Current status and conservation of white-headed langur (Trachypithecus leucocephalus) in China

Chengming Huanga,*, Fuwen Weib, Ming Lib, Guoqiang Quanb, Hanhua Lia

aDepartment of Biology, Guangxi Normal University, 3 Yucai Road, Guilin, Guangxi, 541004, People’s Republic of China
bInstitute of Zoology, Chinese Academy of Sciences, Haidian, Beijing, 100080, People’s Republic of China

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Abstract

The white-headed langur is classed as a category I species under the Wild Animal Protection Law in China. It is distributed only in Karst hills in four counties (Longzhou, Ningming, Chongzuo and Fusui), in the southern Guangxi province of China. The Mingjiang River and the Zuojiang River form its southern, western and northern boundaries, and the Shiwandashan Mountains restrict its range in the east. Population surveys conducted in the 1980s showed that there were a total of 630 individuals in Guangxi, including 244 in Longzhou and Ningming counties, 117 in six fragments of Chongzuo County and 272 in nine patches of Fusui County. Surveys conducted by our group and Guangxi Forestry Bureau indicated that a total of 580–620 white-headed langurs still live in the above four counties, including 210–240 in Longzhou and Ningming, 90–100 in Chongzuo and 250 in Fusui. According to our statistics, only about 200 km² of habitat remains within the current range of the white-headed langur and this is separated as a total of 16 patches in 13 townships. Shangjin and Xiangshui in Longzhou county and Tingliang and Tuolu in Ningming, form the largest patch of the range, with total area of 68 km², while in Chongzuo and Fusui County, the habitat is heavily fragmented with six patches of 43.5 km² in Chongzuo and nine patches of 88 km² in Fusui. At present, the white-headed langur is still suffering from heavy habitat deterioration and human disturbance such as cultivation, tree-cutting for firewood, and poachings even though the government has made many efforts to protect this endangered species, such as putting it as a category I species for protection and designating the nature reserve and stations.

Keywords: White-headed langur; Population; Habitat deterioration; Conservation

1. Introduction

The white-headed langur (Trachypithecus leucocephalus) is listed as a category I species under the Wild Animal Protection Law in China. It is confined to a narrow triangular Karst hill area with a total areas of about 200 km² in southern Guangxi province (107°–108° E, 22°06′–22°42′ N) in China. The Mingjiang River and the Zuojiang River form its southern, western and northern boundaries, and the Shiwandashan Mountains restrict it boundaries to the east.

This species was discovered quite recently. It was first described as a new species of genus Presbytis, the flower langur or the white-headed langur (Presbytis leucocephalus Tan) by Tan (1955), based on the black and white colour of the pelt. Since it was described, its status as an independent species or a subspecies of the black langur has been debated for more than 40 years. Besides Tan (1955), Eudey (1987) and Lu and Li (1991) agreed its independent species status, while Li and Ma (1980), Shen and Li (1982) and Wang et al. (1996) considered it as a subspecies (T. f. leucocephalus) of black langur (Trachypithecus francoisi). The debate is still continuing.

Whatever its precise taxonomic status, the white-headed langur is important because of its narrow distribution, small isolated population, and special Karst habitat. However, there is very little information about its wild population status. Assessments of the current status of wild population and habitat are important for the government to make an effective management action plan to protect this endemic monkey in the future. Our purpose was to have an overview assessment on distribution, population and conservation of wild white-headed langur based on our long-term survey and researches, and researches conducted by other groups.
2. Methods

Research concerning distribution, habitat and ecology of the white-headed langur was conducted from 1990 to 1999. Our major effort was devoted to Fusui County, the eastern range of the white-headed langur. Most data pertaining to Longzhou, Ningming, and Chongzuo were obtained from two surveys, one conducted by one of our co-authors in 1982 (Shen and Li, 1982) and the other by Guangxi Forestry Bureau in 1999.

Several methods were used to gather information on distribution and status of the wild white-headed langur. The principal methods used were on-site daytime observations in special areas and interviews with officials and local people familiar with this species. White-headed langur lives in groups and moves 200–1000 m daily on the Karst hills. It leaves the stone caves in the early morning and goes back in the late evening (Huang et al., 1995a, 1995b). When the group moves during the daytime, it is easy to observe and count. During the observations, data concerning group number, age composition, group size and behaviours were recorded for further analysis. Forest data within the range of white-headed langur were obtained from Guangxi Forestry Bureaus.

3. Results

3.1. Distribution

The white-headed langur is distributed only in the Karst hills in the four counties of Longzhou, Ningming, Chongzuo and Fusui, in the southern Guangxi province.

<table>
<thead>
<tr>
<th>County</th>
<th>Longzhou</th>
<th>Ningming</th>
<th>Chongzuo</th>
<th>Fusui</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Township</td>
<td>Xiangshui, Shangjin</td>
<td>Tingliang, Tuolong</td>
<td>Luobai, Tuolu, Laitan, Banli</td>
<td>Quiju, Qili, Papeng, Shanxu, Dongmen</td>
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</tr>
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<td>Habitat fragment</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Habitat size (km²)</td>
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<td>43.5</td>
<td>88</td>
<td>199.5</td>
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<tr>
<td></td>
<td>244</td>
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<td>1995</td>
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<td>250</td>
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<td>1999</td>
<td>90–100</td>
<td>250</td>
<td>580–620</td>
<td>580–620</td>
<td></td>
</tr>
</tbody>
</table>

* Figure 250 was the result of only 5 patches in Fusui county.

Fig. 1. The distribution and habitat patches of the white-headed langur in the southern Guangxi Province of China.
of China. Its range has been isolated to 16 patches (A–P) in 13 townships with a total area of about 200 km² (Fig. 1, Table 1). Longzhou County includes two townships of Xiangshui and Shang Jin, and Ningming County containing two townships of Tingliang and Toulou connect together and form the largest patch of its range in the west (patch A in Fig. 1). Chongzuo County, containing Luobai, Laitan, Banli and Tuolu townships, is isolated as six small patches in the middle (B–G in Fig. 1). Fusui County, including Qujiu, Quli, Papeng, Shanxu and Dongmen is separated as nine patches in the east (H–P).

3.2. Population

Surveys conducted in 1982 showed that the total populations were about 663 individuals, including 244 in Longzhou and Ningming counties, 117 in six fragments of Chongzuo County and 272 in nine patches of Fusui County. The population density was 3.18/km² (Shen and Li, 1982). Survey conducted in Fusui indicated that there were about 250 individuals in five patches. Of the five patches, Papeng population has been studied in more detail and this population contained 28 groups and three solitary adult males, with a total number of 166 individuals and population density of 8/km². The average group size was 5.3, ranging from 2 to 16. Of the 166 individuals, adult langurs made up 67.6%, subadults and juveniles compromise 20.2% and 12.2%, respectively. A recent survey conducted by the Guangxi Forestry Bureau in 1999 revealed a total of 580–620 white-headed langurs in four counties of Guangxi province, including 210–240 in Longzhou and Ningming, 90–100 in Chongzuo and 250 in Fusui (Table 1).

3.3. Habitat

White-headed langur is confined to the special habitat of Karst hills. Karst hills are normally about 200–300 m high and consist of dense rocky hills and flat lands (Figs. 2 and 3). According to our study, the habitat can be divided into four parts, the top, middle, bottom and flat land. The top part, dry and lacking deep soil, is covered with dense grass, colonized shrub, vine and small tree, such as *Vitex kwangsiensis*, *Celtis sinesis*, *Delavaya yunanensis*, *Sapium chihsinianum*, *Deris tonkinensis*, and *Bauhinia championii*. This part is used by langurs as a site of cave return, refuges and sun-bathing in the winter. The white-headed langurs spend about 13% of daytime in there. The middle part, sheer precipices with some natural caves, is usually used by langurs as the place of activity, sometimes feeding, and sleep in caves. The bottom part, rich in soil and relatively wet, is covered by dense vegetation with large trees, shrubs, vines and grass, such as *Antidesma japonicum*, *Poncirus trifoliata*, *Symplocos decora*, *Thretia tsangii*, *Alangium chinense* and *Mallotus tenuifolius*. It is used as the main habitat by white-headed langurs and they spend about two-third of daytime on there (Table 2). The flat land, the parts among hills, is cultivated by villagers, and has no natural vegetation. It is used by langurs only when they move across it to another hill.

3.4. Status and threats

The main factors threatening primates are habitat destruction, cultivation and poaching, of which habitat...
destruction and modification is the single important factor contributing to the decline of primate populations on the global basis (Mittermeier, 1984). For the white-headed langur, habitat destruction and cultivation, which cause fragmentation of habitat, is the fundamental threat to its long-term survival (Fig. 4). Habitat fragmentation not only restricts the available habitat, but also weakens the viability of fragmented populations (Kirkpatrick, 1995; Wei et al., 1999). Compared with the other monkeys living in the forest, the survival of white-headed langurs in the habitat of the Karst hills is much more tenuous. At present, the habitat status of white-headed langurs varies in its whole range. Habitat in Longzhou and Ningming connect and provide a quiet and ideal environment for langurs to live. In this habitat, local people are not allowed to cut trees and to plant crops. Flat lands among hills remain primitive and trees grow well. However, the habitat situation in Chongzuo and Fusui counties is serious. It has been separated with six patches in Chongzuo and nine in Fusui due to the construction of railway and human activities (Table 1). The smallest patch is just few square kilometres and the largest one is only 20–30 km². Flat lands among hills have also been cultivated and planted with crops such as peanut, green bean, sesame, sugarcane and jute. Local people are allowed to cut trees for firewood and collect herbs for medicine. In order to transport crops, the hill in Longlin of Fusui County was tunneled and people could drive the tractors into the large flat land. As the human population grows, more and more farmland and firewood are needed. In Longlin village, for example, about 2000 local people live in about 20 km² of white-headed langur habitat and a lot of trees were cut for firewood before 1998. As the result, trees of more than 20 cm in diameter are very scarce. Fortunately, some families have used natural gas for cooking and heating since 1998.

Poaching is another threat to the white-headed langur. White-headed langurs were hunted for bone, meat and making medicinal wine. The langur wine called WuYuan Wine was said to be good for digestion, rheumatism and human health (Fig. 5). In the past, five wine factories were famous for their langur wine in Guangxi province and these factories have been banned by the government since the white-headed langur has been put on the National Wild Animal Protection List. Although poaching is seriously punished by the government, it occurs occasionally. For instance, two adults were found mortally wounded in Longrui in 1991. Six adults were poached by villagers in Chongzuo county in June, 1991. In our study area, two cases of poaching also happened. In 1994, one solitary male was driven out of the group to the edge of its habitat, then it was killed by a villager. One subadult male was found to be caught by a steel snare and wounded in its right forearm. This monkey then was transported to a zoo and died after 6 months.

3.5. Conservation

As a category I species, the langur cannot be caught or hunted without permission from the State Forestry Administration. Poaching and smuggling are severely punished. In order to protect wild langur and its habitat, the Longgang Natural Reserve protected patch A in
Longzhou and Ningming counties and in Chongzuo and Fusui counties protected patches B–G and H–P were established in 1979, 1980 and 1981, respectively (Fig. 1). With the management of the reserve administration, hunting, deforestation and farming were prohibited in the reserve. However, Chongzuo and Fusui Rare Animal Protection Stations just have rights to control activities of hunting and poisoning white-headed langur, they have no rights to control the habitat destruction such as tree cutting and cultivation, because the ownership of vegetation and lands in the habitat belongs to local villages. The local residents have rights to cut trees for firewood and to cultivate lands for crops in the habitat. Conflicts between conservation and utilization are severe and are difficult to settle at present. As the langur is so rare, we strongly appeal to the local government to take further actions to control the habitat deforestation, poaching, human cultivation and other kinds of disturbances, we also hope our international colleagues will join the research.

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