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Numbers, distribution and social structure of kiang (*Equus kiang* Moorcroft 1841) population in the Southwestern part of Tibet, China

N. V. Paklina & C. van Orden

Abstract

In September - October 1998 we made an extensive survey in the South-West Tibet to study numbers, distribution and social structure of kiang population in this remote part of its range. Kiangs were sighted between 29° 40' and 32° 50' N, and 81°- 86° E. They preferred broad flat valleys with lakes at an altitude from 4000 up to 5000 m. Small kiang groups and solitary animals were sighted in Transhimalaya. There were no kiangs in Tsangpo (Brahmaputra) River valley, in sand desert near Ali and in Clay Mountains near Tsada. Seven old kiang corps sighted along the road, and five of them near Pryang. Main exterior measurements were taken from an adult male, shot by militaries a day before we found it.

About 90% of all animals were concentrated on three territories. The density of the population on these territories ranged from 0.6 up to 4.2/km², but an average density was 0.15/km². The social structure of the population included solitary individuals, pairs and groups.

Kiang population on studied territory (190,000 km²), what has not any protection status, was estimated between 28,000-29,000 exemplars. It must be a considerable part of the whole population of the Tibetan Plateau.

All three big kiang herds (from 91 up to 591) were found along the main road, and only one of them had a natural protection in winter. The others two kiang herds are very vulnerable in winter, when snow not allowed them to run fast and they can be easily shot from cars. The information about exact location of kiang winter territories can be very useful for the correct planning of kiang protection in South-West Tibet.

Key words: distribution, kiang, population, social structure, South-West Tibet

Introduction

There is not much known about kiang (*Equus kiang* Moorcroft 1841) till now, because kiang inhabits remote and difficult reachable areas of high Tibetan Plateau at an altitude from 2700 up to 5400. Biggest part of its range lies in China. Outside of China kiangs are known in eastern Ladakh, northern Sikkim, Dolpo and Mustang areas of Nepal and in Shimshal Valley of Pakistan (FOX, NURBU & CHUNDAWAT 1991, SHAH 1995, SCHALLER 1998, DENZAU & DENZAU 1999).

In 1998, when we started the investigation, there was no information about status of kiang population in Southwestern part of Tibet, and scientists had very different ideas about the size of whole kiang population, estimating it from 60-70 000 (SCHALLER 1998) up to 200 000 (GAO & GU 1989 in SCHALLER 1998).

According to IUCN/SSC Equid Specialist Group classification (DUNCAN 1992), there are three subspecies of kiang: western kiang (*E. k. kiang*), eastern (*E. k. holdereri*) and southern kiang (*E. k. polyodon*). Precise boundaries between subspecies are unknown, but kiangs of studying area seem to belong to the western subspecies, what has an IUCN Data Deficient classification.



Fig. 2: Kiangs between Hor and Maium La Pass, 19 October 1998.



Fig. 3: Group of kiangs near Yanhu, 5th October 1998.

Material and methods

Between 27th September and 26th October 1998 we made an extensive survey in South-West Tibet. The extension of our auto route (Lhasa – Shigatse – Latse – Kaika – Sangsang – Tsochen – Gerze – Yanhu - Gakyi - Ali – Tsada – Purang – Hor – Prayang - Saga -Gyangze – Lhasa) was 3,806 km (fig. 1). We counted all animals within about 1 km on each side of the road, mentioned the size of groups and their location. Dead animals and crops were sighted also.

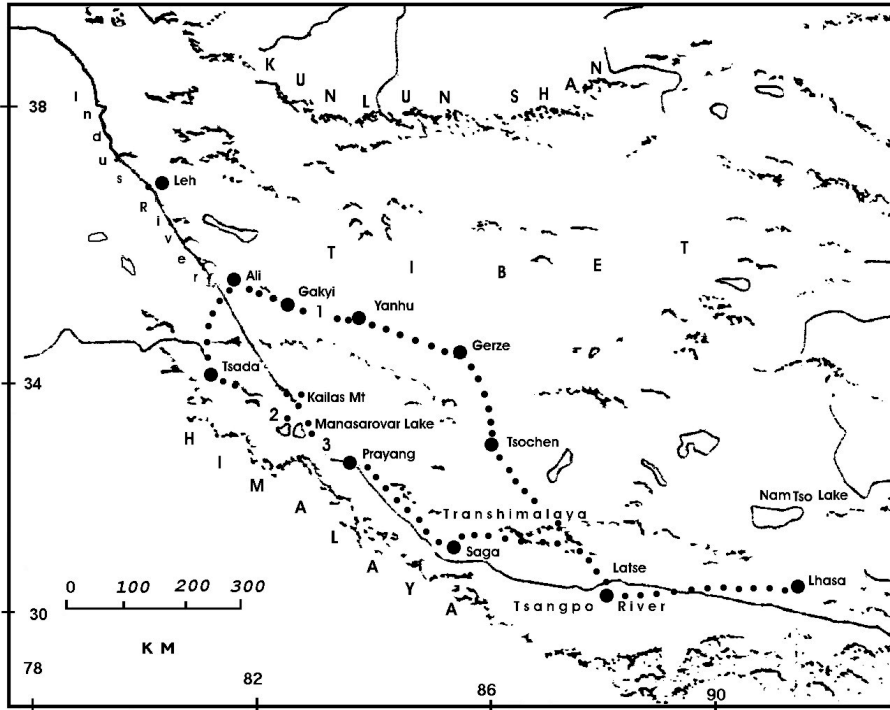


Fig. 1: The travel route in South-West Tibet.

Results

Altogether 1126 kiangs were sighted between 29°40' - 32° 50' N and 81°- 86° E. They were distributed in irregular quantities. About 90% of all animals were concentrated on 3 territories (fig. 1):

- 1) between Yanhu and Gakyi (333 individuals), fig. 2 & 3;
- 2) in surrounding of Mount Kailash, near Lama Tso Lake (91 individuals)
- 3) between Hor and Maium La Pass (591 individuals), fig. 4 & 5.

These territories are situated at an altitude from 4000 m - 5000 m and included one or more lakes.

Small kiang groups (from 2 up to 36 individuals) and solitary animals were sighted in Transhimalaya valleys to the west from Lhasa, between Sansang and Gerze (109 kiangs or 10 %). There were no kiangs in Tsangpo (Brahmaputra) river valley, in sand desert near Ali town and in Clay Mountains near Tsada. The social structure of the population included solitary individuals (1.1 %), pairs (1.6 %) and groups from 3 up to 160 animals (97.3 %). There were 22 % of all kiangs in small groups with group size up to 30, and 75.3 % in bigger groups with a herd size between 30 and 160. The middle size of groups, included pairs, was 23.2 animals ($n = 1114$). The density of the population on 3 territories mentioned above ranged from 0.6 up to 4.2/km², but the average density was 0.15/km².



Fig. 4: Kiang group near Maium La Pass, 19th October 1998 (above).



Fig. 5: Kiangs near Lama Tso Lake, 12 October 1998 (left).

Table 1: Exterior measurements of the adult kiang male from the south-western part of the Tibetan Plateau

Measurements	Points of measures	Index (cm)
1. High at the withers	From the highest point of the withers to the ground	127
2. High at the elbow	From the hind point of the elbow joint to the ground	70
3. Body length	From the front point of shoulder to the point of buttock	125
4. Girth of the front leg at the cannon bone	Around the cannon bone of the front leg in the most narrow place	14.5
5. Girth of the hind leg at the cannon bone	Around the cannon bone of the hind legs on halfway between the knee and fetlock joints	17
6. Head length	From the poll to the muzzle	60
7. Ear length	From the base to the end	17
8. Mane length		18
9. Tail length, including "brush" - "brush" length	From the base to the end	87 54
10. Front foot - the length of the hoof - the width of front foot hoof	- at the middle - at the most wide place	12 8.5
11. Hind foot - the length of the hoof - the width of the hoof	- at the middle - at the most wide place	10 7



Fig. 6: Poached kiang near Mam Tso Lake.

Most of old kiang corpses (5 on 33 km) were found along the road between Maium La Pass and Paryang, near the source of Tsangpo (Brahmaputra) River. This territory is a winter pasture for the big yak herds, but it is difficult to say if the kiangs were victims of people or of a hard winter. On the rest of the route we saw only two old corpses more.

An adult male (5-6 years old) was found dead between Sangsang and Tsochen near Mam Tso Lake (85.7° E., 29.8° N). According to local people this animal was shot by militaries for fun a day before our arriving (fig. 6). One female with foal was staying nearby. For the main exterior measurements of this animal see table. His shoulder height was just in between of the biggest (*holdereri*) and smallest (*polyodon*) known forms of kiang. His coat colour was not different from the eastern kiang (PRZEWALSKIJ 1946).

Discussion

Studied area (about 190,000 km²), lies southwest of Chang Tang and Xianza Reserves (SCHALLER 1998) and has not any protection status. Wildlife is protected here only by religion laws, which were and are always respected near Buddhist monasteries, sacred lakes and mountains. There it is forbidden to shoot or to catch any wild animal.

Another two territories are situated along the main road and have not any protection. According to local people considerable quantities of wild animals, including kiangs, are shot along this road in winter by militaries, lovers of easy hunting and local people, who see kiangs as a concurrent for their cattle.

In winter, when snow not allowed animals to run fast, they are especially vulnerable. We want to underline that winter hunting became the reason of the *tarpan* extinction (KIRIKOV 1983). And because of that, the information about exact location of wintering territories is very important for planning the kiang protection in South-West Tibet.

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