

Extension of the protected area

Adjacent areas with suitable habitat and with Delacour’s langurs should urgently receive protection status. The groups in these areas are part of the population and it is critical to the survival of this charismatic Vietnamese primate species to preserve their genetic pool.

Safeguarding the livelihood for locals around the nature reserve

The improvement of income from agriculture products through the use of new plant species or technologies and providing alternative sources of income will help to reduce the illegal extraction of forest products and its impacts to the nature reserve. Eco-tourism can be a sustainable safeguard, but needs to be stricter controlled and planned to ensure animals, people, and the environment are protected and remain as a possible ecotourism destination for the future.

Acknowledgements

We would like to thank all the staff of the survey team – rangers, guards and locals - which were involved in this challenging survey work over a long period. We also like to thank the Forest Protection Department of Ninh Binh Province for the initiation and additional financial support of the project, and Frankfurt Zoological Society for collaboration.

Our gratitude goes to Ostrava Zoo for generous financial support.

References

Agmen F (2014): Conservation strategies for Delacour’s langur (*Trachypithecus delacouri*) in Vietnam: Behavioural comparison and reviewing a release. PhD thesis Australian National University, Canberra.

Baker LR (1999): Surveys of the Delacour’s langur. Frankfurt Zoological Society and Endangered Primate Rescue Center. (Unpubl. report).

IUCN Red List of Threatened Species (www. Red List of Threatened Species).

Ministry of Science and Technology & Vietnamese Academy of Science and Technology (2007): Vietnam Red Data Book. Part I. Animals. Scientific Publishing House, Hanoi.

Nadler T (1996): Report on the distribution and status of Delacour’s langur (*Trachypithecus delacouri*). Asian Primates 6(1-2), 1-4.

Nadler T (2004): Distribution and Status of the Delacour’s langur (*Trachypithecus delacouri*) and Recommendations for its Long-term Conservation. In: Nadler T, Streicher U & Ha Thang Long (eds.): Conservation of Primates in Vietnam; pp. 63-71. Frankfurt Zoological Society, Hanoi.

Nadler T (2012): Reintroduction of the ‘Critically Endangered’ Delacour’s langur (*Trachypithecus delacouri*) – a preliminary report. Vietnamese J. Primatol. Vol 2(1), 67-72.

Nadler T (2015): The critical status of the Delacour’s langur (*Trachypithecus delacouri*) and the call for a National Action Plan. Vietnamese J. Primatol. 2(4), 1-12.

Nadler T, Momberg F, Nguyen Xuan Dang & Lormee N (2003): Vietnam Primate Conservation Status Review Part II: Leaf Monkeys. Frankfurt Zoological Society and Fauna & Flora International-Vietnam Program. Hanoi.

Nguyen Khanh Van, Nguyen Thi Hien, Phan Ke Loc & Nguyen Tien Hiep (2000): Bioclimatic Diagrams of Vietnam. Vietnam National University Publishing House, Hanoi.

Prime Minister of Government (2017): Decision 628/QĐ-TTg. Approving urgent Conservation Action Plan for Primates in Vietnam to 2015, Vision to 2030.

Schwitzer C, Mittermeier RA, Rylands AB, Chiozza F, Williamson EA, Wallis J & Cotton A (eds.) (2015): Primates in Peril. The World’s 25 Most Endangered Primates 2014-2016. IUCN SSC Primate Specialist Group, International Primatological Society, Conservation International and Bristol Zoological Society, Arlington.

Discovery of isolated populations of the ‘Critically Endangered’ grey-shanked douc langur (*Pygathrix cinerea*) in Quang Nam Province, Vietnam

Bui Van Tuan¹, Nguyen Ai Tam^{1,2}, Tran Huu Vy¹, Ha Thang Long^{1,2}, Nguyen Thi Thu Thao³, Tran Kim Phung³, Hoang Quoc Huy¹, Pham Minh Huan⁴ and Tilo Nadler⁵

¹ GreenViet Biodiversity Conservation Centre, K39/21 Thanh Vinh 1 Street, Tho Quang Ward, Son Tra District, Danang City, Vietnam

² Frankfurt Zoological Society, Danang, Vietnam

³ Danang University of Education

⁴ Forest Protection Department of Nui Thanh District

⁵ Wildlife Consultant, Forest Protection Department Ninh Binh, Vietnam

Corresponding author: Bui Van Tuan <buivantuan@greenviet.org>

Key words: Grey-shanked douc langur; *Pygathrix cinerea*

Summary

The grey-shanked douc langur (*Pygathrix cinerea*) is one of the world’s rarest primate species. Following up on scarce information about the occurrence of this species in the southern part of Quang Nam Province, we carried out surveys to verify the existence of the species and to estimate the population size. We confirmed four extremely small, isolated populations with a total of 48 to 50 individuals.

The results of the survey induced provincial and local authorities to immediately implement actions to protect the douc langurs and the remaining habitat as well. A “Community Forest Protection Team” was established to patrol the area daily and any deforestation to extent an Acacia plantation is now strictly prohibited. Furthermore the provincial authorities plan to develop a conservation action plan for the remaining douc langur populations and to grant the protection status for the four hills, which they inhabit. To this purpose about 80 ha of Acacia plantation will be repurchased from locals in order to set up a 10 years reforestation project and to create forest corridors between the currently isolated hills.

Phát hiện quần thể chà vá chân xám (*Pygathrix cinerea*) bị cách ly tại tỉnh Quảng Nam, Vietnam

Tóm tắt

Chà vá chân xám (*Pygathrix cinerea*) là một trong những loài linh trưởng quý hiếm nhất trên thế giới. Cùng với những thông tin trong các báo cáo trước đây về sự xuất hiện của loài này ở vùng phía nam của tỉnh Quảng Nam, khảo sát này nhằm xác định lại sự tồn tại của loài và đánh giá cấu trúc quần thể và kích thước quần thể. Kết quả đã xác định được 4 quần thể nhỏ và hoàn toàn cách ly trên 4 ngọn núi nhỏ có rừng đã bị suy giảm chất lượng nghiêm trọng tại địa bàn xã Tam Mỹ Tây, huyện Núi Thành, tỉnh Quảng Nam. Chính quyền địa phương đã có những hành động bảo tồn loài và hệ sinh thái ngay lập tức sau khi nhận được thông tin về sự tồn tại của 4 quần thể loài Chà vá chân xám trong khu vực. “Tổ bảo vệ rừng cộng đồng” đã được thiết lập để thực hiện tuần tra giám sát bảo vệ 4 quần thể Chà vá chân xám và việc phá rừng để mở rộng diện tích trồng cây Keo lai bị nghiêm cấm triệt để. Chính quyền tỉnh Quảng Nam đang xây dựng một kế hoạch hành động bảo tồn loài và sẽ đưa khu này vào vùng được bảo vệ nghiêm ngặt. Khoảng 80 ha đất đang trồng cây Keo lai của người dân địa phương sẽ được chính quyền địa phương mua lại để khởi động chương trình trồng rừng phục hồi hệ sinh thái trong 10 năm với mục tiêu mở rộng và tạo hành lang sinh thái kết nối 4 quần thể tách rời hiện nay.

Introduction

The grey-shanked douc langur (*Pygathrix cinerea*) counts among the 'World's 25 Most Endangered Primates' (Mittermeier et al. 2012) and is listed as 'Critically Endangered' on international (IUCN Red-List of Threatened Species 2019) as well as national level (Ministry of Science and Technology & Vietnamese Academy of Science and Technology 2007). The population in Vietnam is highly fragmented and the species is in the focus of the country's protection and conservation activities (Prime Minister of Government 2017).

Following up on scarce information from locals about the occurrence of this species in the southernmost part of Quang Nam Province, we carried out surveys to verify the existence of the species, to estimate the population size, to assess the threats and to recommend measures for its conservation. The occurrence of the species in the central and northern part of the province had been confirmed during a survey in 2004 (Minh Hoang et al. 2004). But a large group close to one of the new discovered populations disappeared already together with the rest of the forest in the area, replaced with Acacia plantations.

Study site

Surveys were carried out in the remaining pieces of evergreen forest in non-protected areas. The area borders the two communes Tam My Tay and Tam Thanh in Nui Thanh District. The nearest village is located about 1 km away and Nui Thanh town is at a distance of about 15 km. The total size of the surveyed areas is 30.5 ha. Natural forest covers hilly and rocky areas on five isolated mountains locally named Hon Duong Bong, Hon Do, Hon Ong, Hon Da Dung and Hon Truc (Fig. 1). The habitat in this area is heavily disturbed by deforestation. The five mountain tops, where the surveys were conducted are completely separated by Acacia plantations, planted by local people in the 1990's to improve their livelihoods (Fig. 2). The altitude of the hills is between 200 to 300 m asl and the highest point is Hon Duong Bong at 450 m asl. The main forest type is poor lowland evergreen forest. The vegetation is dominated by a number of very large ficus trees (*Ficus* sp.) with an understory of shrubs, bushes and vines (Fig. 3). The canopy cover is about 70%. The distance between the hills ranges from 300 m to 700 m.

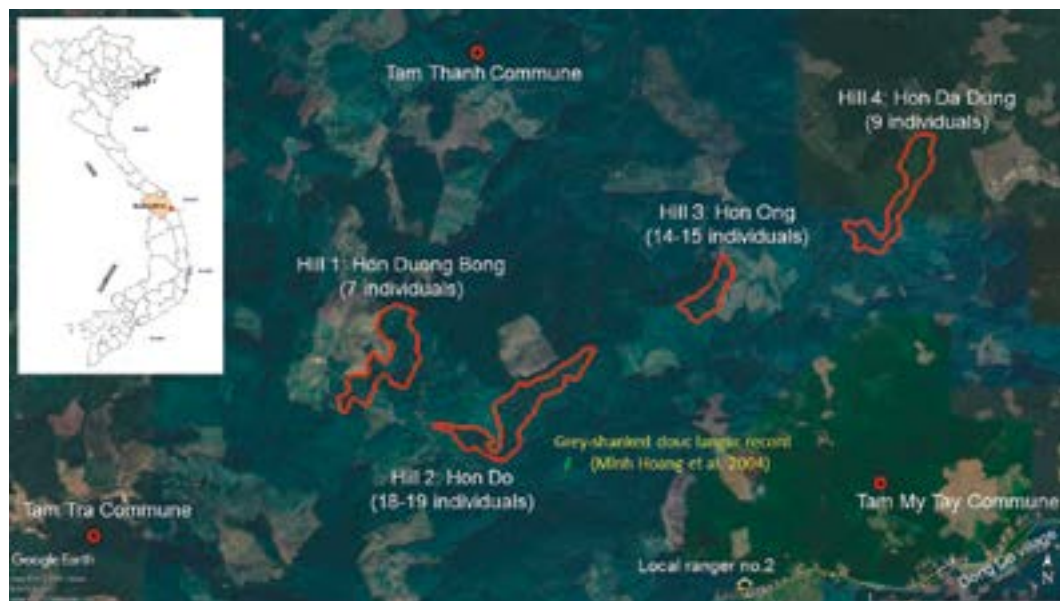


Fig.1. Discovered grey-shanked douc langur populations (*Pygathrix cinerea*) in the southern part of Quang Nam Province.



Fig.2. The remaining natural forest on the top of the hills is surrounded by Acacia plantations. Photo: Bui Van Tuan.

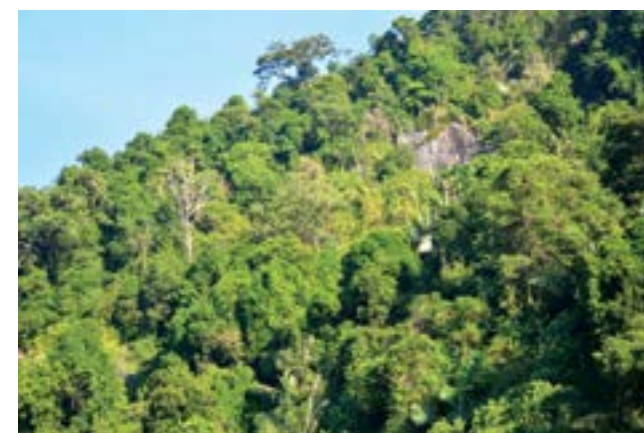


Fig.3. Status of the remaining forest on Hon Do Hill. Photo: Bui Van Tuan.

Material and Methods

Interview survey

For the interviews was used a formal questionnaire with questions which we had already frequently used in previous primate surveys. We interviewed 55 people, including rangers, collectors of forest products, local residents, farmers from the Acacia plantations and staff of local authorities. The questions concentrated on abundance, distribution and population status of the douc langurs and other primate species. Furthermore we asked about changes in forest conditions, the hunting and trapping situation and about maintenance intensity and extension of the Acacia plantations.

Field surveys

Field observations began at 5:00am and finished 6:00pm. In total, 21 people were involved in 7 survey teams for a two-day survey in the field. Each trained surveyor was accompanied by a ranger from the district Forest Protection Department and a local guide who was familiar with the animals and the locality.

Team 1 surveyed Hon Truc Hill (2 ha forest), team 2 Hon Duong Bong Hill (8 ha forest), and team 3, 4 and 5 Hon Do Hill (10.5 ha forest), team 6 covered Hon Ong Hill (5 ha forest), and team 7 Hon Da Dung Hill (5 ha forest). The douc langurs were recorded from the areas surrounding the hills by observing the hillsides from a distance of about 150 m. We intended to record the group compositions, the number of individuals, as well as sex and age of the animals. The GPS coordinates

of the locations, where douc langurs were observed, were noted and marked on a map. Samples of plant species eaten by the douc langurs were collected for identification.

For the observations and recordings we used telescopes mounted on tripods, binoculars, a digital camera with 150-600 mm lens, and a digital camera with 2000 mm optical zoom.

Results

Interview results

All local residents were readily able to describe and recognize the grey-shanked douc langurs and 90 % of the interviewees reported actual sightings of douc langurs. Locals estimated the size of the douc langur population from 20 to 100 individuals. Additionally, collectors of forest products reported the occurrence of pygmy lorises and pig-tailed macaques.

Field survey

The survey team recorded four small populations of grey-shanked douc langurs; one on each remaining forest patch: 7 individuals on Hon Duong Bong (8 ha forest), 18 to 19 individuals on Hon Do (10.5 ha forest), 14 to 15 individuals on Hon Ong (5 ha forest) and 9 individuals on Hon Da Dung (5 ha forest). In total 5 infants were observed (Fig. 4). No observation were made on the 2 ha Hon Truc hill (Table 1).



Fig.4. Grey-shanked douc langur group (*Pygathrix cinerea*), left female, right male with juvenile. Photo: Bui Van Tuan.

Table 1. Group composition of the observed grey-shanked douc langurs.

Locations	No. of groups	No. of individuals	Group structure				
			adult male	adult female	subadult	juvenile	infant
Hon Duong Bong	1	7	1	3	1	2	
Hon Do	1	18-19	2	unknown	unknown	unknown	2
Hon Ong	1	14-15	1	unknown	unknown	2	2
Hon Da Dung	1	9	1	3	2	2	1
Hon Bang Truc	0	0	0	0	0	0	0
TOTAL	4	48-50					

A group of 35 northern pig-tailed macaques (*Macaca leonina*) and a red muntjac (*Muntiacus muntjak*) were also recorded during the survey (Fig. 5).



Fig.5. A large group pig-tailed macaques (*Macaca leonina*) stay together with the grey-shanked douc langurs in the remaining forest on the hill top. Photo: Bui Van Tuan.

Poaching and habitat destruction

Locals stated that the douc langurs in this area are quite easy to hunt because their habitat is extremely small, poachers can find them easily and the forest is not well protected. The douc langurs, macaques and other wildlife are hunted with handmade guns and snare traps. Local residents claimed that douc langurs were common in the area before 2000 when Acacia plantations started at a large scale.

Poaching and trapping is still common in the area. In September 2018 the killing of a pig-tailed macaque was reported by rangers. The survey team 1 removed 25 snare traps from the Hon Truc Hill.

In the past thirty years local residents have converted about one thousand hectares of primary evergreen forest into Acacia plantations to improve livelihood and to cover the increasing demand on timber for construction and furniture industry (Maraseni et al. 2017).

Remarks about the distribution of red- and grey-shanked douc langurs in Quang Nam Province

Quang Nam Province is the region where red- and grey-shanked douc langurs occur parapatric, probably with a small sympatric zone. The northern part of the province is home to red-shanked douc langurs (*P. nemaeus*), and grey-shanked douc langurs live in the southeastern part. Historical observations are not helpful for species identification because until the recognition of the grey-shanked douc langur as subspecies of the red-shanked douc langur (Nadler 1997) and the following elevation to species level (Roos & Nadler 2001) all douc langurs in the region were referred to as red-shanked douc langurs. The border between the distribution of the two douc langur species are most probably the Thanh and Cai River (Fig. 6). Hunters and locals in the area reported about separate groups of red- and grey-shanked douc langurs (Ha Thang Long 2000; Nadler pers. comm.). But there are also observations of animals with possible signs of hybridization, like grey-shanked douc langurs with small white markings on the forearms (Ming Hoang et al. 2004). Currently there is no genetic evidence of hybrids or a hybrid population.

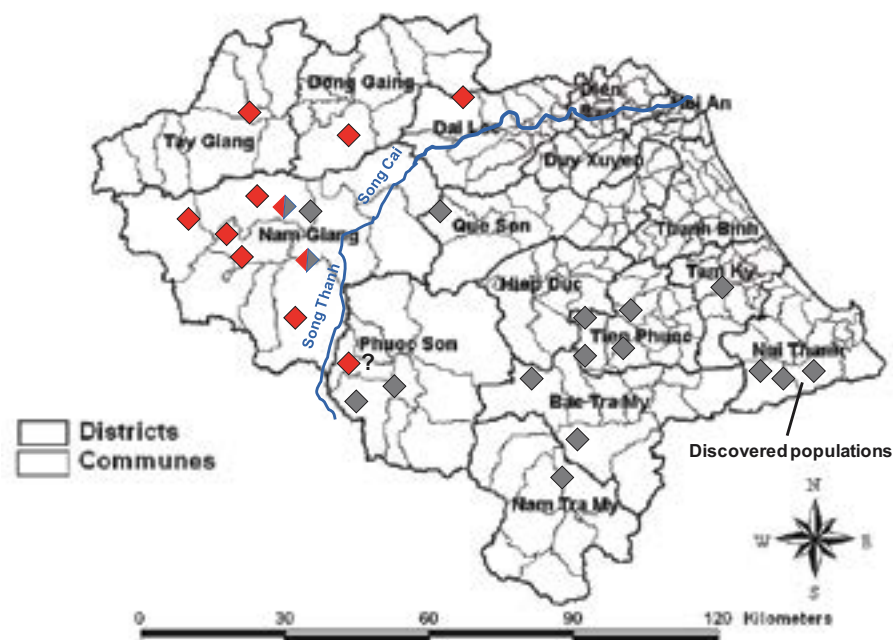


Fig.6. Distribution of red-shanked and grey-shanked douc langurs (*Pygathrix nemaeus* and *P. cinerea* – red and grey quads) in Quang Nam Province, and an area with potential hybridization (divided quads).

The localities are based on survey data, information from locals and confiscated individuals which were transferred to the Endangered Primate Rescue Center (Ha Thang Long 2000; Harding & Groves 2001; Minh Hoang 2004; Nadler et al. 2003; Vu Ngoc Thanh pers. comm. cf. in Nadler et al. 2003.)

Conservation initiatives

The results of the survey motivated provincial and local authorities to implement immediate actions to protect the douc langurs and the remaining habitat. A “Community Forest Protection Team” (CFT) was established consisting of local rangers and three local people, familiar with the area and the douc langurs. The team is managed by the People’s Committee of Tam My commune. The duty of the team is to patrol the area daily to ensure the safety of the douc langurs and to monitor potential deforestation through local residents.

Local authorities also prohibited any deforestation to extent the Acacia plantations. Two large sign boards were set up to inform locals about the protection status of the douc langurs.

Several meetings were organized in the surrounding villages to publicize the information about the existence of the douc langurs and the necessity to protect them and their habitat.

The government of Quang Nam Province called conservation organizations in Vietnam for support to carry out further surveys and conservation activities. The provincial authorities plan to develop a conservation action plan for the remaining douc langur populations, to grant the protection status for the four hills and to repurchase 80 ha of Acacia plantation from locals in order to set up a 10 year reforestation project to create forest corridors between the currently isolated hills (Dac Thanh 2018).

Recommendations to support the conservation of the douc langurs

- Establishment of two more “Community Forest Protection Teams” in Tam Thanh and Tam Tra Commune
- Preparation of a feasibility study to obtain protection status for the hills and for the establishment of forested corridors between the hills
- Implementation of a campaign to inform people in the surrounding areas about protection, conservation activities, and applicable laws

Acknowledgements

To accomplish this survey, we would like thank Mr. Kim Jones, who generously sponsored our field work. We also express many thanks to the provincial authorities of Quang Nam, Quang Nam Forest Protection Department, and the Nui Thanh District Forest Protection Department to allow and support interview and field surveys. Lastly, a special thanks to the “Community Forest Protection Team” of Dong Co village with Nguyen Du, Luong Thanh Van, Vo Ngoc Danh, Nguyen Hai, and Nguyen Nhon who directly supported the field work and to several local guides with knowledge and dedication.

References

- Dac Thanh** (2018): Vietnam province scrambles to save endangered Monkey. Vn Express. <https://e.vnexpress.net/news/news/vietnam-province-scrambles-to-save-endangered-monkey-3790409.html>. (Accessed March 19th 2019).
- Ha Thang Long** (2000): Douc Langur Survey in Central and South Vietnam – May to July and October 2000. Frankfurt Zoological Society. (Unpubl. report).
- Harding J & Groves CP** (2001): Craniometric studies of Douc langurs (*Pygathrix*). Proc. XVIII. Congress of Int. Primat. Soc.: 382, Adelaide 2001.
- IUCN Red List of Threatened Species** (2019); <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T39827A10273229.en>.
- Maraseni TN, Hoang Lien Son, Cockfield G, Hung Vu Duy & Tran Dai Nghia** (2017): Comparing the financial returns from acacia plantations with different plantation densities and rotation ages in Vietnam. Forest Policy and Economics 83:80-87, DOI: 10.1016/j.forpol.2017.06.010.
- Minh Hoang, Tu Van Khanh, Huynh Van Thuong & Long B** (2004): WWF Indochina Programme / MOSAIC Project and Forest Protection Department Quang Nam Province. (Unpubl. report).
- Ministry of Science and Technology & Vietnamese Academy of Science and Technology** (2007): Vietnam Red Data Book, Part I. Animals. Publishing House for Science and Technology.
- Mittermeier RA, Schwitzer C, Rylands AB, Taylor LA, Chiozza F, Williamson EA & Wallis J** (2012): Primates in Peril. The World’s 25 Most Endangered Primates 2012-2014. IUCN Primate Specialist Group., International Primatological Society, Conservation International and Bristol Conservation and Science Foundation, Bristol, UK.
- Nadler T** (1997): A new subspecies of douc langur, *Pygathrix nemaeus cinereus* ssp.nov. Zool. Garten N.F. 67(4), 165-176.
- Nadler T, Momberg F, Nguyen Xuan Dang & Lormee N** (2003): Vietnam Primate Conservation Status Review 2002. Part 2: Leaf Monkeys. Fauna & Flora International-Vietnam Program and Frankfurt Zoological Society, Hanoi, Vietnam.
- Prime Minister of Government** (2017): Approving Urgent Conservation Action Plan for Primates in Vietnam to 2025, Vision to 2030. Decision 628/QĐ-TTg.
- Roos C & Nadler T** (2001): Molecular evolution of the Douc Langurs. Zool. Garten N.F. 71, 1-6.