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Antelope hunting in northern Tibet: cultural adaptations to wildlife behaviour

Abstract - The Tibetan antelope (*Pantholops hodgsoni*) is the only genus of large mammal endemic to the Tibetan plateau. During the past decade, it has become widely known because its numbers are threatened by illegal hunting. This recent over-exploitation is a result of the international demand for its extremely fine wool, known as shahtoosh, which is used to manufacture luxury fashion items (Wright & Kumar, 1997). What is much less well known is that Tibetan antelope have been harvested in a sustainable manner for more than a millennium by indigenous hunters living adjacent to major antelope populations on the northern Tibetan plateau. The unique local hunting culture that has developed around the harvest of Tibetan antelope is virtually unknown outside of the region. The present contribution is an ethnographic and historical investigation into traditional Tibetan antelope hunting, and also represents the first detailed and systematic study of Tibetan hunting undertaken to date. Antelope hunting is presented from the local Tibetan perspective, with a focus upon how hunting methods attempt to capitalize on the particular ecology of *Pantholops*. The results are mainly derived from field research undertaken during 2002 and 2003 among Tibetan pastoralist communities in northern Gertse (T. *sGer-rtse*) County and some adjacent areas of the Tibet Autonomous Region, People's Republic of China.

Riassunto - La caccia all'antilope nel Tibet settentrionale: adattamenti culturali al comportamento animale.

L'antilope tibetana (*Pantholops hodgsoni*) è l'unico genere di grandi mammiferi edemico dell'altopiano tibetano. Durante gli ultimi decenni questa specie è divenuta famosa giacché minacciata dalla caccia illegale. Il recente sfruttamento eccessivo di questa specie è il risultato della domanda internazionale per la sua lana molto pregiata, conosciuta come shahtoosh e impiegata per fabbricare capi lussuosi ed alla moda (Wright & Kumar, 1997). E' invece meno noto che l'antilope tibetana è stata sfruttata in maniera sostenibile per più di un millennio dai cacciatori indigeni che vivono insieme alle più numerose popolazioni di antilopi dell'altopiano tibetano settentrionale. La peculiare tradizione locale di caccia che si è sviluppata in relazione allo sfruttamento dell'antilope è sconosciuta al di fuori di questa regione. Il presente articolo è una ricerca etnografica e storica sui sistemi tradizionali di caccia all'antilope tibetana e rappresenta il primo studio sistematico della caccia tibetana fino ad oggi intrapreso. La caccia all'antilope è presentata dal punto di vista dei tibetani, con un'attenzione particolare al modo in cui i sistemi di caccia cercano di capitalizzare sull'ecologia particolare di *Pantholops*. I risultati derivano principalmente da ricerca sul campo condotta durante il 2002 e 2003 tra le comunità di nomadi tibetani nella parte settentrionale della Contea di Gertse (T. *sGer-rtse*) ed in alcune aree vicine della Regione Autonoma Tibetana della Repubblica Popolare Cinese.

INTRODUCTION

Tibetans have been hunters for as long as there is material evidence of human habitation on the Tibetan plateau. Hunting for both subsistence and economic gain has continued in many Tibetan populated areas until very recently. However, as a domestic activity, hunting has now been virtually eliminated due to strict modern conservation laws and their enforcement, as well as the severe depletion or local extinction of favoured game species in some regions.

Hunting has been a particular, and mostly supplementary feature of various pastoralist economies across all highland steppe regions of the Tibetan plateau located

north of about latitude 32° N. This is the zone where pastoralist societies have often been located in close proximity to the main ranges of the wild ungulate species that are most valued as traditional game animals (T. *ri-dwags*)¹. The principal Tibetan animals of the chase on the high plateau include the wild yak (*Bos grunniens*; T. *'brong*), Tibetan antelope² (*Pantholops hodgsoni*; T. *gtsod*), Tibetan argali sheep (*Ovis ammon hodgsoni*; T. *gnyan*), blue sheep (*Pseudois nayaur*; T. *gna'-ba*), Tibetan gazelle (*Procapra picticaudata*; T. *dgo-ba*), and the Tibetan wild ass (*Equus kiang*; T. *rkyang*).

¹ Tibetan names in the main text are given in simple phonetic form. Proper Tibetan spellings, according to the Wylie (1959) system of transliteration, follow in parentheses after the first occurrence of a word, and are marked T.

² Tibetans universally refer to *Pantholops* as "tsö" (written as *gtsod*), however the common names used in western literature are unfortunately confusing. The designation "antelope" is a misnomer based upon the resemblance of the male animals to African antelopes. Taxinomically, *Pantholops* is a caprid, and more closely related to the ancestors of sheep and goats (Schaller, 1998: 42, chpts. 13 & 14; Schaller, 2000: 22). The frequently used word *chiru* is held to be a local Tibetan name. However, there is no written Tibetan word in any of the textual sources, which could be pronounced in this way and which is known to specifically denote the antelope. Furthermore, none of the pastoralist dialect communities living adjacent to major antelope populations currently employ such a word. I would venture that *chiru* is a dialect variant of the technical term "tsura" (i.e. *gtsod-rwa*), probably from Khams (an area lacking antelope). *Gtsod-rwa* refers to antelope horns traditionally attached to the barrels of Tibetan matchlocks for use as prongs upon which to rest the gun for shooting. The term has been picked up in eastern Tibet by early travellers and used in subsequent western literature. The Khalka Mongolian word *orong* is also used in the western sources to refer to the Tibetan antelope. However, this is misleading since there are no Tibetan antelope in Mongolia, where the word *orong* refers to smaller species of gazelles whose horns are curved backwards rather than erect.

It is a common feature of societies who regularly hunt that the principal species of game are accorded some significant role in cultural discourses and symbolism. It is of interest that in Tibetan areas, the larger and more powerful of these traditional game animals, such as the wild yak, deer, argali sheep and, to a lesser extent, wild ass, have a well established and sometimes complex role in indigenous Tibetan mythology and cultic and symbolic systems, while the smaller game species, such as antelope, blue sheep and gazelle barely feature at all. Similarly, in the vast corpus of Tibetan classical and folk literature there are numerous stories about and accounts of hunting, but the antelope and other smaller wild ungu-

lates are virtually absent from all of these as well. Tibetan petroglyphs, which are the only prehistoric set of representations discovered in the region, mainly depict hunting themes and wild animals. From among hundreds of available examples, again we find that the antelope, with its very distinctive long and erect horns, is not obviously portrayed, while larger and symbolically more important animals such as wild yak and deer predominate.³ The absence of the antelope in the Tibetan cultural media that portray hunting and wildlife might lead us to believe that the animal had a very low cultural status as a favoured species of game. However, other materials indicate that Tibetan antelope have been hunted since ancient times.⁴

ANCIENT ANTELOPE HUNTING

Early textual sources show that antelope were hunted during the reign of the Pugyel (T. *sPu-rgyal*) dynasty, the first historical Tibetan state, between the 7th and 9th centuries A.D. In a Chinese-Tibetan lexical list (Pelliot tibétain 2762) from the period, a series of names of animals of the chase includes the antelope (spelled *sol*; the regular spelling *gtsod* is currently pronounced “tsó”) together with the Chinese *houang-yang*, which means “antelope” (Pelliot, 1961: 143-144). The common Tibetan names for the main wild ungulates are all established in the Old Tibetan documents of this era, and the antelope (spelled *gcod*) is listed as a game animal in early texts concerning the royal hunt (Pelliot tibétain 1071, 1072).⁵ These mass hunts, known as *ling* (T. *lings*) in Old Tibetan, involved the rounding up and encirclement of game by a large hunting party, the lower ranks of whom were on foot with the higher ranks being mounted on horseback. The killing of game was done with bow and arrow, or lance and sword at close quarters, as the circle of hunters closed in. The text mentions the presence of all the highest ranks of imperial officials participating in these hunts, while other sources mention the emperors themselves engaged in the hunt (Bacot *et al.*, 1940: 18/39, 23/47, 26/52).

It is significant that the Pugyel dynasty originated from, and was established in, the larger valley systems of southern Central Tibet, with successive rulers leaving enduring traces of their reign in the area around Lhasa, further southward to Yarlung (T. *Yar-klungs*) and east

across to Kongpo (T. *rKong-po*). The mention of hunting all of the presently northern ranging species of large wild ungulates, plus deer, in the ancient *ling* hunts could indicate several interesting conclusions: that the entire Tibetan court and their retinue migrated very great distances northward across the high plateau in order to encounter these game species and hunt them within their present range; or, that during the 7th to 9th centuries, species such as antelope, wild yak, argali and wild ass had a much greater southern extension of their range.

The Pugyel dynasty conquered large areas of western Gansu adjacent to the northeastern Qinghai-Tibetan plateau (T. *A-mdo*), and the area became a Tibetan colony with substantial occupation forces settled there. In the excavated remains of the Tibetan colonial habitations, we find further evidence of ancient antelope hunting. Wooden message slips written in Old Tibetan mention the use of antelope skins as cloaks and coats (Wang Yao, 1988: 549). Several foot traps for catching game were excavated from refuse heaps at former Tibetan military watchtowers located near Dunhuang in the Hexi region of far western Gansu.⁶ These ancient traps are identical in all aspects of their design, dimensions and materials to the particular foot trap known in recent centuries in Tibet as the “*khogtse*”.⁷ This same trap, effective especially for the capture of medium to small ungulate species, is the one made and used by the antelope hunters of northern Tibet up until the present-day.

³ See, for example, Administration Commission of Cultural Relics of the Tibetan Autonomous Region (1994).

⁴ A parallel situation exists for the Saiga (*Saiga tartarica*) among Kazakh pastoralists; the species has no symbolic importance compared to more powerful animals of chase, yet it is commonly hunted for subsistence reasons (personal communication, Ömer Akakça, Berlin, 2003).

⁵ For the manuscripts see Spanien & Imaeda (1979: plates 378-413), and a modern transcription in bSod-nams-skyid & dBang-rgyal (1983: 12-51). See Wang Yao & Cheng Jian (1983: 7-35) for a Chinese interpretation, and Richardson (1990) for a partial English summary with notes.

⁶ See Stein (1921, vol. II: 704, 767, 782; vol. IV: plate LIV, item no. T. XV. A. i. 009). As of 2003, one of these traps was on display at The British Museum, Oriental Antiquities Department, public display case 67, serial number: OA MAS 747 and 796.

⁷ The word is current in pastoralist dialects of north-western Tibet, although the literary spelling is highly uncertain, with *kog-tsi*, *kog-tse*, *kog-tshe*, *kog-rtse*, *khog-tse*, *khog-rtse* and *sgog-rtse* reported as variants (acknowledgement to Dan Martin for contributing some of these).

ANTELOPE HUNTERS OF THE WESTERN CHANGTHANG

The current range of the Tibetan antelope is confined to the northern Tibetan plateau system, or Changthang (T. *Byang-thang*) as it is called in Tibetan, and covers an area approximately between 31°30'–39° N, and 81°–97° E.⁸ The larger population concentrations are located in semi-arid alpine steppe habitats that feature grasses of the genus *Stipa*, a forage favoured by Tibetan ungulates (Schaller, 1998: 44–48; 2000: 22–28). In the central to western zones of this range, Tibetan pastoralists live in relatively close proximity to substantial antelope populations. Northern Gertse County⁹ is one such area, and thus it was selected as a field site in which to study traditional antelope hunting as practiced by local pastoralists.

The history of the pastoralist communities of Gertse County is currently little known.¹⁰ Like many northern Changthang populations, their origins are explained for the most part in terms of east-west migrations into the area. Of the four main tribal groups (T. *tsho-ba*) who inhabit the County – the Gertse (T. *sGer-rtse*), Drongpa Changma (T. *'Brong-pa Byang-ma*), Sengkor (T. *Ser-khor*) and Pancik (T. *Pan-cig*) – the two former and larger tribes are, respectively, Amdo and Khams (i.e. *Nang-chen*) dialect speakers from eastern Tibet. The field study was conducted in the Amdo-speaking Gertse tribal area since they occupy the northernmost areas of the County. Gertse tribal origin stories recount how their ancestors migrated from an undetermined region of southern Amdo or northern Khams over 300 years ago and then settled in their present location to raise livestock. The reasons for their original migration are variously given as escape from local conflicts or pressing economic conditions, or even departure on pilgrimage to the holy mountain of Kangtisyay (T. *Gangs Ti-se*, i.e. Mount Kailash) in far western Tibet. If the origin narratives are to be given any credence – and the linguistic evidence strongly suggests they should be – it means that the Gertse tribe originated from an area outside the currently known range of the

Tibetan antelope. They must therefore have adapted to antelope hunting upon their settlement in northern Gertse County.

The Gertse tribe dwell, herd and hunt around and to the north of latitude 33° N, in an area lying east of the Aru Tso (T. *A-ru mTsho*) from longitude 83° E across as far as Gomo Tso (T. *sGo-mo mTsho*) at longitude 86° E. Northern Gertse County is a somewhat marginal environment for pastoralism when compared with other Changthang areas further to the east and south. Pastoral encampments are located up to an elevation of 5,000 m on semiarid alpine steppe and rolling hill country, with forage sparse in many places. Typically for the region, livestock numbers are subject to depletion as a result of unpredictable but regularly occurring natural disasters and predation. In this severe environment with marginal pastoralism, hunting has always served as an important form of subsistence, particularly in winter. In 1907, the Swedish explorer Sven Hedin passed through the research area and encountered the impoverished pastoralists of the northern Gertse tribe. He described their lifestyle as one heavily dependent upon hunting and eating antelope and other game because they possessed few livestock (Hedin, 1909, 1: 182, 187–190, plates 85–86). My elderly informants frequently reported dire poverty in many local families prior to the Chinese occupation in the early 1960s, and still today herd sizes tend to be considerably lower than in adjacent regions (Næss *et al.*, 2004). They stressed that hunting had always been a necessary survival strategy for every family, most acutely over the winter months. Up until the early 1980s, all local hunting was pursued solely for meat acquisition, with only a few other incidental uses of game animal products. The pastoralists have a common aphorism that captures the necessity of the antelope hunt for their survival: “If you kill a female antelope, you will have food. If you don’t kill a female antelope, there will be no food!”¹¹

⁸ Ethnographic evidence suggests that within living memory the eastern range of *Pantholops* was much further east than it is today, extending to the very eastern border of the Amdo grasslands in Kan-lho (Gannan). Elderly people from Kan-lho report abundant antelope in the region around the prefectural capital (longitude ca. 103° E) during the early to mid-20th century, and claim the area therefore received the name gTsos (a variant of *gtsod*, “antelope”; note here the “shawl of gTsos” in Karmay, 1975: 205; and Ladakhi “stos” or “tos”, see Rizvi, 1999: 54). Reporting on the Brooke Dolan and Ernst Schäfer zoological expedition to eastern Tibet in 1934–1936, Dolan observed: “[T]he chiru have been persecuted like the yak and have withdrawn from the large areas formerly occupied by them to the wildest part of the high steppe... Schäfer encountered them only once while travelling for weeks over country where they were formerly plentiful” (Allen, 1938: 287).

⁹ Field research was undertaken specifically in the rural administrative units of Shenchen (*Shan-chan*), Lugu (*Lu-gu*), Drapo (*Brag-po*) and Gomo (*sGo-mo*), all to the north of Gertse County town, and representing the northernmost pastoral encampments in the region. All of these areas lie on the southern boundary of (or actually within) the Chang Tang Nature Preserve (established 1993), which was established specifically to protect species such as the Tibetan antelope (Schaller, 1997).

¹⁰ Only one short tribal history with any accurate detail has been published to date; see Karma Tshul-khriims (2003).

¹¹ *Gtsod a yu bsad na zas yod yin / gtsod a yu ma bsad zas med yin /*

LOCAL ATTITUDES TO WILDLIFE

Before detailing the local hunting methods used in relation to one major animal of chase, we should attempt to understand the larger cultural context within which wildlife such as the antelope is thought of as being "game". The Gertse pastoralists do not just casually hunt any wild animals they encounter. They have their own specific cultural system for classifying all wild animal species, which define them as being either fit or unfit for both hunting and for human consumption. The local classification system has its own unique aspects, but it also shares certain of its taxonomic principles with more widespread Tibetan ways of thinking about wildlife. In most of these schemes, certain morphological characteristics of animals, especially the type of teeth and feet that they possess, serve as important indicators, along with aspects of their basic biology, such as diet.¹²

In Gertse, the fundamental division of wildlife is twofold: 1) those animals possessing long upper teeth (T. *kha yas so'i ri-dwags*), referring to both canines in carnivores and incisors in herbivores; and 2) those animals that lack large upper teeth (T. *kha mas so'i ri-dwags*). Animals with long upper teeth, including wild ass, fox, wolf, various wild cats, marmot, bear, rabbit and pika are considered unfit to both hunt and eat for a variety of reasons. The general perception is that it is very sinful (T. *sdig-pa che*) to hunt such animals for food, although wolf and bear are hunted as pest animals when they attack livestock. Some of their number are carnivorous and as such it is believed they may have at some time scavenged human corpses or remains, which makes them offensive. Others, especially the wild ass and wolf, are held to be too close in their natures to the domestic horse and dog, with whom humans form close working relationships, and which are both considered to have some feelings similar to human emotions.¹³ Still others who dwell underground in burrows are negatively associated with the archaic cosmology. These species are considered to be too close to the realm of the local subterranean and sub-aquatic deities (T. *klu, sa-bdag, sri*, etc.), who are believed to be easily offended and also quick to cause harm to humans and their livestock in retribution for human encroachment upon their realm.

The so-called *kha mas so'i ri-dwags*, those lacking long upper teeth, are the permitted animals of chase and

food. They are always numbered as a group of nine, known as the "nine game animals, father, mother and offspring" (T. *ri-dwags pha ma bu dgu*), and include the wild yak, Tibetan antelope, Tibetan gazelle, wild ass, argali sheep, musk deer, blue sheep, various deer species (T. *shwa-ba*), and rabbit. There are clearly some anomalies here, since not all of these animals occur on the northern Changthang (i.e. musk deer and other deer species), and the wild ass and rabbit are placed in both divisions of the system.¹⁴ Rabbits are never hunted, and attitudes towards hunting and eating wild ass vary greatly, with some hunters feeling there is no problem with doing so, while others strictly avoid them as game, except in times of severe food shortage. With these exceptions aside, the larger ungulate herbivorous, such as the antelope, are the permitted animals of chase. They are considered the most fitting for human consumption, with their meat being thought of on a par with that of domestic livestock.

My informants often compared antelope meat to that of domestic goats and sheep. Whether it tasted good or not to an individual was not only a matter of personal preference, but also determined by the fat content of the meat, which is the same consideration used to judge mutton or beef as either good or poor in flavour and food value.¹⁵ This is not the only commonality of classification the pastoralists hold between game animals (T. *ri-dwags*) and domestic livestock (T. *gyung-dwags*). Parallel species are distinguished from both groups of animals, viz. wild yak vs. domestic yak, wild ass vs. horse, antelope and gazelle vs. sheep and goats, and they are named according to their age based upon identical criteria. For each year of life, a different name is given that is related mainly to the number of teeth and horn growth rings an animal possesses. For antelope, the Tibetan names used in Gertse are given in Table 1.

Curiously, this system could not be used accurately to distinguish animal age above about 3 years, since full adult dentition and male horn growth are reached by the third year according to biologists.¹⁶ The naming system applied by the pastoralists to antelope is almost identical with the one they use for sheep and goats, the predominant livestock and meat source of the western Changthang, while the names for wild yak and wild ass are close to those used for domestic yak and horses

¹² For different Tibetan and Indic-influenced Tibetan classifications of animals, see g. Yu-thog Yon-tan mGon-po (1992: 54-55); Dung-dkar Blo-bzang 'Phrin-las (2002: 1097); Khu-byug (2002: 195-199); Krang-dbyi-sun (1986: 737, 2673).

¹³ Specific prohibitions against eating horse meat, and notions about the pollution this produces, are ancient in Tibet; see Karmay (1975: 206).

¹⁴ One could also point out that the musk deer male has a set of long, fang-like upper teeth, even though it is classed locally as *kha mas so'i ri-dwags*. However, since musk deer does not occur in the north-western Changthang, local pastoralists have little or no detailed knowledge about the animal.

¹⁵ Several informants, one a traditional Tibetan doctor, related that game meat was more pure and healthy than most domestic meat. This is because game animals are thought to graze more exclusively upon mountain herbs that have medicinal properties and to drink only the purest water from snowmelt and remote springs.

¹⁶ Schaller (1998: 62).

respectively.¹⁷ As mentioned above, the antelope has no symbolic importance or high cultural status as a game animal among Tibetans. Its local designation in a manner almost equivalent to the most common domestic animals signals it as normal and neutral, another resource of the pastoral economy to be utilized when needed in common with sheep and goats.

In the minds of most ordinary pastoralists there is no great prohibition, sin or danger associated with hunting and killing game lacking long upper teeth (T. *kha mas so'i ri-dwags*) such as antelope. While most pastoralists still believe to some degree in the common Tibetan idea that all game animals are "owned" by the local territorial deities (T. *gzhi-bdag, yul-lha*, etc.), and represent the "livestock" of these beings (Huber, 2003), any tension between this idea and the taking of game in the hunt is neutralised through simple offering rites directed towards the local deities.

Institutionalised religion, in the form of monks, lamas and monasteries, is absent in most regions of the northern Changthang. Although the Gertse pastoralists all admit to being Buddhists, this has never placed any moral restraint upon their killing of domestic livestock or upon hunting. All such killing is viewed in practical terms as necessary for survival. It is typically only in old age that men who hunt develop a concern, in Buddhist cosmological terms, about the taking of life and its soteriological consequences. They no longer need to support their families with meat, and concentrate their energies instead on simple forms of Tibetan Buddhist ritual that are believed to help cleanse the accumulated sin of killing and to ensure a better rebirth. Close questioning of elderly informants revealed that all such current local attitudes and behaviours related to hunting and killing game have changed little since the Chinese occupation and the process of modernization in the region.

Tab. 1 - Antelope names by age.

Age	Male Names	Female Names	Notes
> 1 year	<i>gtsod-ris</i>	<i>gtsod-ris</i>	<i>Ris-thog</i> or <i>ri'u</i> are alternative names common to both sexes.
2 years	<i>sgam-gtsod</i>	<i>tshe-ris-ma</i>	<i>Rna-bzhi/ra-bzhi</i> are alternative names.
3 years	<i>so-bzhi</i>	<i>so-bzhi</i>	Meaning "four teeth", also used for sheep and goats. <i>'Them</i> and <i>'them-gsar</i> are alternative names, which mean "full" or "newly complete".
4 years	<i>so-drug</i>	<i>so-drug</i>	Meaning "six teeth", also used for sheep and goats.
5 years	<i>kha-gang</i>	<i>kha-gang</i>	Or <i>kha-tshang</i> , both meaning "full mouth", also used for sheep and goats.
6 years	<i>chib-gcig</i>	<i>chib-gcig</i>	Meaning "one <i>chib</i> " (or <i>chebs</i> , spelling uncertain). <i>Chib</i> is a measurement unit, which seems to relate to horn growth. It is also used for sheep and goats 6 years and older.
7 years	<i>chib-gnyis</i>	<i>chib-gnyis</i>	Meaning "two <i>chib</i> ".
8 years +	<i>chib-gsum</i>	<i>chib-gsum</i>	Meaning "three <i>chib</i> ".

ANTELOPE HUNTING TECHNIQUES

The pastoralists of Gertse and adjacent regions have a number of different traditional strategies for hunting the Tibetan antelope. These include the use of what could be called "road traps", also foot traps, blinds or hides, guns and food lures. The specificity and appropriateness of each of these methods can only be appreciated from the perspective of the overall ecology and behavioural traits of the antelope, to which the deployment of hunting tech-

niques is closely linked. Most importantly, Tibetan antelope populations exhibit both migration and sexual segregation at different times of the year in a regular cycle, which runs basically as follows:

1. In late spring (approx. April-May) young male offspring born during the previous season separate from their mothers to join separate male bands.
2. In early summer (approx. May-June) adult females,

¹⁷ It is to be noted that livestock age categories are also applied to wild animals by Kazakh and Kirghiz pastoralists of neighbouring Central Asia (personal communication, Ömer Akakça, Berlin, 2003).

accompanied by young female offspring, migrate far to the north to regular calving grounds in order to give birth.

3. By late summer-early autumn (approx. August-September) all females and their newborn calves return south again for autumn and winter grazing.

4. The rut occurs in early winter (approx. November-January), and both males and females gather together for mating, often at regular sites, which are used annually as wintering grounds.

The different antelope hunting methods in Gertse will now be explained in Tibetan terms in the same order as this annual cycle.

1. The marling hunt

The term marling (T. *dmār-gling*) refers to the late spring-early summer (approx. May-June) hunt undertaken when female antelope migrate northwards en masse to the calving grounds in order to calve together.¹⁸ The element *dmār* ("red" as in "blood") here is explained as referring to the event of birth, while *gling*, which normally means "island" or a bounded "part" of something, refers to the "congregation" of all the females in one habitually defined area for the calving. This annual female migration and group birthing remains one of the least understood aspects of the Tibetan antelope's behaviour.¹⁹ The Gertse people possess an intimate knowledge of antelope behaviour, and have many insightful stories and sayings about the dynamics of the separation of the sexes that occurs due to the migration process. For example, there is one such story of a migrating mother antelope about to separate from her young male offspring, who tells him with emotion and tears: "Now the time has come for mother to go to the north. If I don't get caught in a small trap, mother will return home again. If I don't get swept away by the Tsachi Tsangpo [river], mother will return home again. I must go to the north, and you must stay in the south."²⁰

Because the Tibetan antelope migrates annually, the pastoralists characterize the animal as possessing a very fixed, almost rule-bound behaviour pattern (T. *khirms*). A

local aphorism states, "The antelope's rules are like the bird's",²¹ meaning that they both migrate regularly. From the hunter's perspective the migration itself provides an ideal opportunity to kill game since it is a very predictable annual event in the animal's life cycle. The pastoralists state that female antelope always follow exactly the same paths northwards year after year, and that younger females learn the routes from following their mothers. These so-called "antelope paths" (T. *gtsod-lam*) can be clearly seen in northern Gertse running along the centres of certain flat-bottomed north-south valley systems or crossing rolling north-south passes, both of which represent the type of smooth and gentle terrain which antelopes prefer to traverse. It is precisely at such places that the marling hunt is practiced.

Hunting the migrating female antelope requires the construction of a large type of "road trap" known locally as a "dzaekha".²² To date, these traps have been found located in valleys and on passes between approximately 33°30'-34°30'N and 83°-84°30'E.²³ All 7 dzaekha sites visited during the research lay in valleys or on passes and hillsides with a generally north-south orientation and through which distinct animal paths are seen running. The construction and use of dzaekha as a specifically Tibetan hunting technique appears to be confined to the western Changthang (Rudok, Gertse, and part of Nyima Counties), and thus coincides with the region of the western antelope populations and their main migratory routes.

Dzaekha traps are formed by constructing two or more long lines of stone or earth mound cairns (T. *tho*). The cairns can range from 30-50 cm in height, most often comprising a simple pile of stones or a mound of earth. These are often topped by an erect stone marker or sometimes with the horns and skulls of dead animals or small trigs decorated with strips of old cloth set atop them.²⁴ These lines of cairns most often begin on opposite sides of a valley or pass and form converging diagonal lines, which meet near the centre of the level ground. Viewed from above, a typical dzaekha resembles a large funnel shape on the landscape with its narrow opening pointing most often northwards (see Fig. 1 and 2). Cairn lines were

¹⁸ Pastoralists call the northern calving grounds "the place the antelope are with their lambs" (*gtsod lu gu 'khrīd sa*), but only a few elderly hunters claim to have a knowledge of the location of these sites far to the north on the Xinjiang-Tibet Autonomous Region border.

¹⁹ See the recent popular account of a visit to one antelope calving ground by R. Ridgeway and G. Rowell (2003).

²⁰ *Da a ma byang la 'gro ba 'i dus slebs song / a ma phra chung rnyi yi ma zin na / gtsod a yu a ma rang cag rang yul la log yong / chu rtsa skyi gtsang pos ma 'khyer na / a yu a ma rang cag rang yul la log yong / nga byang la ma 'gro ka med red / khyed rang lho la ma bsad ka med red /*

²¹ *Gtsod khirms bya dang 'dra /* There is a secondary meaning here. Most nomads describe the female migration north to the calving grounds as occurring in tandem with another migration by a particular species of bird, also northward to the same location. The bird is named *bya-long*, although its identification remains unclear. A type of symbiosis is held to ensue between the two species in the calving grounds, since the birds consume the antelope's afterbirth (*phru-ma*) and the birthing females consume the bird's nutritious dung (*bya-skyag*). There is a saying about this mutual benefit, "The antelope don't have to thank the birds much, and the birds don't have to thank the antelope much" (*Bya drin gtsod la che rgyu med / gtsod drin bya la che rgyu med*).

²² The spelling and etymology of the word is unknown. One possibility is *rtse-d-kha*, where *rtse-d* can mean to "entice" or to "play with", in the sense of leading animals along certain routes, and *kha* means the "mouth" or entrance to the trap where the snares are set in the ground.

²³ The only previous account of the occurrence of this type of trap in Tibet is a brief description by Hedin (1909, 1: 119-120; cf. also Hedin, 1913: 58). Its location, on the now disputed but Chinese occupied territory of Aksai Chin (*Ag-sa 'i chen*), was the large plain to the west of the lake named *Sa-li-skyid mTsho* (Hedin's "Yeshil-kul") at approx. 34° 40' N, 79° 35' E.

²⁴ Marinus Næss reports that old audio-cassette ribbon was fixed on top of cairns on a dzaekha constructed in the Aru Basin (personal communication, Oslo, 2000).

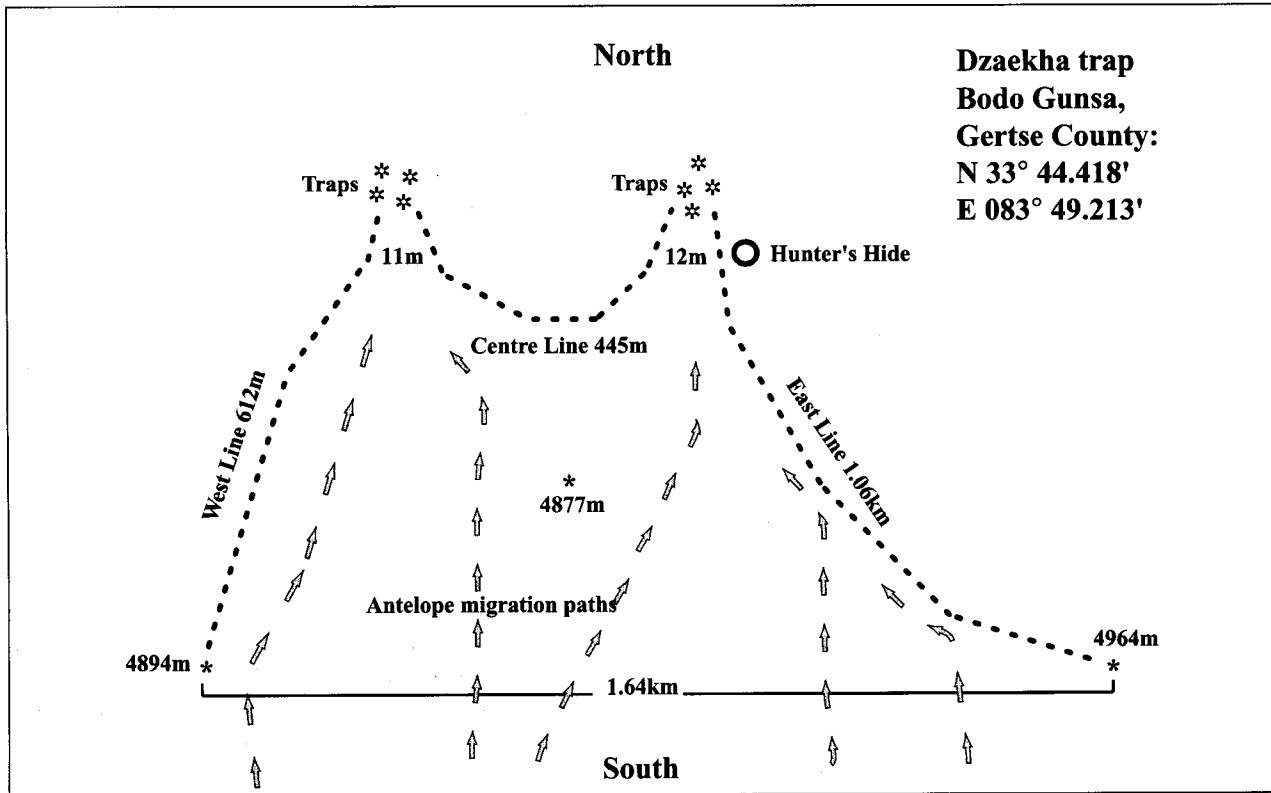


Fig. 1 - Plan view of a dzaekha trap at Bodo Gunsa.

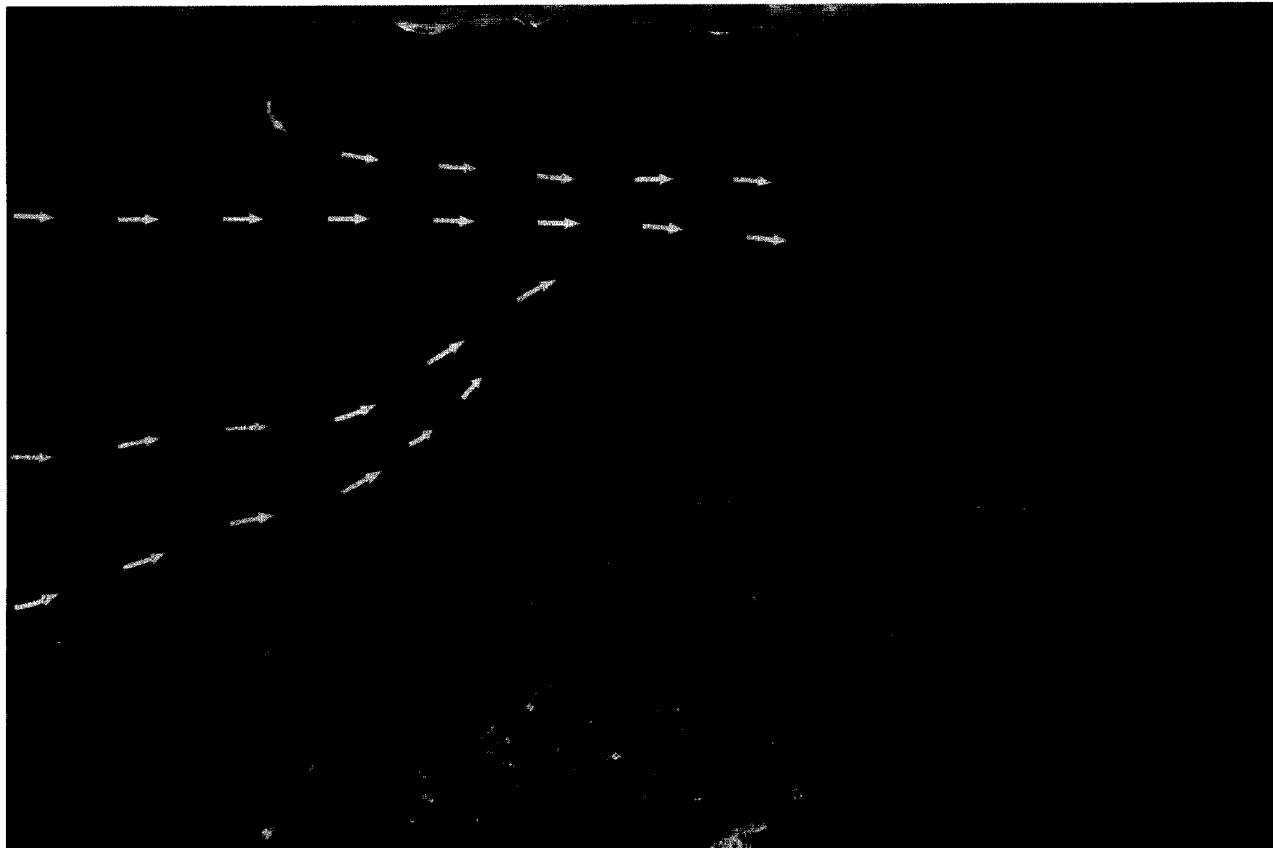


Fig. 2 - Location of a dzaekha trap at Bodo Gunsa.

measured from 270 m up to 1.06 km in length, and may be curved, straight or gently meandering. The lines of cairns never actually converge completely, but stop short to form an opening (T. *sgo*) or mouth (T. *kha*) between their end cairns, which usually measures about 5-10 m across. The wide, southerly facing opening of a dzaekha across a pass or valley can range from about 400 m up to 1.64 km. The cairns erected at the wide end of a dzaekha line are larger and more widely spaced apart (ca. 2-3 m), and as the lines converge the cairns become reduced in size and are located closer together (ca. 50 cm).

According to Gertse hunters, when northward migrating groups of female antelope enter a valley or cross a pass with a dzaekha, they catch sight of a line of cairns to one side of their peripheral vision. The cairns represent an obstacle to the animals, who prefer to walk on open flat ground rather than having to negotiate barriers, and they accordingly steer away from them to some degree and walk parallel. Similarly, the second line of cairns on the opposite side of the same terrain also has this steering effect on the animals' progress, and in this way they are coerced between the lines of cairns towards the mouth or gate ahead of them, which is free of obstacles. Any antelope, if it so desired, could effortlessly cross a dzaekha line or walk between its cairns, although the female animals seem unable to bring themselves to negotiate this particular type of manmade obstacle. In the open ground immediately at the mouth of a dzaekha, through which all antelope will pass, hunters place the foot traps known as khogtse. Normally from 5 to 20 traps may be placed in this area, depending upon the size of the dzaekha and the amount of traps a hunter or hunting party possess. As mentioned above, the khogtse is an ancient style of Tibetan ungulate trap, and all aspects of its present design, materials and dimensions as made by the Gertse pastoralists have remained unchanged when compared with the ancient specimens available. The use and construction of similar foot traps in Tibet is widely reported in the literature (Bower, 1894: 117; Rockhill, 1893: 714; Kennion, 1910: 235-6; Trotter, 1915, 1: 165; Goldstein & Beall, 1990: 126-127; Schaller, 1997: 70), and the present account only concerns the khogtse as found in the research area of northern Gertse.²⁵

All adult male pastoralists interviewed in northern Gertse knew how to construct a khogtse. It is a skill they say they acquired already as young boys from their fathers and male relatives, and is considered necessary knowledge for survival. Once all the necessary materials have been assembled, the construction of a khogtse can be accomplished by a skilled person in approximately one

hour. The khogtse is based upon a plaited ring of dry grass stems (T. *'o-mo rtswa* or *spur-rtswa*) mixed with the quills of geese (T. *bya ngang-pa*). Both these materials can be collected near local lakes and marshes. This strong plaited ring, with a thickness of 3 cm, is bound around with yarn made of sheep wool and goat hair, and has an overall diameter of about 20 cm. An antelope horn (T. *gtsod kyi rwa-co*) must then be soaked in water to make it pliable for cutting into thin slivers. The dried slivers of antelope horn, about 15 cm x 1 cm, with sharpened points, are inserted at an angle into the ring, such that all the sharp pointed ends meet in a funnel-like arrangement at the centre of the ring about 7-9 cm below its top surface. A total of 12-16 of these so-called "horn prongs" (T. *rwa-so*) are used in those khogtse which are made for snaring antelope and other smaller wild ungulates.²⁶ The use of antelope horn in the central part of the trapping mechanism of the khogtse is the subject of a well-known Gertse aphorism: "The tool for killing the antelope is on the head of the antelope."²⁷

At the beginning of the marling, an antelope hunter carries all his khogtse to the narrow opening of the dzaekha and inserts them into the ground in an array about 1 m apart from each other. A shallow (ca. 25 cm) hole (*sa-dong*) is dug in the earth using an antelope horn, and a khogtse is inserted into the top of this, with its circle of horn prongs pointing downwards into the hole. Once an antelope steps into the mouth of the khogtse, its foot slips down between the flexible, sharpened prongs and into the hole, and it is unable to pull itself free since the points of the prongs cut into its skin and flesh, holding its leg in position. In winter and in cold weather, the khogtse is held fast around the top of the hole since it is frozen solid to the surrounding soil. When khogtse are set in cold conditions, hunters often pour some water around the mouth of the hole to aid this freezing into position. Once frozen into position, a struggling antelope is unable to pull the trap loose.

If the surface of the ground is no longer frozen when a khogtse is to be set, then the hole must be dug somewhat deeper (ca. 50 cm or more), and an additional snare cum anchor rope (T. *rnyi-thag*) must be added to the trap. This additional rope is made of strong yak hair, with a 3 cm diameter and 1 m in length, and a loop and slip-knot formed at one end. The loop is laid exactly over the top of the khogtse ring when it is set into the ground. The other end of the rope passes down into the hole, and is anchored into place by being attached to a long stone (T. *char-rdo*) or antelope horn which has been wedged or frozen firmly into the soil at the bottom of the hole. Sometimes other stones can be placed on top of this anchor to ensure it can-

²⁵ In other pastoral areas of the eastern and southern Changthang, the khogtse is only ever found used in conjunction with a 2-3 cm diameter rope loop foot snare made of yak hair (called *rnyi-thag* or *nor kyi rdzi-pa* in neighbouring Nyima County, for instance; see Goldstein & Beall, 1990: 126, for a description). In these areas, the whole trap is frequently designated simply as a *rnyi* or "trap" and the word khogtse is not used.

²⁶ Khogtse are also used to snare wild ass (*rkyang*), and while their construction is identical, they are larger overall, with a total diameter of about 30 cm, a ring thickness of about 4-5 cm, and contain 20-30 horn prongs.

²⁷ *Gtsod gtsod spyod gtsod kyi mgo la yod /*.

not be pulled out by the struggling prey. If an animal managed to pull its leg with the *khogtse* out of the hole, the slipknot of the snare rope tightens fast around its leg leaving it unable to escape.

The opening of the *khogtse* is finally covered over with straw and a sprinkling of earth, or a pat of wild ass dung if available. In winter and during cold weather, when frost and snow cover the ground, the opening will be all but invisible to passing animals if so disguised. In summer, when it may frequently rain, the opening must be covered by something more durable. A pad of coarsely woven or felted horse or wild ass hair, called a “*dirang*”, is placed over the opening and then covered over with grass and sand. Both heavy snowfall and heavy rain prejudice the effectiveness of *khogtse* traps.

During the height of the marling season, different sized groups of female antelope will migrate through the area of a *dzaekha* as often as every few days, and a hunter must visit the site at least several times a week to check for snared animals. The killing and processing of snared game will be discussed below. During the marling hunt, *khogtse* traps are only set in a *dzaekha* to snare antelope on the northward phase of their migration. They are removed in the early summer when all the pregnant females have passed through the area. According to hunters, returning females and their newborn young are never trapped, and the generally northern orientation of all the *dzaekha* that were observed during the research supports this claim.

2. The *tshertsö* hunt

The second annual antelope hunt is locally referred to as *tshertsö* (T. *tsher-gtsod*), or the period of the “afflicted antelope”. The *tshertsö* occurs throughout the warmer months of summer from about June to September. This is the period when Changthang insect populations, the source of the antelope’s particular “affliction” (T. *tsher-ba*), are most abundant and active. Gertse hunters remark that there are several species of summer fly which greatly irritate the antelope, and they are thus called “antelope fly” (T. *gtsod-bu*). They reported that animals of both sexes and all ages are disturbed by these flies when they come close to their heads, especially during the hotter period of the day when insects are most active. These flies also parasitize antelope with their large larvae, which develop in the flesh and hatch out through a hole in the animal’s hide. An antelope harassed by the presence of such flies may twitch and kick or buck in irritation. All the same details have been noted by biologists (Schaller, 1998: 57, 63-65).

Tibetan antelope have one well-known behavioural response to this summer insect irritation; they dig out regular hollows or bowls in the dust or sand by pawing with their hoofs, and lay down in them during the daytime. The hunters refer to these depressions, which are round, shallow and over a metre in diameter, as “affliction hollows” (T. *tsher-dong*). This particular behavioural strategy presents the hunter with another site of predictable – if tem-

porary – antelope presence that he attempts to exploit. A hunter will search out sites where fresh antelope hollows have been dug, and set up an array of *khogtse* traps around them, such that an animal returning to their hollow may get snared. The use of the *khogtse* for the summer *tshertsö* hunting season is, as described above, always combined with a foot snare of strong rope (T. *rnyi-thag*) and the woven or felted hair pad (*dirang*) used to disguise the opening of the trap.

3. The *kangtsö* hunt

The *kangtsö* (T. *gangs-gtsod*) or “snow antelope” hunting season coincides with, and is closely related to, the *tshertsö*, although it begins later in the summer when insect harassment most disturbs the antelope. In Tibetan, the word *gangs* means “snow”, but specifically it refers to snow of a more permanent nature, such as snow or ice fields that persist over summer high in the mountains or as glaciers. In order to escape both the insects and the heat of the plains, groups of antelope migrate up to the surrounding higher, cooler and relatively insect free ridges that may still have some remaining snowfields present on them. Here, high above the plains, antelope either stand or even lay on patches of ice or snow in order to seek relief. Since most areas of summer snow and ice occur regularly upon the same high ridges, antelope tend to visit the same easily accessible sites year after year. Local hunters search for well used antelope tracks leading up to sites of permanent snow and ice, and then set up *khogtse* along these routes from mid-summer onward. The trapping system used is identical with the *tshertsö*. It is reported that some very commonly used summer snow areas also have *dzaekha* established on their access trails by hunters, although no such sites were observed.

4. *Ngartsö*

The *ngartsö* (T. *ngar-gtsod*) is the principal period of the winter hunt, when antelope congregate for the rut between November and January. *Ngar* means “passionate”, signifying the antelope’s temperament and behaviour during the rut. But it also refers to the roar (T. *ngar-skad*) and the hoarse, strong breathing (T. *ngar ngar-po*) of male antelope during courtship. The rut is attractive for hunters for two reasons. Firstly, large numbers of antelope congregate together for courtship and mating and thus offer an easier opportunity for a kill. Secondly, November is typically the beginning of the more intense cold of winter when most water sources become frozen during the day, and it is also a period of very low precipitation. Thus, access to drinking water becomes a more critical factor for wild animals and this provides another predictable opportunity for hunters to obtain game. In addition to the better hunting prospects these conditions afford, the *ngartsö* is considered the best antelope-hunting season since the animals are at their fittest after summer and autumn grazing.

Some hunters state that male antelope become more confident and less cautious than normal during the rut, since

they are preoccupied with courtship and mating. The ngartsö is thus said to be the best time at which to stalk and shoot the animals with any degree of success. The introduction of firearms onto the Tibetan plateau during the 17th century surely revolutionized Tibetan hunting culture. However, the impact of guns on hunting in areas such as the Changthang should not be overstated. Although more advanced breechloaders had been available in Tibet throughout the 20th century, they have been rare and expensive in remote areas such as Gertse. Some antelope hunters in Gertse have never used guns of any sort, simply because they have never been able to afford them. Until very recently, most antelope hunters have only used traditional matchlock-style Tibetan guns (T. *bod-mda*). These handmade weapons fire homemade bullets when a smouldering wick is brought into contact with a charge of homemade gunpowder that is manually rammed into the end of the firing chamber. Discharging a matchlock produces a very loud report, a strong smell of burnt powder, and a following period for reloading which is seldom under 2 minutes duration. Due to this, it is extremely rare for a hunter to ever get more than a single shot at any animals that he has managed to come within range of. The accuracy of Tibetan matchlocks falls sharply beyond about 150-200 m. For these reasons, animal behaviour and environmental conditions during the ngartsö are considered to favour chances of shooting antelope.

Because antelope prefer to inhabit open plains and gentle rolling country, stalking (T. *'jab-mda*) is very seldom if ever employed by hunters who use guns.²⁸ Shooting is almost always done from a stationary concealed location using simple blinds or hides that a hunter must construct at an appropriate site. During ngartsö, hunters carefully locate any sources of water close to the antelope's mating and wintering area that have not become frozen over. Having first observed that these are frequented regularly by the animals, they construct a hunter's hide known as a gugra (T. *sgug-ra*) within shooting range of a water source. The word *sgug-pa* can mean to "wait" or to "lie in wait", while a *ra-ba* is any kind of enclosure, fence or wall. A gugra is a shallow, circular pit (T. *sa-dong*) of ca. 2.5-3 m diameter and excavated to a depth of ca. 40-50 cm, in which a hunter can lay in wait with his gun. Arrayed around the edge of the pit, and facing the target zone, are a series of rocks arranged to form a low wall (T. *sgug-rtsig*). At intervals in this wall, small holes are left open between the rocks in order to place the barrel of the gun in and to take aim through when shooting. Because these constructions are mostly built next to water sources, they are also known as chugug (T. *chu-sgug*), which can be translated as "lie in wait [near] water". A hunter lies in wait inside the gugra during the periods he has observed animals regularly coming to seek water, and antelope are then shot when they stand and

drink at the waterhole. Some hunters can lie in wait for a whole day at a time inside the gugra, while others limit themselves to mornings and evenings.

Hunting without a gun during the ngartsö is also based around water sources. This can take the form of setting khogtse traps around the favoured waterholes of the mating antelope, and returning every few days to check for snared animals. In some areas of northern Gertse where antelope congregate for the rut, there are no running water sources such as springs or rivers located on the plains or valley floors, and where khogtse and gugra can readily be set up. In such areas, the antelope drink mainly from small rivulets known locally as "sha", which carry melt water from snow or hail down the hillsides in shallow erosion channels. Hunters set up rows of 4-6 khogtse along the banks of such rivulets at 4-5 m intervals, often setting 20-30 traps in this manner.

5. The rutsö hunt

From mid-winter on, especially after the rut has ended in January, forage is often very scarce or buried under snow, and hunters say that antelope begin to get very hungry. This is when the so-called rutsö (T. *rus-gtsod*) or "bone antelope" hunting period begins. Hunters grind the dried bones (T. *rus*) of domestic livestock that they have gathered into powder. This bone meal is then taken and deposited on the ground close to the antelope wintering areas. As soon as antelope smell the powdered bone, they gather to eagerly consume it. Both khogtse and gugra are set up within range of these sites, and antelope are either snared or shot while feeding on the bone meal.

We have now identified the five main antelope hunting periods of the annual cycle in Gertse, together with their attendant strategies and techniques, according to Tibetan informants and our own observations. It should be emphasized that no hunters exploit all of these hunting periods one after another throughout the year. In fact, most hunters normally focus upon only one or two hunting periods during any given year. Exactly when, how and for how long an individual pastoralist engages in antelope hunting is determined by a variety of factors, including food needs, labour and time constraints of the domestic environment, weather conditions, occurrence of game, and economic interests. The only pattern that emerged during interviews was that most hunters who only sought antelope occasionally each year preferred to do it during the ngartsö or winter rut season. The main reasons given for this were that they had more free time in winter and the antelope were also in peak condition. Most hunters said they hunted antelope alone, while large prey, such as wild yak, was best pursued with a partner or group and pack animals.

²⁸ It is for the same reason that hunting dogs (*sha-khyi*) are never used to hunt antelope, since they are unable to corner them in open terrain. According to traditional pastoralist wisdom, antelope can recover from exhaustion after running up to 18 times, while domestic dogs cannot match this. However, wolves, they say, can recover 19 times and thus are a treat to antelope.

PROCESSING THE KILL

The khogtse is locally regarded as a particularly good type of trap because it inflicts neither severe injuries nor death upon a trapped ungulate. Once an animal is snared, it remains alive and, despite its initial panic, usually in good condition for several days. The hunter's main concern to regularly check traps is that predators, especially wolves, may get to the snared animals first. In addition, an already dead and stiff or frozen animal carcass is much harder to process and transport. Any animal which is found caught in a trap will be quickly killed by being hit on the head with a large stone, often, as much as anything, in order to save expensive or scarce bullets and gunpowder.

Once dead, an antelope is disembowelled, and then skinned. The skin is kept in order to harvest its fine wool, although the quality and quantity of wool varies considerably by sex, age and season of harvest. In times of hunger, all internal organs (*T. nang-cha*), including the stomach and bowel when cleaned of their contents, are retained for eating, especially if they have abundant fatty deposits on them. Otherwise, they are not necessarily eaten and may

be disposed of near the site of the kill. If more than one animal is snared at one time, and a hunter is working alone, the additional animals will be killed and gutted immediately, and then buried in shallow graves to hide them from predators until the hunter is able to return and collect them.

If a hunter has pack animals, the processed antelope carcass (*T. sha-khog*) will be transported back to camp in one piece, and even a hunter lacking pack animals will simply carry the whole carcass on his back. Evidence of Tibetan hunting traditions from many other areas of the plateau reveals that hunted game is usually dismembered directly at the kill site. This appears to be due to concerns about the traditional rules for sharing the meat of a game animal and notions about the inauspiciousness of whole game carcasses entering the domestic environment of the tent or household. The transportation of whole antelope carcasses in Gertse contradicts this pattern, although, as in other regions, female members of the household are generally forbidden to touch the meat of antelope until it has been completely dismembered.

KILL RATES

Although all hunting techniques are designed to maximize success in killing wild animals, we should not forget that so much governing the success or otherwise of hunting is still ultimately a matter of pure chance. It is not possible to give any statistically accurate evaluation of the average annual or seasonal numbers of antelope killed by Gertse hunters. There is considerable variation reported between individual hunters and also from year to year.

Individual kill rates that were admitted during interviews ranged from 2 to 23 animals per year since the 1950s, although most were towards the upper end of this range. Younger hunters were extremely reticent about admitting their recent annual kill rates because antelope hunting is illegal and within the past few years it has become increasingly strictly policed in Gertse County.

TIBETAN USES OF THE ANTELOPE AND THE SHAHTOOSH TRADE

For as long as any Gertse pastoralist can remember prior to the 1980s, antelope had been hunted solely as a supplementary food source in times of need. This is indeed confirmed in the few relevant historical sources that are available. Since antelope meat has always been consumed directly by hunters and their immediate social groupings, it has never had any commercial value.

The horns of antelope are locally used for a number of practical purposes. They are often utilized as tent pegs, and as tethering stakes for horses. They provide an excellent digging tool, with which pastoralists excavate holes (for traps, fire-pits, etc.) and to dig for the small edible tubers known as "droma" (*T. gro-ma*, *Potentilla* sp.). Some men also use the horns for the prong rests which swing down and support the barrels of their matchlock guns when shooting. While antelope horn and blood are both known as ingredients used in the Tibetan and Chinese traditional medical systems, the northern Gertse pastoralists have never used them in this way, and have never been asked to provide them for this purpose.

Although most parts of the antelope have nothing other than a functional value for the local pastoralists, the

very fine antelope wool known as shahtoosh, or "tsö kulu" in Tibetan (*gtsod khu-lu* or *gtsod-khul*; "stos kulu" or "tos kulu" in Ladakhi), has attained an extremely high commercial value. The demand created by the modern luxury fashion industry for Tibetan antelope wool, and the subsequent excessive hunting of the species in recent decades, have rightly made *Pantholops* a cause célèbre of international conservation efforts. What is often forgotten in the documentation surrounding this issue is that Tibetan communities who have hunted the antelope for many centuries have never had a use for antelope wool in their traditional culture. The harvest and commercial disposal of antelope wool from regions such as Gertse has always been stimulated by purely exogenous economic interests.

The period of excessive hunting of antelope for their wool began only 20 years ago, and the international forces that drive it have now become well documented (Wright & Kumar, 1997; Schaller, 1997: 91-95). What remains little known, is the nature of the kulu trade in Tibetan areas prior to the booming interest that began in the mid-1980s. There was only a residual kulu trade in

Changthang areas for the first 20 years of the Chinese occupation, that is, up until the 1980s, because cross-border trade with neighbouring India had been reduced significantly due to political and military tensions. Prior to this, in the 1950s and earlier, merchants had arrived annually in Gertse from Ladakh, in order to trade with local pastoralists.

Several elderly informants gave accounts of the kulu trade in Gertse during the 1940s and 1950s. The best quality kulu was always obtained from antelope hunted in the spring, during the marling hunting season. Ladakhi traders from Leh traditionally visited the area in the mid-summer months with small caravans of 10-20 donkeys. Their main objective was trading in sheep and goat wool, but they had encouraged the Tibetans to trade kulu with them for generations. This was no wonder: it has been calculated that such pre-modern traders could make up to 1,000% profit on the resale of Tibetan kulu (Rizvi, 1999: 90). Since antelope were hunted on a purely subsistence basis, very little kulu was ever collected by the pastoralists. Once an animal was killed, it was skinned and the kulu was hand-plucked from the dried hide. The quantities were measured in small units locally known as nyaga (T. *nya-ga*), equal to approximately 250 gm. Tentholds

that actually had some kulu to trade could only provide about 8 nyaga (= 2 kg) per season at most. There was no fixed price for kulu, and Tibetans obtained a variety of goods in exchange, including wheat flour, roasted barley flour, rice, dried fruits, lead for making bullets, ingredients for making gun-powder, and raw sugar. One informant regularly took a salt trading caravan from Gertse to Gyanyima (T. *rGya-nyi-ma*) on the Indian border each summer. During the 1950s, he was able to get up to 100 Indian rupees for 3 nyaga of kulu by dealing directly with Kashmiri-traders.²⁹

The above information indicates that the antelope wool harvest and trade from areas such as Gertse was always rather insignificant prior to the 1980s. It did not stimulate an increase in local antelope hunting. This only took place when a remote and fairly impoverished Tibetan community became exposed to the powerful forces of an international economic system. When pastoralists were suddenly offered very large financial rewards for antelope hides, a number of them shifted from being subsistence hunters to hunting for profit. Such increased local hunting for profit, and a great deal of organized poaching by outsiders, has led to a dramatic reduction in the antelope population across northern Tibet.

AFTERWORD

Since early 2002, police and officers of the TAR Forestry Department from Gertse County visited every rural district and confiscated all firearms and khogtse traps in the possession of local pastoralists. The seized hunting equipment was then destroyed by the authorities. The policing of existing conservation laws has also been vigorously stepped up during the past few years. Prior to this, hunting had already been banned because northern Gertse lies within the Chang Tang Nature Preserve, although low levels of subsistence hunting had been quietly tolerated by the authorities as a necessary meat supplement for poor households. The removal of the hunting

option for pastoralists will have negative economic effects in this already marginal environment, and these must be addressed if an effective and manageable balance between wildlife conservation and human needs is to be maintained in the region over a longer duration (Næss *et al.*, 2004; Fox *et al.*, 2004).

The political and ecological consequences of the past two decades of externally stimulated excesses in antelope harvesting have led to the effective end of a local Tibetan hunting culture throughout Gertse County and neighbouring areas for the foreseeable future.

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(Charlottesville). I am grateful to David Holler, Ömer Akakça, and Joe Fox for their comments. My informants were mainly elderly males (60-80+ years) with extensive experience of hunting before the advent of modern weapons, vehicles and market forces began to make an impact on game harvesting in the region. Supplementary interviews included younger to middle aged males with recent hunting experience.

²⁹ Cf. Rizvi (1999: 93), who quotes 120-170 rupees per bhatti (1 bhatti = 1.87 kg) being paid for kulu by Ladakhi merchants from the same period.

REFERENCES

- Administration Commission of Cultural Relics of the Tibetan Autonomous Region, 1994 - Art of Tibetan Rock Paintings. *Sichuan People's Publishing House*, Chengdu.
- Allen G. M., 1938 - Zoological results of the second Dolan expedition to Western China and Eastern Tibet, 1934-1936. Part III - Mammals. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 90: 261-294.
- Bacot J., Thomas F. W. & Toussaint Ch., 1940 - Documents de Touen-Houang relatif à l'Histoire du Tibet. *Librairie Orientaliste Paul Geuthner*, Paris.
- Bower H., 1894 - Diary of a Journey Across Tibet. *Macmillan & Co*, New York.
- Dung-dkar Blo-bzang 'Phrin-las, 2002 - Mkhas dbang dung dkar blo bzang 'phrin las mchog gis mdzad pa'i bod rig pa'i tshig mdzod chen mo shes bya rab gsal (Great Tibetological Dictionary by Dung dkar blo bzang 'phrin las). *Krung-go'i Bod-rig-pa dPe-skrun-khang*, Beijing.
- Fox, J. L., Mathiesen P., Drolma Yangzom, Næss M. W. & Xu Binrong, 2004 - Modern wildlife conservation initiatives and the pastoralist/hunter nomads of north-western Tibet. *Rangifer*, Special Issue 15: 17-27.
- Goldstein M. C. & Beall C., 1990 - Nomads of Western Tibet: The Survival of a Way of Life. *Serindia*, London.
- Hedin S., 1909-1913 - Transhimalaya. Discoveries and Adventures in Tibet. 3 volumes. *MacMillan*, London.
- Huber T., 2003 - The chase and the Dharma: The legal protection of wild animals in premodern Tibet. In: J. Knight (ed.). *Wildlife in Asia. Cultural Perspectives. Routledge Curzon*, London & New York: 36-55.
- Karma Tshul-khrims, 2003 - Stod mnga' ris sger rtse rdzong 'brong pa byang ma'i lo rgyus (History of the 'Brong pa Byang ma tribe of Sger rtse County, Mnga' ris region). *Unpublished*.
- Karmay S. G., 1975 - A General Introduction to the History and Doctrines of the Bon Religion. *Memoirs of the Research Department of the Toyo Bunko*, 33: 171-218.
- Kennion R. L., 1910 - Sport and Life in the Further Himalaya. *William Blackwood & Sons*, Edinburgh.
- Khu-byug, 2002 - Sangs rgyas chos lugs kyi spyi don gсар dpyad ces bya ba bzhugs so (New analysis of the main points of buddhism). *Mi-rigs dPe-skrun-khang*, Beijing.
- Krang-dbyi-sun, 1986 - Bod rgya tshig mdzod chen mo (Great Tibetan-Chinese dictionary). *Mi-rigs dPe-skrun-khang*, Beijing.
- Næss M., Dondrup Lhagyal, Drolma Yangdzom, Mathiesen P. & Fox J. L., 2004 - Nomadic pastoralism in the Aru basin of Tibet's Chang Thang. *Rangifer*, Special Issue 15: 39-46.
- Pelliot P., 1961 - Histoire Ancienne du Tibet. *Librairie d'Amérique et d'Orient*, Paris.
- Richardson H. E., 1990 - Hunting Accidents in Early Tibet. *The Tibet Journal*, 15 (4): 5-27.
- Ridgeway R. & Rowell G., 2003 - Chang Tang. *National Geographic*, September (German language edition): 128-147.
- Rizvi J., 1999 - Trans-Himalayan Caravans. Merchant Princes and Peasant Traders in Ladakh. *Oxford University Press*, New Delhi.
- Rockhill W. W., 1893 - Notes on the Ethnology of Tibet. Based on the Collections in the U.S. National Museum, Smithsonian Institution. *Government Printing Office*, Washington D.C.
- Schaller G. B., 1997 - Tibet's Hidden Wilderness. Wildlife and Nomads of the Chang Tang Reserve. *Harry N. Abrams*, New York.
- Schaller G. B., 1998 - Wildlife of the Tibetan Steppe. *University of Chicago Press*, Chicago.
- Schaller G. B., 2000 - Wildlife Conservation in the Chang Thang Reserve, Tibet. In: Wu Ning, Miller D., Lu Zhi & Springer J. (eds.). *Tibet's Biodiversity. Conservation and Management. China Forestry Publishing House*, Beijing: 21-28.
- bSod-rnams-skyid & dBang-rgyal, 1983 - Tun hong nas thon pa'i gna' bo'i bod yig shog dril (Ancient Tibetan scrolls which come from Dunhuang). *Mi-rigs dPe-skrun-khang*, Beijing.
- Spanien A. & Imaeda Y., 1979 - Choix de Documents Tibétains Conservés à la Bibliothèque Nationale, Tome II. *Bibliothèque Nationale*, Paris.
- Stein A., 1921 - Serindia. Detailed Reports on Explorations in Central Asia and Westernmost China. *Clarendon Press*, Oxford.
- Trotter R. E., 1915 - Account of Pandit Nain Singh's journey from Leh in Ladakh to Lhasa, and of his return to India via Assam, 1873-74-75. In: Records of the Survey of India, Volume VIII (in two parts): Part I, Exploration in Tibet and Neighbouring Regions 1865-1879. Burrard, S. G. (ed.). *Office of the Trigonometrical Survey*, Dehra Dun: 159-195.
- Wang Yao, 1988 - Introductory Notes on Ancient Tibetan Wooden Slips from Nob-chung. In: Tibetan Studies. Proceedings of the 4th Seminar of the International Association for Tibetan Studies Schloss Hohenkammer-Munich 1985. Uebach H. & Panglung J. (eds.). *Kommission für zentralasiatische Studien, Bayerische Akademie der Wissenschaften*, München: 547-550.
- Wang Yao & Cheng Jian, 1983 - Denghuang Tubo Wen Xian Xuan (Dunhuang Document Collections of the Tibetan Empire). *Sichuan Minzu Chubanshe*, Chengdu.
- Wright B. & Kumar A., 1997 - Fashioned for Extinction. An Exposé of the Shahtoosh Trade. *Wildlife Protection Society of India*, New Delhi.
- Wylie T. V., 1959 - A Standard System of Tibetan Transcription. *Harvard Journal of Asiatic Studies*, 2: 261-67.
- g.Yu-thog Yon-tan mGon-po, 1992 - Bdud rtsi snying po yan lag brgyad pa gsang ba man ngag gi rgyud (Lineage of secret teachings of the Bdud rtsi snying po yan lag brgyad pa). *Bod-ljongs Mi-dmangs dPe-skrun-khang*, Lhasa.

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