Hermann Kreutzmann Editor

Pastoral practices in High Asia

Agency of 'development' effected by modernisation, resettlement and transformation



Contents

1	Pastoral Practices in Transition: Animal Husbandry in High Asian Contexts Hermann Kreutzmann	1
2	Herding on High Grounds: Diversity and Typology of Pastoral Systems in the Eastern Hindukush (Chitral, Northwest Pakistan)	31
3	Pastoralism, Power and Politics: Access to Pastures in Northern Afghanistan Stefan Schütte	53
4	Pastoral Production Strategies and Market Orientation of the Afghan Kirghiz Ted Callahan	71
5	Livelihoods of the 'New Livestock Breeders' in the Eastern Pamirs of Tajikistan Tobias Kraudzun	89
6	Kirghiz in Little Kara Köl: The Forces of Modernisation in Southern Xinjiang Hermann Kreutzmann	109
7	Legal Arrangements and Pasture-Related Socio-ecological Challenges in Kyrgyzstan Andrei Dörre	127
8	Conflicting Strategies for Contested Resources: Pastoralists' Responses to Uncertainty in Post-socialist Rural Kyrgyzstan Bernd Steimann	145

x Contents

9	Pastoral People and Shepherding Practices in the Western Himalaya (Himachal Pradesh): A Historical Perspective Chetan Singh	161
10	State Policy and Local Performance: Pasture Use and Pastoral Practices in the Kumaon Himalaya	175
11	The Changing Role of Hunting and Wildlife in Pastoral Communities of Northern Tibet	195
12	Implementation of Resettlement Programmes Amongst Pastoralist Communities in Eastern Tibet Jarmila Ptackova	217
13	'Everybody Likes Houses. Even Birds Are Coming!' Emilia Róża Sułek	235
14	Change and Continuity in a Nomadic Pastoralism Community in the Tibet Autonomous Region, 1959–2009 Melvyn C. Goldstein	257
15	Tibetan Pastoralists in Transition. Political Change and State Interventions in Nomad Societies	273
16	Enclosure and Resettlement in the Eastern Tibetan Plateau: Dilemma of Pastoral Development During the Last Three Decades	291
17	Pastoral Communities' Perspectives on Climate Change and Their Adaptation Strategies in the Hindukush-Karakoram-Himalaya Yi Shaoliang, Muhammad Ismail, and Yan Zhaoli	307
18	Pastoralism: A Way Forward or Back? Hermann Kreutzmann	323
Abo	out the Authors	337
Ind	ex	341

Chapter 11 The Changing Role of Hunting and Wildlife in Pastoral Communities of Northern Tibet

Toni Huber

Abstract Hunting and wild animals have long been part of pastoralist life across the Tibetan Plateau, and especially in the northern Changtang region. Most recent research on Changtang hunting has focussed upon economic aspects in relation to conservation issues, wildlife ecology and status, human-wildlife conflicts and modern development. In contrast, the present study emphasizes social and cultural features of subsistence hunting practice and establishes some historical depth with which to contextualize data from recent decades. This chapter offers a rare diachronic perspective on hunting in a case study area located in the north-west of the Tibet Autonomous Region (China) and utilizes ethnohistorical evidence from throughout the twentieth century and contemporary ethnographic data from repeat fieldwork visits to the area. The results demonstrate that hunting in Changtang areas is best conceived of as a dynamic arena of practice. A subsistence hunting pattern for the region is described in relation to local ecological factors which seasonally determine hunting activity. This pattern is then viewed in relation to two historical periods of regional-level social and economic transition: a pre-modern wealth division between local pastoralist groups and the modern Communist period of collectivization into pastoralist communes. In conclusion, a range of local attitudes towards wildlife are examined in an attempt to open alternatives to the predominant economic, conservation and development-centred discussions of hunting and wild animals in Changtang pastoral communities.

Keywords Hunting • Pastoralists • Wildlife • Changtang • Tibetan Plateau

Central Asian Seminar, Institute of Asian and African Studies, Humboldt University, Unter den Linden 6, D - 10099 Berlin, Germany

e-mail: toni.huber@cms.hu-berlin.de

T. Huber (⊠)

11.1 Preamble

We must begin by noting that until the early 2000s, hunting was widely practised for a variety of reasons by pastoralists in the research case study area, although it had already become technically illegal some years earlier under Chinese state laws covering nature conservation and endangered species protection. A concerted crackdown by government officials culminating during 2002–2003 resulted in the confiscation and destruction of all hunting equipment in private ownership, with ongoing policing and penalties for illegal hunting now systematically implemented. Follow-up fieldwork during 2010 revealed that whilst subsistence hunting has now ceased, occasional destruction of predators and illegal poaching by a few pastoralist hunters was rumoured to be still occurring at remote sites. Thus, in sections below discussing recent observations, the present tense will be used since hunting does continue in a very limited and clandestine manner in the research area as of the time of writing.

11.2 Introduction: Local Hunting and the Case Study Area

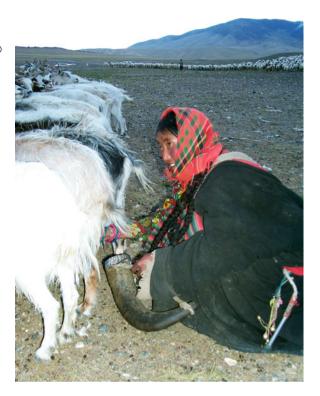
Of the possible relations which pastoralists are known to maintain with wildlife in different societies, including hunting, domestication, temporary taming as pets and protection, we only have comprehensive evidence for Tibetan pastoralists hunting wild animals. Hunting has traditionally served four principal goals when practised in Tibetan pastoral areas:

- 1. Supply of additional animal protein and fat for consumption by both humans and certain of their domestic animals
- 2. As a source of wild animal parts, especially hides, hair and horns (Photo 11.1) that are converted for use as material culture items
- 3. As a source of high-value wild animal products, especially organs, blood, flesh, horns and fine wool from particular species for trade
- 4. For control of predator and pest animals that kill or disturb livestock or that are perceived as grazing competitors for domestic herds

Nearly all of these goals of hunting have continued, to one degree or another, to be relevant until very recently in remote Changtang pastoralist communities. Viewed in economic terms, in pre-modern times, all four goals were chiefly pursued in order to maintain a subsistence economy rather than generate any surplus or commercial profit. However, during the modern (post-1960) period, there have been significant changes in the relative importance of these goals for pastoralists, due to specific economic and political demands to be discussed below.

Changtang pastoralists commonly practise hunting with a mixture of old and modern technologies. Steel leg traps, breech-loading and semi-automatic firearms and motor vehicles can be found in use by hunters, depending upon their levels of

Photo 11.1 Wild yak horn used as a milking pail in northern Gertse (Photograph © Toni Huber, 2003)



wealth or access to such items. However, many hunters still also use various traditional technologies (described in Huber 2005), often in combination with modern methods. Homemade muzzle-loading matchlock guns (and much more rarely, simple breech-loading rifles) have been in widespread use (Photo 11.2). An ancient style of leghold trap called *khogtse*² is still made from braided grass and animal hair with spikes of antelope horn (Photo 11.3).³ The use of a combination of firearms and *khogtse* traps (and bows and arrows) for hunting in the region was first recorded in 1874 (Trotter 1915:165). A large-scale 'road trap' or type of game drive structure locally known as *dzaekha*⁴ are also set up to catch migrating Tibetan antelope (*Pantholops hodgsoni*), although their use has recently died out due to official restrictions upon antelope hunting. Hunters also construct simple blinds or hides by digging shallow pits and erecting low stone walls within or behind which to lay in wait for animals with loaded firearms, whilst food bates are sometimes employed to attract particular species during winter. Dogs are almost always used to hunt species of wild sheep in rocky areas.

The case study area covered by this chapter extends over large parts of northern Gertse County and adjacent western Nima County (ca. 32°—34° N, 82° 30′—86° E) in the north-western region of the Tibetan Plateau known as the Changtang ('Northern Plains'). This is dry, cold alpine steppe country punctuated by a few low mountain ranges and saline lakes. Local pastoralists graze livestock on plains and



Photo 11.2 Hunting with a matchlock gun in northern Gertse (Photograph © Toni Huber, 2003)

Photo 11.3 Retired hunter with a *khogtse* leghold trap in northern Gertse (Photograph © Toni Huber, 2003)





Photo 11.4 Sheep herding at 4,870 m in the south of the case study area (Photograph © Toni Huber, 2002)

rolling hills that are sparsely vegetated by *Stipa* and *Stipa-Carex* zones and various dwarf herbs and scrubs.⁵ Pastoralists in the case study area camp or dwell at widely scattered sites between 4,700 and 5,000 m; this represents both the northern and upper altitudinal limit for permanent human settlement on the Tibetan Plateau. Many of their encampments are now reachable via simple vehicle tracks but are remote in the sense that they are often located 100–200 km from the nearest county town. The local form of pastoralism depends largely upon sheep and goat herding (Photo 11.4), with only a small number of yak. A few horses and dogs are maintained as working animals. Pastoralism on the northern Changtang is marginal compared to many wetter, warmer and lower regions to the south and east of the Plateau. Whilst herd sizes are relatively small and animal product yields are typically modest by most regional standards, many Tibetans from outside the case study area maintain that its livestock often have tastier meat and fat, and that wool/hair quality (especially from goats) is high.

Above latitude 33° in the case study area, most human activity ceases or is strictly seasonal, and from this point on, a vast wilderness region extends for several 100 km northwards to the Kunlun Shan range and the southern margins of the Tarim Basin. The significance of this northern zone for pastoralists has long been its large herds of wild ungulates, especially the Tibetan antelope and the wild yak (*Bos grunniens*), which are both favoured game animals in the case study area.⁶ Since 1993, all of

Gertse County north of latitude 33° and the whole of western Nima County north of latitude 32° have been included within the 298,000 km² Changtang National Nature Reserve, in which all hunting of wildlife is totally prohibited and nowadays strictly controlled.

In addition to direct field observations and discussions with active hunters throughout the case study area, part of the research method included 34 in-depth interviews specifically with elderly, retired hunters who ranged in ages from ca. 50–85 years. This data enabled some reconstruction of the pre-modern hunting culture prevailing in the region prior to the modern Chinese Communist administration of local pastoralist communities, which began around 1960. It further allowed for documentation of hunting during the period of collectivization into communes during the 1960s–1970s, as well as the subsequent economic and social reform period instituted by Deng Xiaoping and his allies post-1980. In addition to this data, we have an earlier set of direct observations (notes, maps and photographs) of local hunting left by Swedish explorer Sven Hedin (1909, 1913, 1922), who traversed the case study area twice during 1906 and 1908, and some of this will be compared with our ethnohistorical materials presented below.

11.3 Changtang Hunting: A History of Change

Tibetan hunting culture has always been dynamic and open to innovation. Here we can simply cite the introduction of firearms into Tibet during the seventeenth century and their subsequent universal acceptance as hunting weapons across the Tibetan Plateau, thus revolutionizing the ability to kill large wild ungulates. Beyond technological innovation, Tibetan hunting has long been transformed by changing political, socio-cultural and economic forces, not to mention ecological factors. Before discussing such issues in relation to recent history, I will first outline the basic subsistence hunting pattern of northern Changtang pastoralists as it is practised within local ecological and social contexts of the case study area. The account is drawn from direct observations, interviews and household surveys.

11.3.1 The Subsistence Hunting Pattern

On the micro-level of individual pastoral encampments or households in the case study area, hunting behaviour can constantly change due to the annual influence of ecological factors that in turn shape the domestic economy of Changtang herders. The principal factors are snowfall (and other forms of precipitation) and temperature, both of which can influence seasonal availability of grazing and hence livestock condition or even survival. Periodic heavy snows can lead directly to the starvation and freezing deaths of livestock of all ages and types, whilst sporadic and strong hail storms during lambing, kidding or calving seasons can also kill newborn animals.⁷

A second more seldom factor is the occasional outbreak of epidemic livestock diseases that can claim the lives of multiple animals at once. Finally, livestock can be lost each year to predation by wild carnivores. All such losses result in depletion of livestock available for domestic slaughter and consumption, a critical issue for families who maintain largely subsistence households supplying much of their own food. The traditional and relatively easy local means of compensating for this problem has been the hunting of preferred wild ungulates for additional food. The meat of wild yak, blue sheep, Tibetan argali sheep, Tibetan antelope and Tibetan gazelle is readily consumed by most Changtang pastoralists, although some also prefer to eat Tibetan wild ass.

In summary, the subsistence hunting pattern of northern Changtang pastoralists constitutes a food source supplement when pastoral production falls to a critical level or is in abeyance. Hunting of predators is aimed at curbing livestock loss and contributing towards sustainable pastoral production levels and must be appreciated as an integral aspect of the subsistence hunting pattern. Thus, levels of local subsistence hunting can be annually determined by weather conditions and events, and usually less so by disease outbreak and predator activity. All such ecological-type factors are highly variable and unpredictable.

In the case study area, a further element in determining the degree of dependency upon subsistence hunting over time has been general economic impoverishment of pastoralist households. Here 'impoverishment' means consistent inability to maintain pastoral production at levels that meet the annual subsistence needs of all household members. Whilst ecological-type factors can and do always shape the fortunes of pastoralists that lead to impoverishment, they are not the only reason for impoverishment to occur. In an environment where pastoralism is already potentially marginal for ecological reasons, successful pastoralists must possess both excellent skills in pastoral practices and sufficient household labour to enact them. My informants all stressed that, in addition to those suffering genuine 'bad luck' with ecological-type factors, poorly skilled or inexperienced pastoralists, and households consisting of few able-bodied persons, had always (in both pre-modern and modern times) been more likely to resort to, and regularly depend upon, subsistence hunting as a compensation.

Subsistence hunting was never the sole means of compensation for an impoverished or marginally producing pastoral household within the case study area. In both pre-modern times and in recent decades, other forms of compensation involving economic activities like trade or business ventures, natural produce harvesting and engagement in labour for others have been options. For a wide range of reasons, most marginal or impoverished pastoral households have not availed themselves of such options unless absolutely forced to. To give but one pre-modern example, prior to 1960, it was possible to harvest salt from the shores of local saline lakes and transport it to Indian Himalayan border trade markets for exchange or sale. However, to make this operation viable, a minimum of 400–500 sheep were required as pack animals for the salt, their wool was shorn and sold at the trade markets to raise additional profits, they carried goods on the return leg and some were killed as food supplies during the month-long journey. Marginal or impoverished households

could never muster such numbers of sheep, and the absence of able-bodied household members for many months on the trade caravan further stressed the domestic production system, as well as leaving an encampment less able to cope with crises or less well defended in case of visits by livestock thieves. In addition, such caravans required members who knew the long-distance routes to the border and who had contacts and experience for successful trading. Elderly informants reported that trading caravans and other similar pre-modern economic options (contract herding or shearing for wealthier nomads, summer gold washing for Central Tibetans and so on) were all viewed as problematic compared to subsistence hunting. Hunting could easily be practised locally, it usually only required lower levels of effort over shorter periods of time, and it directly addressed food shortages. During the 1980s and 1990s, my informants who resorted to subsistence hunting did so instead of pursuing alternatives for quite similar reasons; lack of start-up capital or reasonable/ secure lines of credit for business ventures, paid labour work being in far-distant locations, lack of skills (including literacy in Tibetan and Chinese) or self-confidence to take up other opportunities and simply because edible wild animals were locally available, relatively easy to kill and they were 'free' in terms of being an uncontrolled resource open for exploitation.

The general contours of the subsistence hunting pattern in the case study area appear to have been fairly consistent. Yet, we can also show that the intensity of, or level of dependence upon, local subsistence hunting has varied considerably across space and time, and that forms of hunting outside of the subsistence pattern have newly arisen, due to the circumstances of social and political history in this part of the Changtang.

11.3.2 A Pre-modern Underclass of Hunting Pastoralists

Prior to the 1950s, two distinct socio-economic classes of pastoralists occupied different zones of our case study area. At around latitude 32° of the central and western Changtang, a series of wide valleys connected by low passes runs east to west from Siling Tso across to Senge Khabab. Formerly the main pre-modern route for travel through the region, this transverse valley system now contains a modern highway and most of the main administrative centres. These broad 'southern' valleys often have extensive areas suitable for easy grazing. As one moves northwards, suitable areas of grazing vegetation are certainly available, albeit more localized and geographically scattered, thus more intensive herding is often required to utilize them.

In pre-modern times, it was not uncommon for a local pastoralist household to consist of six to eight or more persons. My elderly informants reported that, prior to Chinese occupation, wealthy pastoralist households with large herds (up to ca. 1,000+ animals) formerly monopolized these southern valleys and some of their lateral extensions for easier grazing throughout most of the year. The poorer households with few animals (ca. 50–150) usually spent at least half the year—including the coldest period from autumn to spring—at camps throughout the northern areas

around latitude 33° and above. The latter half of this period represents the 'lean season' for pastoralists, when grazing is reduced by cold, animal body weight is lowered and food shortages can occur. However, autumn and early winter were also the best hunting seasons, when wild animals were fat and in good condition.

Hedin (1913, 1,185) already observed this basic division of local pastoralists into two groups during the early twentieth century: 'To the Changpas or "inhabitants of the north", who spend the winter in the north, the chase is the chief resource, and cattle-breeding is of secondary importance. The Tibetans in Gertse and Senkor, on the Bogtsang-tsangpo or in Naktsang, who own large herds, do not move northwards in winter, for with them hunting is an occasional occupation. The hunting tribes pursue the yak, the kiang [wild ass], and the antelope'. The 'hunting tribes' or 'Changpas' (byang pa, 'northerner') mentioned here refer to those impoverished or marginal pastoral households who survived by practising high levels of subsistence hunting throughout the cold season.

Hedin, who twice traversed the case study area during the cold season (November 1906 and February-March 1908), regularly encountered camps of these hunting pastoralists. He often remarked on the large ('astonishing') numbers of frozen wild animal carcasses that lined the insides of the tents.8 One elderly informant recalled that as a 10-year-old child in this area, the inside of his family tent during winter was surrounded by a 'wall' (rtsigs pa) over 1 m high comprised of dozens of frozen antelope, gazelle and blue sheep carcasses, as well as the body parts of wild yak and wild ass. His father and uncles always killed much game from November on, when the animals were still fat and the temperatures low enough to keep the meat frozen. This was the typical situation every winter, and such stockpiles could keep the family fed for months on end. Hunted game meat of this sort was not only used to nourish the pastoralists themselves, it was also fed to herding and hunting dogs and regularly to all horses in a camp. Hedin (1909, 193) also witnessed this in the region: "...we saw them [Tibetan horses] run up to their masters for two large pieces of frozen antelope flesh, which they eagerly ate out of their hands like bread. They are just as fond of yak or sheep's flesh, and the Tibetans say that this diet makes them tough and hardy. We cannot help liking these small shaggy ponies, which live to no small extent on the offal of game'.

These hunting pastoralist groups usually moved back down to the southern valley systems around the beginning of summer (approximately early June). Their timing in departing southwards was set to coincide with a huge annual migration of wildlife moving in the other direction. Exactly during this season, adult female Tibetan antelope, accompanied by young female offspring, migrate en masse far into the northern wilderness zone where they visit regular calving grounds in order to give birth (Ridgeway 2004; Schaller 1998, 48–56). Each year, the pastoralists capitalized on this migration by setting up *dzaekha* game drive lines and *khogtse* leghold traps across the paths of regular antelope migration routes, thus enabling a final and easy game meat harvest before leaving the area. This special hunting period known as *marling* (*dmar gling*) has been described in detail elsewhere (Huber 2005). Because the trapping system was indiscriminate, many of the antelope killed during *marling* were pregnant females.

11.3.3 Communalization of the Hunt (1960s–1980s)

During the first decades of Chinese Communist administration on the Changtang, the local Tibetan socio-economic system of pastoralism was heavily modified by state interventions. This in turn transformed the pastoralists' hunting patterns and practices in a variety of ways. Initially, wealthy households were defined as 'class enemies' and had their large herds of livestock redistributed to the community, thus erasing former distinctions between the southern stockholding herders and the poorer groups who spent much of their time living from subsistence hunting in the north. Second, during the 1960s, all pastoralists were collectivized into people's communes. One central feature of communes was that the range of everyday pastoral activities most people normally performed became divided up into a series of specific types of labour and to which only certain persons were assigned. Commune members would then be allotted work-points based upon the type of task being performed. The work-points earned each day where tallied up by commune officials. Each pastoralist normally had one or two such areas of labour responsibility for which they earned work-points, and the various persons assigned to always perform the same type of labour were grouped together into working brigades.

Hunting was likewise collectivized as an aspect of pastoral labour under this system in Changtang pastoral communes. The groups who had to perform all the hunting within a commune formed units called 'hunting brigades' (khyi ra sgrig 'dzugs or khyi ra ru khag). These were normally comprised of five to six men selected by the commune leaders because of their skill in shooting and other hunting methods. Different techniques for hunting were traditionally employed to kill different types of game since each wild species has its own unique ecology and behavioural patterns that a hunter needs to understand and exploit to his advantage. Thus, hunting brigades were also organized and named on the basis of these techniques. For example, the 'dog hunting brigade' (sha khyi sgrig 'dzugs) specialized in hunting blue sheep and Tibetan argali sheep, the 'stalking brigade' ('jab mda' sgrig 'dzugs') specialized in wild yak, whilst the 'water [source] ambush brigade' (chu sgug sgrig 'dzugs') mainly hunted Tibetan antelope and Tibetan gazelle. Work in a hunting brigade earned comparatively high numbers of work-points because it directly contributed a valuable and often scarce resource—fresh animal protein and fat—which was shared with every member in the commune whenever the hunters killed game. Whilst they hunted year-round as necessary, the hunting brigades normally worked hardest from August to November, when game was fattest.

Thus, under the commune system, the local subsistence hunting pattern which had been a pre-modern economic mainstay of every impoverished individual pastoral household was now undertaken by a small and specialized group on behalf of the entire community. However, this new communal subsistence hunting soon became highly intensified due to both demands upon communes to produce more food and because of technological innovation.

Informants who were former hunting brigade members report that during the 1960s, a brigade never killed more than a half dozen game animals per week using

their traditional muzzle-loading guns (all of which had been confiscated and become commune property) and trapping systems, whilst travelling to the hunting areas was undertaken on foot or by horse, and employed pack yaks or horse carts to transport the meat. By the 1970s, most hunting brigade members had been supplied by commune leaders with semi-automatic assault rifles or handheld submachine guns for hunting, of the types that were standard issue for People's Liberation Army troops of the day. The effect of this new weapons technology upon harvesting of wildlife was dramatic. Informants estimate up to a tenfold increase in kill rates using this new type of gun, especially in the hunting of Tibetan wild ass that were not normally very shy of human approach and of blue sheep because their meat was favoured for eating. Soon trucks were being employed to transport huge numbers of wild ass carcasses killed by hunting brigades equipped with military-style weapons. Within a year or two of this killing regime, Tibetan wild ass became rarely seen and even locally extinct within several days travel around all communes in the case study area.

Former hunting brigade members reported that with these new weapons, one tended to actually hunt differently. If there was a group of animals in sight, hunters now never selected the healthiest or fattest to kill, nor picked them off one by one as in the past, but rather they kept on shooting without pause until every animal within range was either dead or laying dying on the ground. Some of my informants described herds of 20-30 wild asses being killed in this manner on occasion by well-armed hunting brigades, referring to it self-consciously—and with some obvious degree of shame—as 'slaughter of wildlife' (ri dwags bshan)¹⁰ rather than 'hunting of wildlife' (ri dwags rgyag). One systemic reason behind such forms of unconstrained killing was that no work-points were awarded to hunting brigade members if they failed to kill any animals or hunted too few. Additionally, sometimes commune leaders instructed hunting brigades to kill every animal they encountered when out hunting; there was an official demand for high kill rates placed upon hunters and this for a variety of reasons.¹¹ Mainly this was due to additional food requirements during periods of poor pastoral production within communes, which was not uncommon since commune members often lacked motivation to work too hard. But, it was also because increasing numbers of administrators and officials began to settle in newly built and expanding government quarters in the county towns. Such officials often came from outside the districts, they neither produced nor could supply any of their own food requirements, and thus communes were charged with providing additional food for them, something achieved in part through extra hunting.

Whilst collectivization was heralded by Maoists in China as an era of great social revolution, when old cultural and social forms would all be swept away and replaced, all hunting brigades that I investigated maintained certain very traditional features. ¹² They were exclusively male in composition, in keeping with the pre-modern (and still valid), pan-Tibetan hunting culture. ¹³ Moreover, no commune woman was ever allowed to touch the weapons and equipment of the hunting brigades for fear of creating bad luck during the hunt and pollution of the traditional *dralha* (*dgra lha*) deities associated with weapons and their users, something that was also believed to

be dangerous to women themselves. This gender-based prohibition is also a standard part of life in any Changtang pastoralist's tent that I have visited. Finally, an interesting example of pan-Tibetan hunting ritual associated with the cult of the *dralha* was performed by hunting brigade members throughout the commune period. This rite involves smearing blood and/or fat from the newly killed game animal into the mouth of the gun barrel and along the gun's stock with one's finger. In the case study area, this simple rite is sometimes referred to as '[I the hunter] eat meat, [you the gun/*dralha*] drink blood' (*sha zo khrag thung*). It is a way of offering part of the kill to the weapon's and the shooter's *dralha* deity so that, satisfied, he will assist in hitting the target during the next hunt. Whilst all public ritual or religious activity was actually forbidden or highly disapproved of by the state and its officials during the commune period, the fact of hunting brigades carrying out their work in remote places far from settlements meant that they were beyond official scrutiny and could do what they pleased.

To conclude the previous sections, it can be noted that hunting observed in pastoralist communities in other regions of the Tibetan Plateau throughout the twentieth century has been described as economically 'optional', 'non-essential', 'peripheral' or 'not an important occupation'. ¹⁴ In the case of northern Changtang communities, such descriptions do not readily apply, because the subsistence contribution of hunting has too often been critical or decisive for maintaining pastoral households or collectives. This chapter also emphasizes that the role of hunting within local Tibetan pastoral economies could vary considerably due to seasonal factors at the local level, as well as social and political developments at the regional level.

11.3.4 The Advent of Commercial Hunting

Following the abandonment of communes within the case study area during the early 1980s, and the beginning of implementation of sweeping economic and social reforms under Deng Xiaoping and his supporters, the nature of hunting by Changtang pastoralists was once again transformed. A new system, sometimes called 'household responsibility', was introduced in which the entire spectrum of pastoral production reverted back to household management as had been the case during the pre-modern period. However, a major distinction from the pre-modern period was that now, every newly de-collectivized household unit was given a proportionally equal number of livestock, and pasture rights were also reallocated in a similar way. Until about the mid-1980s, this artificial economic homogeneity resulted in the subsistence hunting pattern being pursued fairly consistently in most pastoralist communities throughout the case study area; annual kill rates were all reported as being relatively low. And this was regardless of the latitude of dwelling.

This situation was not to continue for long. A new form of intensive commercial hunting of Tibetan antelope became widely and excessively practised throughout Changtang pastoralist areas since the mid-late 1980s. This was fuelled by a growing

international market demand for *shahtoosh*—the fine, short wool of the antelope—as a luxury product. The ongoing consequences of commercial antelope hunting have had profound local effects, including an indefinite ban on all hunting, confiscation and destruction of all hunting equipment and increasing official stigmatization of the practice, which is criminalized and heavily punished in the breech. Nowadays, a long history of pastoralist subsistence hunting has effectively come to an end within the case study area.

Research related to the massive commercial over-hunting of antelope across the northern Changtang, and its major implications for conservation efforts, wildlife management and pastoralism has already been the focus of various studies (e.g. Fox et al. 2004; Naess et al. 2004; Schaller 1997, 2000). Apart from reiterating (Huber 2005) that commercial hunting by local pastoralists was something completely unknown until the 1980s, and that in the case of antelope, it was entirely generated by external demand—Changtang peoples never had their own uses for antelope wool—this well-documented topic will not be revisited herein. Rather, in conclusion, I will discuss the issue of local attitudes towards wildlife. This is not only of general relevance for understanding the practice of hunting. I would venture it is also intimately related to properly understanding the participation of some local pastoralists from my case study area in excessive commercial antelope hunting, as well as earlier involvements by local people in systematic, large-scale meat hunting for communes in the past.

11.4 Attitudes Towards Wildlife

Buddhism has often been associated with Tibetan attitudes towards nature, wildlife included. ¹⁵ Some observers have noted a link between Buddhist ideas and aversion to hunting amongst pastoralists. ¹⁶ Other evidence indicates that pastoralist belief in a class of local territorial gods may also influence attitudes towards wildlife and hunting. ¹⁷ Given such cultural records from various parts of the Tibetan Plateau, we might ask how these factors have been influential in our Changtang case study area. Furthermore, what are the main pastoralist attitudes towards wildlife, and have they changed along with transformations of local hunting over time?

11.4.1 A Dearth of Buddhism

Together with the great majority of Tibetans, Changtang pastoralists readily identify themselves as being Buddhist when asked. Whilst recognizing that Buddhism has recently become articulated with modern forms of national identity in Tibetan societies (and powerfully so, due to shared historical experience of Chinese occupation), we have to carefully qualify what being Buddhist actually means in the daily life of pastoralists in the case study area. The usual forms of institutionalized Tibetan

Buddhism that are so well known (mass monasticism, a highly literate scholastic tradition, politically and socially influential reincarnate lamas, popular pilgrimage centres and so on) are all absent in the case study area. The few tiny local monastic centres are all relatively recent foundations, and whilst clerical practitioners have circulated in the region, past and present, both their numbers and their religious and social rankings have typically been very low. If pastoralists practise as Buddhists at all, it is usually on the individual or family level of occasional engagement with popular ritual (pilgrimage, offerings and prayers, life cycle rites and so on). Thus, the actual presence of Buddhism as an organized religion is quite marginal in the northern Changtang.

The basics of Buddhist moral cosmology—which condemns any intentional harm of sentient beings and plots the negative post-mortem karmic consequences for those who do—are well known to adult pastoralists. However, any possible influence this might have on their behaviour is, according to my research data, only understandable in terms of local life histories. I found that from pre-modern times up until the late 1990s, the high majority of able-bodied male pastoralists had been involved in hunting as part of their regular domestic activities, thus they understood it with something normal and taken for granted. Hunting typically began in teenage years, with first gun use often being a sort of informal rite de passage, and ended for most men around 45-50 years of age, often due to deteriorating eyesight and other physical limitations. Local expectations of masculine behaviour, and engagement in a largely subsistence economy based upon manipulating animals, mean that Buddhist moral concepts are seldom reference points for the daily lives of men, who are highly pragmatic in fulfilling what life demands of them. It is only during middle age that men, having experienced death and illness in their social environment over time, begin to contemplate their own mortality more seriously and their possible post-mortem fates in terms of karma and rebirth. For this reason, it is quite typical that hunting becomes less attractive or personally problematic for middle-aged male pastoralists due to the Buddhist ideas they understand death and afterlife in terms of. A complementary study of the life histories of pastoralist hunters I conducted in Amdo (1999–2001), on the north-east of the Tibetan Plateau, revealed exactly the same pattern.

Thus, my data clearly reveal that Buddhism has played virtually no role in influencing attitudes and practices towards wild animals amongst male pastoralists as hunters, ¹⁸ and when this is known to occur, the men concerned have already reached an age when hunting is often no longer an option for them due to increasing physical frailties.

11.4.2 Territorial Deities

As for links between local territorial deities and attitudes towards wildlife and hunting, the principal belief amongst Tibetans is that the wild ungulates and carnivores in any area are considered the property (or 'herds') of such local gods. Thus, hunting game animals is potentially a theft which can be avenged by the deity (typically by illness, madness or misfortune) or, at very least, is viewed as a kind of permitted

removal of game animals in dependence upon the purity and strength of moral and ritual relations between a local person and the god concerned. Whilst a few territorial gods are known from the south of the case study area, generally there is little or no interest in them on the part of the pastoralist population. In extensive interviews with over 30 local informants covering many ritual details of hunting, including direct questions relating to local territorial gods, no connection was made between hunting and belief in these gods. This result can be explained by the fact that all those pastoral populations historically inhabiting the southern transverse valley system and using areas to the north are descendents of immigrants who arrived in a series of waves several centuries ago from the far eastern Changtang¹⁹ and who have not brought their former territorial gods with them, or at least not successfully reinstalled them in local landscapes.²⁰

11.4.3 'Ownerless' Wildlife

My research suggests that Changtang pastoralists' attitudes to wildlife are based largely upon another set of assumptions that are unrelated to the universal and local religions just discussed. These assumptions are not necessarily readily articulated within any coherent or systematic doctrinal or ritual constellation. Whilst less obvious, careful attention to cultural practices and discourses can clearly reveal them. When I repeatedly observed how pastoralists hunted, killed and butchered wild animals, it was clear that they did so in 'cold blood' without any hesitation or compunction. In particular, the hunter's kill is completely devoid of any ritual activity performed for the sake of the dead animal.²¹ This contrasts strongly with a whole variety of rites and behaviours that can attend the killing of domestic animals: prayers for the animal's positive rebirth might be uttered, the skulls or bones of domestic animals are memorialized and engraved with Buddhist ritual formulas for placement upon shrines, killing techniques which avoid actual bloodletting are used (e.g. strangulation) and killing one's own domestic animals is even avoided altogether by hiring a professional butcher. Why then this difference between a pastoralist killing of wild yak when hunting and the often ritualized killing of one of his own domestic yak or hunting a wild blue sheep compared with butchering a domestic sheep from one's own herd? Biologically, the animals are close to identical, and killing is killing after all.

As my informants explain it, the key distinction between wild and domestic species lies in concepts of ownership and property and how one relates to animals on this basis. A common and ancient Tibetan expression for wild animals is *semchen dagmey* (*sems can bdag med*), which literally means 'ownerless sentient beings'. With an 'ownerless' (*bdag med*) status, a wild animal is one which a person requires no permission to use, it does not fall within the category of property (it is not claimed, tamed or controlled by anyone), nor is it one which a human agent is compelled to take responsibility for (e.g. soteriologically, as in the ritualized killing of domestic animals). The attitude with which Changtang pastoralists have long

harvested wild animals by hunting them is the same attitude that they take towards harvesting any other local resource base, such as salt deposits on a lakeshore or open summer pasturage on a mountain slope: wildlife is free, it is 'out there' in uncultivated and unsettled places, and available for harvest or use when required.

11.4.4 Wildlife as Enemy

The second significant point about pastoralists' attitudes to wildlife that can be discerned is a conceptual overlap between wild animals and human enemies or foes; both can be equally subject to the sequential acts of location, pursuit and killing. One seeks the whereabouts of a game animal/enemy, chases after it and kills it. Whilst it is common sense that a successful hunt (i.e. it must end with a kill) and a successful victory over an enemy (i.e. it must end in the complete neutralization of threat, most fully achieved by killing the threatening agent) are analogues, the actual fact of this conceptual overlap is explicitly evinced in a number of subtle aspects of the pastoralists' local culture. For one thing, the deities known as dralha (dgra lha, literally 'god of the enemy') are the key gods of both warfare and hunting. The dralha are in fact the only gods Tibetan hunters actually worship in relation to the act of hunting itself, just as men worship them when going into battle. The ritual complex of the dralha is identical for worship in both hunting and warfare. The dralha are believed to reside in two critical locations, in a man's weapons and battle/ hunting equipment (including his horse) and on a man's right shoulder. They simultaneously protect the hunter/warrior from the prey/enemy's force and cunning (elusiveness) and conquer the prey/enemy by empowering a man's weapons with accuracy, penetrative effect and invincibility. All my informants, to a man, worshiped only their dralha in relation to the hunt. The second instance in which we find conceptual overlap between wild animals and human enemies is in certain divination systems used on the Changtang for hunting. The traditional pastoralists practise scapulamancy using a sheep's scapula prior to a hunt in order to both locate the general direction in which the game animals will be found and to inquire whether there will be a kill or not (Q: will the effort of going out hunting be rewarded?). Exactly the same divination technique was employed in times past when human enemies had to be dealt with using conflict. In fact, when reading the scapula, the sites on the bone indicating information about 'enemy' (dgra) are the same as those for 'wild animals' (ri dwags), whilst the expression 'enemy prognostic' (dgra phya) can sometimes be used for both types of divination inquiries. Finally, I report what a 71-year-old informant told me during my 2010 visit to the case study area in answer to my question: 'When hunting, did you do anything special or particular upon killing a wild animal?' The old man responded without hesitation, 'I just used to say to myself Dra rirag nyi nyatse kug.22' This expression literally means 'Bend down the top of the neck of both enemies and wild animals'. This signifies that after achieving a kill, there is a final act to demonstrate the complete domination or utter subjugation of one's enemy/prey, which is beheading them (typically right at the

skull's base) and then bending the neck stump so that it faces downwards in submission. The chanting of this expression upon killing is itself a kind of formula of aspiration for the nature of future encounters with any enemy/prey.

The notion that wild animals are the enemies of human beings is actually not at all out of place for pastoralists living in a northern Changtang environment, in which a whole range of wild carnivorous predators, including wolves, snow leopards, lynx, foxes and bears usually deplete valuable flocks and herds on an annual basis (Dawa Tsering et al. 2006). They literally steal the pastoralists' subsistence away from them. Equally troublesome is that large vegetarian ungulate, the wild yak bull, which can seek out herds of domestic vak in order to round up and drive off females to add to their breeding harems in the hills. A wild bull seeking domestic females will fight and injure or kill any domestic male who intervenes, and pastoralists suffer both loss of female and death of male animals in this manner. An enraged wild vak bull will also kill or injure any humans who intervene or who are perceived as a threat.²³ The killing of a local pastoralist by a wild vak bull occurred in my case study area just prior to the start of my research, and such deaths due to both wild yak and bear attacks are not uncommon right across the Changtang. All this more or less parallels a very similar and not so uncommon human menace prevalent in more lawless premodern times on the Changtang, raiding by bands of human livestock thieves, which could have all the same negative impacts on local pastoralist as wild animal predation and attack do. Wild animals are enemies, just as human beings are enemies.

11.4.5 Notions of Abundance

A final point on local attitudes towards wildlife concerns notions about the actual frequency or abundance of animals in the surrounding environment. As happened many times during my fieldwork, when I saw no local wildlife in an area where I knew hunting had been taking place, and asked where the game animals were, informants invariably indicated that they were in another valley or on mountains further away from the present location. When I visited these alternative areas and found no animals there either, the same answer was repeated by the locals. They in turn indicated an even more remote valley or mountain range as the present location of wildlife. The belief seemed to be that an absence of wildlife was only ever local, and that there was always a source of wildlife somewhere else not far away. Despite the obvious lack of wildlife in some areas due to decades of over-hunting, pastoralists' showed no perception of local or regional extinction of wildlife populations, nor that populations might in some way be finite and fragile.²⁴ Whilst working on the Changtang, Biologist George Schaller noted a revealing little narrative about the source of abundant wild animals, one that I myself heard from pastoralists during my research several times: 'It is widely believed that 100 animals will appear from the mysterious north, a place where few nomads have been, for every animal that is shot' (1998, 301). Hunting is therefore a bonus for conservation in local thinking. Such ideas about the spontaneous and rapid generation of wild animals in wilderness areas are in fact centuries old in Tibetan cultural history.²⁵

11.4.6 **Summary**

If we try to understand how Changtang pastoralists thought and acted when participating in mass killings of wildlife for the commune system, or their reactions when smugglers and black marketeers offer them big money today for killing many antelope, or their repeated appeals to officials to relax hunting bans due to perceived grazing competition from wild animals or how they can readily kill a highly endangered snow leopard because it has slaughtered a few of their sheep, what explanations can we turn to? There is a tendency in many recent publications to present hunting practised by northern Changtang pastoralists almost solely in relation to productive systems and commercial profit. Hunting and attitudes towards wildlife appear solely as economic aspects of pastoralists' lives, inspired and directed by some form of local economic rationalism; if not explicit, this is at least the implicit assumption in the literature. Thinking and acting from economic perspectives certainly inform hunters' practice on the northern Changtang. However, the above investigation into pastoralists' attitudes reveals other aspects of social and cultural life on the Changtang that are highly relevant to addressing all of the types of questions we have just posed above. Pastoralists do view wildlife as an economic resource but largely in terms of their own local, cultural frameworks. Wildlife is considered a resource that is 'free' in the sense of having no responsible owner or 'free' from the burden of property rights. Wildlife, whether carnivores or certain ungulates, is also a resource which can take the form of a potentially threatening enemy, one that can undermine or destroy a person's economic base—or even take human life—in a range of ways merely by existing in the same neighbourhood and following its natural inclinations. And, no less significant, wildlife is a resource viewed as seemingly without limit in terms of its abundance. Hunting and the role of wildlife amongst Changtang pastoralists must be considered within this far more complex social and cultural field, one that also has various demonstrable roots extending back to past (sometimes ancient) patterns or models and historical experiences as well.

Acknowledgements Field research from 2002 to 2010 was funded by Victoria University (Wellington), Humboldt University (Berlin) and the Deutsche Forschungsgemeinschaft (Bonn) and conducted in conjunction with the Tibetan Academy of Social Sciences (Lhasa).

Notes

- A few cases of temporary taming of some wild species, especially wild sheep, can be observed
 in the Changtang region. These animals are often found by hunters as orphans or strays and
 sometimes dedicated or donated to lamas, monasteries or pilgrimage shrines for care.
- 2. Tibetan words and text are rendered in simple phonetic form followed in parentheses or in footnotes by proper spellings using the Wylie system of Romanization. Certain local words (such as *dzaekha* or *Khogtse*) have no known or stable spellings.
- 3. The oldest examples of *khogtse* trap, perhaps more than 1,000 years old, have been excavated on the northern periphery of the Tibetan Plateau; see Stein 1921, vol. 2, 704, 767, 782; vol. 4,

- plate LIV, item no. T. XV. A. i. 009. Also British Museum, Oriental Antiquities Department, OA MAS 796.
- 4. Although probably of prehistoric origins and related to other known alpine and sub-arctic game drive techniques (cf. Benedict 2005; Ingold 1980, 56–61; Popov 1966), *dzaekha* were first recorded in the northern Changtang during the late nineteenth and early twentieth centuries; Deasy 1901, 32 and Hedin 1913, vol. 3, 58. On recent *dzaekha* use, see Huber 2005 and Fox and Tsechoe Dorji N.d.
- 5. An overview of Changtang ecology is given in Schaller 1998, chapt. 2.
- 6. Other locally hunted wild species include blue sheep (*Pseudois nayaur*), Tibetan gazelle (*Procapra picticaudata*), Tibetan wild ass (*Equus kiang*) and Tibetan argali sheep (*Ovis ammon hodgsoni*). Occasionally, wolf (*Canis lupus*), two species of fox (*Vulpes vulpes, Vulpes ferrilata*) and Tibetan brown bear (*Ursus arctos*) are hunted as predator or pest animals. Although both snow leopard (*Uncia (Panthera) uncia*) and lynx (*Felis (Lynx) lynx*) are also hunted as predators in various Changtang areas, I obtained no reports of this for my fieldwork sites. For details of wild ungulates and carnivores of the Changtang, see Schaller 1998.
- 7. Lambing and kidding occur during late winter or early spring when weather is still cold and sometimes stormy, and the mortality rates are typically high.
- 8. See Hedin 1922, 93–95, 97, 113, 242–245, 264; Hedin 1913, vol. 1,179, 185–186.
- 9. In fact, the same guns were also intended for use by the 'local militia' (yul dmag) when not being used for hunting.
- 10. The verb *bshan ba* and noun *shan pa* are always used in relation to killing of domestic animals, and this expression is intentionally ambivalent as it mixes cultural categories.
- 11. Several informants reported that it was official policy to exterminate Tibetan wild ass in pastoral areas during the commune era. Government officials informed commune members that wild ass competed with livestock for valuable pasture resources and was thus a pest animal they must destroy at every opportunity. This conforms with well-known Maoist dogmas and practices of 'struggling against nature'; see Shapiro 2001.
- 12. The official Communist Party slogan of the day, 'smashing the four olds', was aimed at destruction and replacement of 'old customs, old culture, old habits, and old ideas'.
- 13. The same applies to domestic butchery; no pastoralist would ever knowlingly eat meat from an animal killed by a woman.
- See, for example, Goldstein and Beall (1990, 124, 127), Rinzin Thargyal and Huber (2007, 195) and Stubel (1958, 22).
- 15. See Huber 2004 for a review of legal protections for wildlife by pre-modern Buddhist states and religious institutions in Tibetan Plateau regions.
- 16. Goldstein and Beall 1990, 127; Stubel 1958, 22.
- Goldstein and Beall 1990, 127; Rinzin Thargyal and Huber 2007, 106; Namkhai Norbu 1997, 48–49.
- 18. In response to a survey question asking Changtang pastoralists 'why should wildlife [such as predators] that cause conflict be protected?', only 2% of the 300 respondents choose to answer that 'Killing wildlife is against Buddhist teachings'; Dawa Tsering et al. 2006, 68.
- 19. See Karma Tshul khrims 2003b, 1–3, 21–23; Tshe ring rgyal po 2005; Tshe ring rgyal po 2006, 392–95; Trotter 1915, 165.
- 20. Here one can contrast the presence of a few mountain deities in places just outside of the case study area further to the south and which are located in the original home territory of the Sengkor Tsowa (bSe'khor tsho ba), a different population who claimed to have been settled in the area when the migrant Drongpa Changma Tsowa ('Brong pa Byang ma tsho ba) and Gertse Tsowa (sGer rtse tsho ba) populations arrived from the east. Missionary lamas from outside the region are reported as articulating connections between hunting and these mountain deities; Karma Tshul khrims 2003a, 30; Bellezza 2005, 101.
- 21. This is not to say the killing and butchering of hunted wild animals is non-ritualized in Tibetan contexts; it certainly is, although such rites as are performed relate directly to the human social order or to the *dralha* deities associated with a hunter's weapons.

- 22. Dgra ri dwags gnyis kyi gnya' rtse bkugs.
- 23. There is a very long Tibetan cultural history of representing wild yak as dangerous foes or enemies who must be destroyed, conquered or tamed by human heroes.
- 24. A similar lack of conservation awareness amongst pastoralists in the Aru Basin, immediately adjacent to my case study area, was noted by Fox et al. 2008, 10.
- 25. A popular fifteenth-century narrative biography of Tibetan Buddhism's most beloved saint, Milarepa, describes the rapid multiplication of a herd of Tibetan wild ass in the wilderness; Gtsang smyon He ru ka 1981, 597.

References

- Bellezza JV (2005) Spirit-mediums, sacred mountains and related Bon textual traditions in upper Tibet. Brill, Leiden
- Benedict JB (2005) Tundra game drives: an Arctic-Alpine comparison. Arctic Antarctic Alpine Res 37(4):425–434
- Dawa Tsering, Farrington JD, Kelsang Norbu (2006) Human-wildlife conflict in the Chang Tang region of Tibet. WWF China Tibet Program, Lhasa
- Deasy HHP (1901) In Tibet and Chinese Turkestan: being the record of three years' exploration. T. Fisher Unwin, London
- Fox JL, Tsechoe Dorji (N.d.) Tibetan antelope traditional hunting, its relation to antelope migration, and its rapid transformation in the western Chang Tang nature reserve. 15 pp. http://www.cwru.edu/affil/tibet/tibetanNomads/books.htm. Accessed 22 June 2011
- Fox JL, Mathiesen P, Drolma Yangzom, Naess MW, Binrong Xu (2004) Modern wildlife conservation initiatives and the pastoralist/hunter nomads of northwestern Tibet. Rangifer 15(Special issue):17–27
- Fox JL, Ciren Yangzong, Kelsang Dhondup, Tsechoe Dorji, Richard C (2008) Biodiversity conservation and pastoralism on the Northwest Tibetan Plateau (Byang thang): coexistence or conflict? J Int Asso Tibetan Stud 4:1–21. http://www.thlib.org?tid=T5558. Accessed 10 May 2011
- Goldstein MC, Beall C (1990) Nomads of western Tibet: the survival of a way of life. Serindia, London
- Gtsang smyon He ru ka alias Rus pa'i rgyan can (1981) Rnal 'byor gyi dbang phyug chen po mi la ras pa'i rnam mgur. Mtsho sngon Mi rigs dpe skrun khang, Xining
- Hedin S (1909) Transhimalaya. Discoveries and adventures in Tibet, vol 1. Macmillan (Macmillan's Colonial Library edition), London
- Hedin S (1913) Transhimalaya. Discoveries and adventures in Tibet, 3 vols. Macmillan, London
- Hedin S (1922) Southern Tibet: discoveries in former times compared with my own researches in 1906–1908, vol 4. Kara-Korum and Chang-Tang. Lithographic Institute of the General Staff of the Swedish Army, Stockholm
- Huber T (2004) The chase and the Dharma: the legal protection of wild animals in pre-modern Tibet. In: Knight J (ed) Wildlife in Asia: cultural perspectives. Routledge Curzon, London, pp 36–55
- Huber T (2005) Antelope hunting in northern Tibet, cultural adaptation to wildlife ecology. In: Boesi A, Cardi F (eds) Wildlife and plants in traditional and modern Tibet: conceptions, exploitation, and conservation. Memorie della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 33(1):5–17
- Ingold T (1980) Hunters, pastoralists and ranchers. Reindeer economies and their transformations. Cambridge University Press, Cambridge
- Karma Tshul khrims [not attributed] (2003a) Lo bo sde chen dgon pa'i dkar chag kun gsal me long. N.p. 37 pp
- Karma Tshul khrims [not attributed] (2003b) Stod mnga' ris sger rtse rdzong'brong pa byang ma'i lo rgyus. N.p. 137 pp

Naess M, Dondrup Lhagyal, Drolma Yangdzom, Mathiesen P, Fox JL (2004) Nomadic pastoralism in the Aru basin of Tibet's Chang Thang. Rangifer 15(Special issue):39–46

Namkhai Norbu (1997) Journey among the Tibetan Nomads. An account of a remote civilization. Library of Tibetan Works and Archives, Dharamsala

Popov AA (1966) The Nganasan. The material culture of the Tavgi Samoyeds, vol 56, Uralic and Altaic series. Indiana University Press, Bloomington-La Haye

Ridgeway R (2004) The big open. On foot across Tibet's Chang Tang. National Geographic, Washington, DC

Rinzin Thargyal, Huber T (eds) (2007) Nomads of Eastern Tibet. Social organization and economy of a pastoral estate in the Kingdom of Dege. Brill, Leiden

Schaller GB (1997) Tibet's hidden wilderness. Wildlife and Nomads of the Chang Tang Reserve. Harry N. Abrams, New York

Schaller GB (1998) Wildlife of the Tibetan Steppe. University of Chicago Press, Chicago

Schaller GB (2000) Wildlife conservation in the Chang Thang Reserve, Tibet. In: Ning W, Miller D, Zhi Lu, Springer J (eds) Tibet's biodiversity. Conservation and management. China Forestry Publishing House, Beijing, pp 21–28

Shapiro J (2001) Mao's War against Nature: politics and the environment in Revolutionary China. Cambridge University Press, Cambridge

Stein A (1921) Serindia. Detailed reports on explorations in Central Asia and westernmost China, vols 2, 4. Clarendon Press, Oxford

Stubel H (1958) The Mewu Fantzu. A Tibetan tribe of Kansu. HRAF Press, New Haven

Trotter H (1915) Account of Pandit Nain Singh's journey from Leh in Ladakh to Lhasa, and his return to India via Assam 1873–74–75. In: Burrard S.G (ed) Records of the survey of India, vol VIII (part 1): exploration in Tibet and neighbouring regions, 1865–1879. Office of the Trigonometrical Survey, Dehra Dun, pp 159–195

Tshe ring rgyal po (2005) Mnga' ris byang thang gi sger rtse tsho pa dang bse'khor tsho pa'i skor la dpyad pa. In: Gu ge tshe ring rgyal po'i tshe rtsom phyogs bsgrigs. Krung go'i Bod rig pa dpe skrun khang, Beijing, pp 267–278

Tshe ring rgyal po (2006) Mnga' ris chos 'byung gangs ljongs mdzes rgyan. Bod ljongs mi dmangs dpe skrun khang, Lhasa