

Photo evidence for the occurrence of the black 'ebenus' morph of the Hatinhlangur (*Trachypithecus hatinhensis*) in the Phong Nha-Ke Bang National Park and comments on this morph

Nguyen Hai Ha¹, Dinh Huy Tri², Nguyen Xuan Dang³, Bui Ngoc Thanh² and Tran Dinh Anh⁴

¹ Department of Wildlife Management, Faculty of natural Resources and Environmental Management, Vietnam National University of Forestry, Xuan Mai, Chuong My, Hanoi.

Corresponding author <nguyenhaihafuv@yahoo.com>;<nguyenhaiha21@gmail.com>

² Phong Nha-Ke Bang National Park, Quang Binh Province, Vietnam.

³ Centre for Resources, Environment and Climate change (CeREC), Hanoi.

⁴ Vu Quang National Park, Ha Tinh Province, Vietnam.

Key words: Hatinh langur, *Trachypithecus hatinhensis*, black morph, *Trachypithecus ebusus*

Summary

Camera trap photos taken in Phong Nha-Ke Bang National Park prove the presence of the black morph 'ebenus' of the Hatinhlangur. This black morph has a relatively wide distribution in Laos, from the southern part of the Phou Hin Boun NBCA to the Hin Nam No NBCA in the east and to the south in limestone massifs of the northern Savannakhet Province. For Vietnam, there are so far only few records of the occurrence of these morph. Intermediate forms of Hatinhlangurs between individuals with the characteristic feature of the white beard reaching over the ears to the neck and the completely black form of the 'ebenus' morph were observed in several areas in Laos. Despite the parapatric to partially sympatric occurrence, the forms seem to be locally stabilized without creating a total mixed population.

Bằng chứng hình ảnh sự xuất hiện của hình thái 'ebenus' đen thuộc loài Voọc Hà Tinh (*Trachypithecus hatinhensis*) tại Vườn Quốc gia Phong Nha-Kẻ Bàng và nhận xét về hình thái này

Tóm tắt

Những bức ảnh chụp bằng ảnh ở Vườn Quốc gia Phong Nha-Kẻ Bàng chứng minh sự xuất hiện của hình thái 'ebenus' đen thuộc loài Voọc Hà Tinh. Hình thái đen này có sự phân bố tương đối rộng ở Lào, từ phía Nam của Khu bảo tồn Đa dạng sinh học Quốc gia Phou Hin Boun đến Khu bảo tồn Đa dạng sinh học Quốc gia Hin Nam No ở phía Đông và phía Nam và các dãy núi đá vôi ở phía Bắc của tỉnh Savannakhet. Đối với Việt Nam, cho đến nay có rất ít dữ liệu về sự xuất hiện của hình thái này. Các hình thái thuộc Voọc Hà Tinh giữa các cá thể với đặc điểm đặc trưng là bộ râu trắng dài qua tai tới cổ và dạng đen hoàn toàn của hình thái 'ebenus' đã được quan sát ở một số khu vực ở Lào. Mặc dù có sự tương đồng đối với sự xuất hiện một phần giao cảm biên, các dạng này thường như được ổn định cục bộ mà không tạo ra một quần thể hỗn hợp.

Introduction

Phong Nha-Ke Bang National Park is located about 500 km south of Hanoi and 50 km northwest of the city of Dong Hoi, Quang Binh Province. As one of the largest limestone massifs in Indochina with an area of 123,326 ha and its geological and biological importance, it was awarded UNESCO World Heritage Site status in 2003.

Within the framework of an UNESCO project, 70 camera traps were installed in 2018/2019 especially to record the occurrence of ten endangered mammal species. Cameras were used in an area about 15 km from the Laotian border.

Pictures taken with the camera traps show a group of Hatinhlangurs representing the black morph *ebenus* of this species (Fig. 1 ,2).



Fig.1. Camera-trapped group of Hatinhlangurs in Phong Nha-Ke bang National Park. All individuals belong to the black ebenus morph (recorded 9th April 2019).

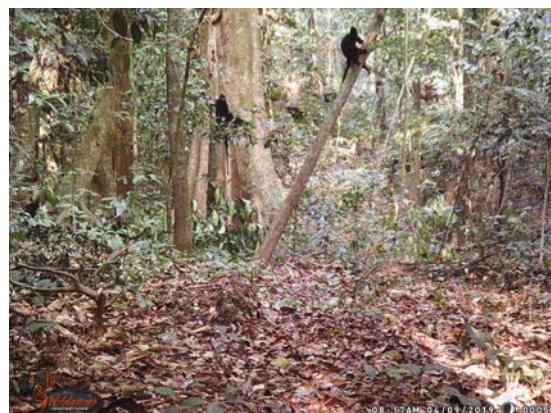


Fig.2. The langur group consisted of 5-7 individuals, 1 adult male, 3-4 adult females and 2 subadults (recorded 9th April 2019).

On the occurrence and distribution of the *ebenus* morph of the Hatinhlangur and various intermediate forms

The systematic position of the black langur was long debated after its description (Brandon-Jones 1995) and this form was considered both as a subspecies of the Hatinhlangur and as a valid species (Groves 2001; Nadler 2009; 2013). The occurrence of the completely black morph of the Hatinhlangur is documented for the Khammouane Province in Laos. In the northern part of the Phou Hin Boun National Biodiversity Conservation Area (NBCA), only the Lao langur (*Trachypithecus laotum*) is found, while in the southern part, the *ebenus* morph of the Hatinhlangur is present (Duckworth et al. 1999; 2010; Nadler 2009; Phiapalath 2010). A similar division in distribution exists between the Hin Nam No NBCA in Laos and the adjacent Phong Nha-Ke Bang National Park on the Vietnamese side. In Phong Nha-Ke Bang NP typical Hatinhlangurs with white beard are present. However, there is the observation of a group of black langurs in the northeastern part of the national park (near Tram Me, Thung Ba Dau 17°36'N / 106°17'E)(Nguyen Xuan Dang et al. 1998; Pham Nhat & Nguyen Xuan Dang 1999). This was the first record of the black morph for Vietnam. Another one for Vietnam was provided by Le Kha Quyet (2004) from the Nui Giang Man area, Quang Binh Province, north of Phong Nha-Ke Bang NP and a provisional record was reported on Phong Nha-Ke Bang NP (Dinh Hao Duong 2004).

In the Hin Nam No NBCA some animals with different extension of the white beard or white hair tips on the ear pinna were observed (Phiapalath pers. observ.) but black morphs are predominant

(Ruggieri & Timmins 1995; Timmins & Khounboline 1996; Walston & Vinton 1999; Meijboom & Ho Thi Ngoc Lan 2002). The distribution of black morphs in Laos ranges from Khammouane Province to the south to isolated limestone blocks in the northern part of Savannakhet Province. Also in these areas there are some animals with indicated white beard or white hairs on the ear pinna (Duckworth et al. 2010; Nadler pers. observ. Phiapalath pers. obs.). In the Nakai-Nam Theun area white-bearded Hatinhlangurs are predominant, but on some individuals the white beard ends at the ears and is not extended to the neck (Duckworth et al. 2010) with photographs of camera traps (Fig. 3, 4).



Fig.3. Camera-trapped Hatinhlangur from Nakai–Nam Theun National Protected Area. The white beard strip ends at the ear and does not reach to the neck. (From Duckworth et al. 2010).



Fig.4. A Camera-trapped Hatinhlangur of the same group as Fig. 1. with the typical elongated beard up to the neck. (From Duckworth et al. 2010).

The camera-trap photos from Phong Nha-Ke Bang NP are the first photo evidence of the black morph for the national park. According to observations the group consists of 5-7 individuals, one adult male, 3 to 4 adult females and 2 subadult individuals.

In Hatinhlangurs, as in all these 'limestone-langurs', the subadult males leave their family group as they grow up to subadults, then usually form bachelor groups with subadult males from other groups and later try to take over an existing group, or separate females from an existing group to form a new group.

It seems, however, that these subadult males do not travel greater distances when attempting a group acquisition, otherwise there would be a further mixing of the two forms and there would be more individuals with an intermediate feature. The existing forms in the features seem to be locally stable.

There are no geographical barriers that would prevent or restrict migration, but on the contrary,

the karst blocks of Phong Nha-Ke Bang NP and Hin Nam No NBCA form a geological and biological unit. It would be interesting to see how anthropogenic influences through habitat changes, such as forest conversion to agricultural land, road construction, construction of river dams, etc., would affect the shifting or mixing of forms.

References

- Brandon-Jones D** (1995): A revision of the Asian pied leaf monkeys (Mammalia: Cercopithecidae: Superspecies *Semnopithecus auratus*) with the description of a new subspecies. *Raffles Bull. Zool* 43, 3-43.
- Brandon-Jones D, Eudey AA, Geissmann T, Groves CP, Melnick DJ, Morales J C, Shekelle M & Stewart C-B** (2004): Asian primate classification. *Int. J. Primatol.* 25(1), 97-164.
- Dinh Hao Duong** (2004): Report of a primate survey in Hung Thoong, Phong Nha-Ke Bang National Park. Phong Nha-Ke Bang National Park. (Unpubl. report).
- Duckworth JW, Boonratana R, Robichaud WG & Timmins RJ** (2010): A Review of Francois' Leaf Monkey *Trachypithecus francoisi* (*sensu lato*) in Lao PDR. *Primate Conservation* 25, 1-19.
- Duckworth JW, Salter RE & Khounboline K** (compilers) (1999): Wildlife in Lao PDR.: 1999 Status Report. IUCN, Wildlife Conservation Society, Centre for Protected Atra and Watershed Manangement, Vietiane.
- Groves CP** (2001): Primate Taxonomy. Smithsonian Institution Press, Washington DC.
- Le Khac Quyet** (2004): A preliminay survey of primates in Nui Giang Man area, Quang Binh Province, Central Vietnam. In: Nadler T, Streicher U & Ha Thang Long (eds.): Conservation of Primates in Vietnam; pp. 45-51. Frankfurt Zoological Society, Hanoi.
- Meijboom M & Ho Thi Ngoc Lan** (2002): Flora and fauna of Phong Nha-Ke Bang and Hin Namno – a compilation. WWF LINC Project. (Unpubl. report).
- Nadler T** (2009): Observations of Lao langurs (*Trachypithecus [laotum] laotum*) and black langurs (*Trachypithecus [laotum] hatinensis* morph *ebenus*) in Khammouane Province, Laos and remarks to their systematic position. *Vietnamese J. Primatol.* 1(3), 9-15.
- Nadler T** (2013): *Trachypithecus ebenus*. In: Rylands AB & Mittermeier RA (eds.): Handbook of the Mammals of the World. Vol. 3, Primates; pp. 751-752. Lynx Edicions, Barcelona.
- Nguyen Xuan Dang, Pham Nhat, Pham Trong Anh & Hendrichsen DK** (1998): Results of a mammal survey in Phong Nha-Ke Bang. Fauna & Flora International. (Unpubl. report).
- Pham Nhat & Nguyen Xuan Dang** (1999): Primates in Phong Nha-Ke Bang Area-The status overview and recommendations for further survey and monitoring. Forestry College of Vietnam/Institute of Ecology and Biological Resources/ WWF-Indochina Programme. (Unpubl. report).
- Phiapalath P** (2010): Brief Report of the Lao langur *Trachypithecus laotum* Survey in Phou Hin Poun National Protected Area Khammouane Province. Lao Wildlife Conservation Association, Vientiane.
- Ruggieri N & Timmins RJ** (1995): An initial summary of diurnal primate status in Laos. *Asian Primates* 5(3), 1-3
- Timmins RJ & Khounboline K** (1996): A preliminary wildlife and habitat survey of Hin Nam No NBCA, Khammouane Province, Lao PDR. Centre for Protected Areas and Watershed Management/Wildlife Conservation Society, Vientiane.
- Walston JL & Vinton MD** (eds.) (1999): A Wildlife and Habitat Survey of Hin Namno National Biodiversity Conservation Area and Adjacent Areas, Khammouane Province, Lao PDR. WWF Lao Project and Wildlife Conservation Society Lao Program, Vientiane.