

**An Assessment of Anthropogenic Threats to Hoolock Gibbon  
(*Hoolock leuconedys*) Populations and Identification of  
Potential Conservation Measures in Yingjiang County in west  
Yunnan, China**

**Location:** Sudian and Zhina Townships in Yingjiang County in west  
Yunnan, China

**Duration:** Aug 2014 to Mar 2015

**Applicant:** Guan Zhenhua

**Organization:** Yunnan Academy of Biodiversity, Southwest Forestry  
University

**Address:** Southwest Forestry University  
Bailongsi 300 in Panlong District  
Kunming, Yunnan, China

**Phone:** +86 13518727520

**Email:** [zhenhuaguan@hotmail.com](mailto:zhenhuaguan@hotmail.com)

## Summary

Fan et al. (2011) showed a declining distribution of hoolock gibbon in China, suggesting that hoolock gibbons are now endangered. As reported by Fan et al. (2011), the remaining gibbon populations live in 17 fragmented habitats in the west regions of Yunnan. Nowadays, although various types of ongoing conservation efforts toward this particular species in Gaoligongshan National Nature Reserve are producing positive impacts, a large population of this species in Yingjiang County has received little attention from the general public and society. Here we endeavor to implement this project to better assess the impacts of anthropogenic activities on hoolock gibbon and to identify potential conservation actions, particularly with regard to awareness building amongst the local communities and resources users.

## Background

*Hoolock leuconedys* has traditionally been regarded as a subspecies of *H. hoolock*. Currently, two species are recognized based on the distinct features in fur coloration (Mootnick and Groves, 2005; Geissmann, 2007). Chindwin River flowing through Myanmar and India is considered as the boundary dividing the distribution of the two species: the eastern hoolock gibbon (*Hoolock leucogenys*) in China, Myanmar and India to the east of the Chindwin River, and the western species in Myanmar, India and Bangladesh to the west of the Chindwin River (Groves, 1972, 1967; Das et al., 2006).

Globally, the eastern hoolock gibbon is considered vulnerable on the IUCN Red List (Brockelman and Geissmann, 2008) and as a Class I protected species in the Chinese wildlife conservation laws. It is also listed in Appendix I in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Historically, the eastern hoolock gibbon distributed extensively in the nine counties in the mountain ranges to the west bank of the Salween River in west Yunnan, including Lushui, Baoshan, Tengchong, Longling, Lianghe, Yingjiang,

Longchuan, Luxi and Ruili. However, recent data present an alarming status of the hoolock gibbon's distribution: it was sighted in only three counties and less than 200 individuals were estimated (Table 1 in Fan et al., 2011). Of the three main distribution areas (Fig 1 in Fan et al., 2011), half of groups are located in Gaoligongshan National Nature Reserve (NNR) and have been legally protected. However, the populations in Yingjiang County are in an endangered status, even some groups were found inhabiting in the areas outside Tongbiguan Provincial Nature Reserve in Yingjiang County, which have not been appropriately covered by current conservation activities by the nature reserve management institutions.

Zhina and Sudian townships of Yingjiang County are the last remaining habitats of the species. Some small areas of these two townships are delineated into Tongbiguan Provincial Nature Reserve. The local community residents, composed of mainly Lisu, Jingpo, Thai ethnic groups and Han peoples adjacent the nature reserve, eke out a living on the local forest and agricultural resources. Slash and burn are still practiced locally as one of their production activities for livelihood. Various types of income alternatives of these local communities depend on forest resources use and farming activities in the nature reserve, posing significant threats on the habitats and population dynamics of the gibbon species.

Research on the eastern hoolock gibbon has been conducted in Gaoligongshan National Nature Reserve since 2006, in which habitat traits and food selection were studied (Bai et al., 2007; Zhang et al., 2008), with more detailed studies on the behavioral ecology since then (Zhou et al., 2009; Zhang et al., 2011; Fan et al., 2013a). Comparing with the groups in Gaoligongshan NNR, no research was conducted in Yingjiang County. However, according to data from the last survey in 2009, a large population of 14 groups, which is nearly half of the remaining populations of the eastern hoolock gibbon (Fan et al., 2011) distributes in Yingjiang have received little attention from the general public and researchers. Until now, no information about these groups is available except the population survey in 2009 (Fan et al., 2011).

In China, six species of gibbons belonging to 3 genera occurred historically (*Hylobateslar*, *Nomascusconcolor*, *N.nasutus*, *N. hainanus*, *N. leucogenys*, and

*Hoolock leuconedys*, Geissmann, 2007), second only to those in Indonesia (Grueter et al., 2009). However, recent surveys show that two species (*H. lar* and *N. leucogenys*) appear to have gone extinct ecologically in China (Grueter et al., 2009; Fan et al., 2013b) and all of the remaining species are confronted with some major threats, e.g. small population size, habitat fragmentation and poaching (Jiang et al., 2006; Fan et al., 2011). It is imperative to take conservation actions and measures to save the remaining populations.

Table 1. Result of last survey in 2009, locations and number of groups and of *Hoolock leuconedys* heard and/or sighted in the species' home range to the west of the Salween River in Yunnan (Fan et al., 2011)

Township or ranger station (by County)	Localities	No. of groups heard
<b>Baoshan</b>	<b>10</b>	
Nankang	Nankang Park	1
Bawan	Qinglongshan	1
Saige	Bailaotang-Dangganghe	1
	Banchang	4
Baihualin	Manghehe	3
<b>Tengchong</b>	<b>8-10</b>	
Datang	Dahelinggang	3-4
Zizhi	Dongbinghe	2
Houqiao	Heinitang	3-4
<b>Yingjiang</b>	<b>14</b>	
Zhina	Xiangbaiyakou	1-2
	Wawongbengshan	1
	Muguahe	1
	Shizhuyakou	1
	Duidayakou	1
	Zhongxinhe	1
Sudian	Lamahe	3
	Lishu	1
	Jiganzhai	1
	Zijiawaduo	1
	Chengqiangyakou	1
	Luogangwaji	0
	Xiaoqueyakou	0
<i>Total</i>		32-34

## **Objectives**

Therefore, we propose to conduct this project with the following objectives:

- 1) To obtain information of local economic activities, especially those concerning forest resources use, e.g. collection of non-timber forest products (NTFPs). Based on the data from last population survey, the villages adjacent the habitats will be chosen to conduct interviews;
- 2) To conduct transect surveys to identify the various types of anthropogenic activities in habitat and assess the threats to these populations;
- 3) To identify the relationship between the local economic activities and conservation measures addressing the threats.

## **Outputs**

Based on these objectives, the expected outputs are:

1. A survey report on the anthropogenic activities in the habitats and threats assessment;
2. A report on the relationships between potential conservation activities and economics status/activities of local communities;
3. Building conservation awareness for these gibbon species amongst the community residents during the interviews.

## **Methodology**

1. Semi-structured interviews.

A checklist of questions and information needs is designed to guide the field interviews (Appendix 1).

Semi-structured interviews with local community residents, for:

- Collecting basic data about its historical/recent distribution, population sizes, habitat disturbance and poaching threats in the adjacent communities

of the nature reserve. The target interviewees are senior/experienced hunters, foresters, forest rangers and conservation officials, and relevant NTFP collectors. Leading questions will be avoided as much as possible during the interviews so as to broaden the sources of information to be collected.

- Collecting specimens for lab test where and when possible. In the cases that specimens were found in individual families and due to its medicinal uses of a specimen or other spiritual reasons, and the owner would not contribute specimens, the hair and skin samples will be pledged and collected for DNA test in the lab.
- Collecting information about the local people's economic status and production activities, e.g. NTFP collection, grazing, planting cash crops, installing snares, etc., in the forest.

## 2. Transect survey

A survey on anthropogenic activities will be conducted for assessing the threats from human activities. Different transects will be set in different habitats (length greater than 1 km depending on the habitat traits). Along the transects, we will record all the types of anthropogenic activities, including logging, trails, burning sites, charcoal kilns and snares set to catch ungulates. Signs of disturbances may also include gun shots heard and encounterment with hunters with dogs.

## **Activities:**

1. Aug. 2014 to Sep. 2014. Interviews with local residents in 12 communities in two townships in Yingjiang County.
2. Oct. 2014 to Dec. 2014. Field survey on anthropogenic activities.
3. Jan. 2015 to Mar. 2015. Data analysis and report writing.

## Partners and staff

Dr. Zhenhua Guan will be in full charge of this project. Dr. Guan has 7 years of experience studying gibbons in Yunnan. He is now an assistant professor at Yunnan Academy of Biodiversity/Southwest Forestry University (YAB/SWFU). During the project, Guan Zhenhua will conduct habitat survey and threats assessment.

Guan Zhenhua and Li Maobiao will conduct the villager interview.

Mr. Li Maobiao is an associate professor of forestry at YAB/SWFU. He has extensive experiences with forest resources use in local communities of ethnic minority groups and nature reserve management planning.

## Budget:

Item	Budgeted Amount (\$)
Medical Supplies and First Aid, Adhesive Tape, Antiseptic Wipes; Bandage Compress; snake-proof boots against snake bites	100
Camping equipment: Camping Backpack; Camping Lantern; Compact binoculars; Tent	200
Daily allowance (for food, drink, etc.) 20 \$ x 4 persons x 20 days	1600
Digital camera and binocular	600
Navigation GPS Receiver	300
Seasonal expeditions: Flight; Car hire for field trips; Fuel Car rental. 20/day	700
Communications (Telephone/Internet)	100
Hiring local guides	500
Educational Materials and Brochures	300
Conservation campaign: Interviews and building awareness	600
<i>Total</i>	<i>5000</i>

## Appendix 1

### Questionnaire

Id 编号	Position 地址	Name 姓名	Sex 性别	ethnic group 民族	Age 年龄	E d u c a t i o n 受 教 育 程 度	Other 备注
询问问题			Information			答案 Answer	
<b>Animal Conservation Awareness</b>							
这里有什么动物			Animals in the forests now				
过去这里有什么动物么?			Animals in the forests historically				
这里有什么猴子么?			Primate animals information				
这里发生过什么自然灾害么?			Environmental catastrophes				
这里猎人多不多? 都是怎么打猎的?			Hunting				
生活中会不会利用野生动物? 如何利用的?			Relationship between wildlife and living				
平时会偶尔碰到什么动物? 碰到了之后会怎么样?			Animal conservation awareness				
其他随时可能产生的问题			Other ad-hoc questions				
<b>Economic Status</b>							
家里有多少人口?			Family members				
家里的种植业情况?			Crop plantations				
家里的养殖业情况? 放牧情况?			Domestic animals				
家里的主要经济收入来源?			Economic alternatives				
子女打工情况? 外出就业情况?			Migrant workers				
家庭教育情况?			Education				
窜山情况? 去山里采集的情况? 季节性?			NTFP collection				
采集的东西都有什么? 市场价格如何, 占经济收入比例?			Products collected, e.g. species, price etc., % in total income				
其他随时可能产生的问题			Other ad-hoc questions				



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