological science. Effective conservation action is best built upon a synthesis of available biological information, but is dependent on actions of humans living within the range of the threatened species as well as established national and international interests. There are characteristic patterns of human behavior that are cross-disciplinary and cross-cultural which affect the processes of communication, problem-solving, and collaboration: 1) in the acquisition, sharing, and analysis of information; 2) in the perception and characterization of risk; 3) in the development of trust among individuals; and 4) in 'territoriality' (personal, institutional, local, national). Each of these has strong emotional components that shape our interactions. Recognition of these patterns has been essential in the development of processes to assist people in working groups to reach agreement on needed conservation actions, collaboration needed, and to establish new working relationships.

Frequently, local management agencies, external consultants, and local experts have identified management actions. However, an isolated narrow professional approach which focuses primarily on the perceived biological problems seems to have little effect on the needed political and social changes (social learning) for collaboration, effective management and conservation of habitat fragments or protected areas and their species components. CBSG workshops are organized to bring together the full range of groups with a strong interest in conserving and managing the species in its habitat or the consequences of such management. One goal in all workshops is to reach a common understanding of the state of scientific knowledge available and its possible application to the decision-making process and to needed management actions. We have found that the decision-making driven workshop process with risk characterization tools, stochastic simulation modeling, scenario testing, and deliberation among stakeholders is a powerful tool for extracting, assembling, and

exploring information. This process encourages developing a shared understanding across wide boundaries of training and expertise. These tools also support building of working agreements and instilling local ownership of the problems, the decisions required, and their management during the workshop process. As participants appreciate the complexity of the problems as a group, they take more ownership of the process as well as the ultimate recommendations made to achieve workable solutions. This is essential if the management recommendations generated by the workshops are to succeed.

Participants have learned a host of lessons in more than 120 CBSG workshop experiences in nearly 50 countries. Traditional approaches to endangered species problems have tended to emphasize our lack of information and the need for additional research. This has been coupled with a hesitancy to make explicit risk assessments of species status and a reluctance to make immediate or non-traditional management recommendations. The result has been long delays in preparing action plans, loss of momentum, and dependency on crisis-driven actions or broad recommendations that do not provide useful guidance to the managers.

CBSG's interactive and participatory workshop approach produces positive effects on management decision-making and in generating political and social support for conservation actions by local people. Modeling is an important tool as part of the process and provides a continuing test of assumptions, data consistency, and of scenarios. CBSG participants recognize that the present science is imperfect and that management policies and actions need to be designed as part of a biological and social learning process. The workshop process essentially provides a means for designing management decisions and programs on the basis of sound science while allowing new information and unexpected events to be used for learning and to adjust management practices.

Workshop Processes and Multiple Stakeholders

Experience: The Chairman and Program Staff of CBSG have conducted and facilitated more than 260 species and ecosystem workshops in 50 countries. Reports from these workshops are available from the CBSG Office or at www.cbsg.org. We have worked on a continuing basis with agencies on specific taxa (e.g., Florida panther, Atlantic Forest primates in Brazil, black-footed ferret) and have assisted in the development of national conservation strategies for other taxa (e.g., Sumatran elephant, Sumatran tiger, Mexican wolf).

Scientific Studies of Workshop Process: The effectiveness of these workshops as tools for eliciting information, assisting the development of sustained networking among stakeholders, impact on attitudes of participants, and in achieving consensus on needed management actions and research has been extensively debated. We initiated a scientific study of the process and its long-term aftermath four years ago in collaboration with an independent team of researchers (Westley and Vredenburg, 2003). A survey questionnaire is administered at the beginning and end of each workshop. They have also conducted extensive interviews with participants in workshops held in five countries. A book detailing our experiences with this expanded approach to Population and Habitat Viability Assessment workshops (Westley and Miller, 2003) will provide practical guidance to scientists and managers on quantitative approaches to threatened species conservation. The study also is undertaking follow up at one and two years after each workshop to assess longer-term effects. To the best of our knowledge there is no comparable systematic scientific study of conservation and management processes. *We would apply the same scientific study tools to the workshops in this program and provide an analysis of the results after the workshop.*

CBSG Workshop Toolkit

Our basic set of tools for workshops include: small group dynamic skills; explicit use in small groups of problem restatement; divergent thinking sessions; identification of the history and chronology of the problem; causal flow diagramming (elementary systems analysis); matrix methods for qualitative data and expert judgments; paired and weighted ranking for making comparisons between sites,

criteria, and options; utility analysis; stochastic simulation modeling for single populations and metapopulations; and deterministic and stochastic modeling of local human populations. Several computer packages are used to assist collection and analysis of information with these tools. We provide training in several of these tools in each workshop as well as intensive special training workshops for people wishing to organize their own workshops.

Stochastic Simulation Modeling

Integration of Biological, Physical and Social Factors: The workshop process, as developed by CBSG, generates population and habitat viability assessments based upon in-depth analysis of information on the life history, population dynamics, ecology, and history of the populations. Information on demography, genetics, and environmental factors pertinent to assessing population status and risk of extinction under current management scenarios and perceived threats are assembled in preparation for and during the workshops. Modeling and simulations provide a neutral externalization focus for assembly of information, identifying assumptions, projecting possible outcomes (risks), and examining for internal consistency. Timely reports from the workshop are necessary to have impact on stakeholders and decision makers. Draft reports are distributed within 3-4 weeks of the workshop and final reports within about three months.

Human Dimension: We have collaborated with human demographers in several CBSG workshops on endangered species and habitats. They have utilized computer models incorporating human population characteristics and events at the local level in order to provide projections of the likely course of population growth and the utilization of local resources. This information was then incorporated into projections of the likely viability of the habitat of the threatened species and used as part of the population projections and risk assessments. We are preparing a series of papers on the human dimension of population and habitat viability assessment. It is our intention to further develop these tools and to utilize them as part of the scenario assessment process.

Risk Assessment and Scenario Evaluation: A stochastic population simulation model is a kind of model that attempts to incorporate the uncertainty, randomness or unpredictability of life history and environmental events into the modeling process. Events whose occurrence is uncertain, unpredictable, and random are called stochastic. Most events in an animal's life have some level of uncertainty. Similarly, environmental factors, and their effect on the population process, are stochastic - they are not completely random, but their effects are predictable within certain limits. Simulation solutions are usually needed for complex models including several stochastic parameters.

There are a host of reasons why simulation modeling is valuable for the workshop process and development of management tools. The primary advantage, of course, is to simulate scenarios and the impact of numerous variables on the population dynamics and potential for population extinction. Interestingly, not all advantages are related to generating useful management recommendations. The side-benefits are substantial.

- Population modeling supports consensus and instills ownership and pride during the workshop process. As groups begin to appreciate the complexity of the problems, they have a tendency to take more ownership of the process and the ultimate recommendations to achieve workable solutions.
- Population modeling forces discussion on biological and physical aspects and specification of assumptions, data, and goals. The lack of sufficient data of useable quality rapidly becomes apparent and identifies critical factors for further study (driving research and decision making), management, and monitoring. This not only influences assumptions, but also the group's goals.
- Population modeling generates credibility by using technology that non-biologically oriented groups can use to relate to population biology and the "real" problems. The acceptance of the computer as a tool for performing repetitive tasks has led to a common ground for persons of diverse backgrounds.

- Population modeling explicitly incorporates what we know about dynamics by allowing the simultaneous examination of multiple factors and interactions - more than can be considered in analytical models. The ability to alter these parameters in a systematic fashion allows testing a multitude of scenarios that can guide adaptive management strategies.
- Population modeling can be a neutral computer "game" that focuses attention while providing persons of diverse agendas the opportunity to reach consensus on difficult issues.
- Population modeling results can be of political value for people in governmental agencies by providing support for perceived population trends and the need for action. It helps managers to justify resource allocation for a program to their superiors and budgetary agencies as well as identify areas for intensifying program efforts.

Modeling Tools: At the present time, our preferred model for use in the population simulation modeling process is called *VORTEX*. This model, developed by Bob Lacy (Chicago Zoological Society), is designed specifically for use in the stochastic simulation of the extinction process in small wildlife populations. It has been developed in collaboration and cooperation with the CBSG PHVA process. The model simulates deterministic forces as well as demographic, environmental, and genetic events in relation to their probabilities. It includes modules for catastrophes, density dependence, metapopulation dynamics, and inbreeding effects. The *VORTEX* model analyzes a population in a stochastic and probabilistic fashion. It also makes predictions that are testable in a scientific manner, lending more credibility to the process of using population-modeling tools.

There are other commercial models, but presently they have some limitations such as failing to measure genetic effects, being difficult to use, or failing to model individuals. *VORTEX* has been successfully used in more than 100 PHVA workshops in guiding management decisions. *VORTEX* is general enough for use when dealing with a broad range of species, but specific enough to incorporate most of the important processes. It is continually evolving in conjunction with the PHVA process. *VORTEX* has, as do all models, its limitations, which may restrict its utility. The model analyzes a population in a stochastic and probabilistic fashion. It is now at Version 9.5 through the cooperative contributions of dozens of biologists. It has been the subject of a series of both published and in-press validation studies and comparisons with other modeling tools. More than 2000 copies of *VORTEX* are in circulation and it is being used as a teaching tool in university courses.

We use this model and the experience we have with it as a central tool for the population dynamic aspects of the Workshop process. Additional modules, building on other simulation modeling tools for human population dynamics (which we have used in three countries) with potential impacts on water usage, harvesting effects, and physical factors such as hydrology and water diversion will be developed to provide input into the population and habitat models which can then be used to evaluate possible effects of different management scenarios. No such composite models are available.

CBSG Resources as a Unique Asset

Expertise and Costs: The problems and threats to endangered species everywhere are complex and interactive with a need for information from diverse specialists. No agency or country encompasses all of the useful expert knowledge. Thus, there is a need to include a wide range of people as resources and analysts. It is important that the invited experts have reputations for expertise, objectivity, initial lack of local stake, and for active transfer of wanted skills. CBSG has a volunteer network of more than 800 experts with about 250 in the USA. More than 3,000 people from 400 organizations have assisted CBSG on projects and participated in workshops on a volunteer basis contributing tens of thousands of hours of time. We will call upon individual experts to assist in all phases of this project.

Indirect cost contributions to support: Use of CBSG resources and the contribution of participating experts provide a matching contribution more than equaling the proposed budget request for projects.

Reports: Draft reports are prepared during the workshop so that there is agreement by participants on its content and recommendations. Reports are also prepared on the mini-workshops (working groups) that will be conducted in information gathering exercises with small groups of experts and stakeholders. We can print reports within 24-48 hours of preparation of final copy. We also have CD-ROM preparation facilities, software and experience.

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