

Natural Pastures and Mobile Animal Husbandry Under Pressure:  
The Cases of Lapland and the Tibetan Plateau, 12-14 June 2002,  
University of Oulu, Oulu, Finland.

## Nomadic pastoralism in the Aru basin of Tibet's Chang Tang

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*Abstract:* Nomadic pastoralists live at the northern extent of human habitation within the ca. 5000 m elevation Aru basin, in the northwestern part of the Chang Tang Nature Preserve, Tibet. These nomads herd primarily sheep and goats, a lesser number of yaks, and a few horses. Goats are increasing in importance because of the value of cashmere wool in national and international markets. Although sheep wool production is greater per animal than for the cashmere goats, the price obtained for its wool is much lower. Still, households keep more sheep than goats, primarily because sheep meat is preferred for consumption and sheep wool is important for the nomads' own use. The Aru nomads have traditionally depended on hunting to compensate for livestock lost to predators and unpredictable climatic phenomena such as blizzards. The prohibition of hunting in the reserve from 1993 has apparently resulted in a lowering of their standard of living, even with an overall rise in cashmere prices. According to the nomads, without hunting they have thus lost a safety measure important during years with heavy livestock losses. Conservation related development initiatives in the reserve should address this issue.

**Key words:** cashmere wool, Chang Tang Nature Preserve, China, hunting, livestock herding.

**Rangifer**, Special Issue No. 15: 39-46

### Introduction

According to Spooner (1973:3) the term "nomadism" has been applied to any society that is not settled in permanent dwellings, although etymologically it implies a pastoral subsistence base. According to Seymour-Smith (1986) the word 'nomad' is derived from the Greek word *nemo*, which roughly means, "to pasture". Although the word 'nomad' refers both to mobility and to a pastoral base of subsistence, we distinguish between nomadism<sup>1</sup> as referring to *mobility*, and pastoralism

as a *mode of subsistence*. Dyson-Hudson (1980) similarly defines nomadic pastoralism as a social form characterised by the combination of dependence on livestock and spatial mobility. Although many terms have been suggested for different forms of nomadic pastoralism, we concur with Dyson-Hudson & Dyson-Hudson (1980:18) that discussing movement patterns of nomadic pastoralists and their livestock with reference to categories like *transhumance* and *semi-sedentary* is "[...] an intellectually sterile enterprise."

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<sup>1</sup>Humphrey & Sneath (1999:16), however, argue that the category nomadism is useless analytically, and prefer the term 'mobile pastoralism', since "Mobility here is seen as a technique that is applicable in a range of institutions, rather than as a holistic lifestyle suggested by the word 'nomad'." Our use of the term 'nomad' here refers specifically to this aspect of mobility (moving spatially), *i.e.* as a strategy used in *making a living*, and not to a *value orientation* (see Salzman & Galaty, 1990 for further discussion).

Pastoralists fall into the category of *food-producing economies*, since they rely on domesticated animals that are controlled by the pastoralist and “[...] the sex and age composition of a herd is, ideally, an artifice of the pastoralist, who, at the same time, allocates different ‘tasks’ to his animals” (Paine, 1994:15). Pastoralists exert control over their animals based on their preference for livestock products, either *directly*, or *indirectly* (Spooner, 1973). Directly, in the form of meat, blood, milk, hair, wool and hides, usually referred to as primary pastoral products. Secondary, but still direct, pastoral products include butter, cheese, cloth and carpets. Indirect use of pastoral products refers to the pastoralist’s trading or selling to obtain products not produced themselves.

Although pastoralism refers to a subsistence based on livestock, the type of livestock reared and the type of pastoral products used, varies across cultures. Nevertheless, nomadic pastoralists should be differentiated from nomadic hunters-gatherers, whose economy can be classified as a *food-extracting economy*, i.e. hunter-gatherers do not alter the animals they live off of, as a nomadic pastoralist does through selective breeding (e.g., domesticated animals tend to give more milk and more wool than their wild counterparts) (Khazanov, 1994).

What constitutes a nomadic pastoral adaptation in one society, however, cannot be described and compared with a basic “ideal type”, but has to be

investigated empirically in order to be properly understood. Spooner (1973:3) argues “[...] there are no features of culture or social organization that are common to all nomads or even that are found exclusively among nomads.” Consequently, our aim herein is to give a preliminary empirical description of what constitutes nomadic pastoralism in remote northwestern Tibet, using the Aru basin as a specific, and probably somewhat unique, example.

The ca. 300 000 km<sup>2</sup> Chang Tang Nature Preserve (Fig. 1), the second largest protected area in the world after Greenland, was established in 1993 to protect endangered chiru or Tibetan antelope *Pantholops bodgsoni*, wild yak *Bos grunniens* and other wildlife inhabiting the Tibetan plateau (Schaller, 1998). The ca. 2300 km<sup>2</sup> Aru basin lies at 5000 m elevation and is known to be one of the best areas for wildlife within the entire reserve (Schaller & Gu, 1994). It is also home to nomadic pastoralists at the northern limit of inhabitation on the Tibetan plateau. Within the Aru basin some nomads use the grazing areas on a seasonal basis, others year-round (Fig. 1), presenting an ideal situation for investigating the interaction between wildlife and nomadic populations. The basin still supports abundant wildlife populations and the opportunity is being taken to gather data about this interaction to help build a sound base for management initiatives in the new reserve that take into consideration both human and wildlife needs.

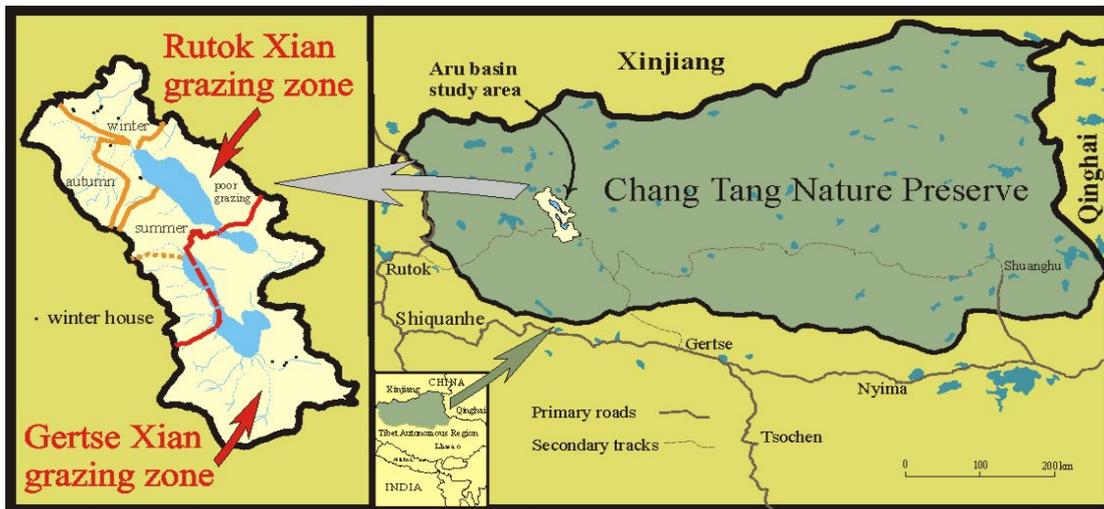


Fig. 1. The ca 2300 km<sup>2</sup> Aru basin study area within the ca. 300 000 km<sup>2</sup> Chang Tang Nature Preserve. The basin’s grazing areas are divided between two administrative districts: a) the Gertse Xian portion has no distinct seasonal grazing pattern, several permanently resident families, and additional seasonal use by herders based outside of the basin, whereas b) the Rutok Xian grazing zone has distinct seasonal areas. Only Rutok herders from outside the basin use the summer grazing area below the dotted line.

Table 1. Numbers of people and livestock in the Aru basin during 2000-2001. Information is based on both counts and interviews<sup>2</sup>.

Season/Location	People	Yaks	Sheep & goats	Horses
<i>June 2000</i>				
Gertse	?	165	3650	13
Rutok <sup>3</sup>	163	372	12009	5
Total	163	537	15659	18
<i>Sept.-Oct. 2000</i>				
Gertse	67	178	838	10
Rutok	60	157	3079	0
Total	127	335	6917	10
<i>June 2001</i>				
Gertse	59	163	3131	29
Rutok	450	330	7035	0
Total	109	493	10166	29

## Material and methods

Three 2-6 week periods of fieldwork were conducted within the Aru basin, in June and September-October 2000 and May-June 2001. Information on pastoralist activities was gathered primarily through in-depth interviews with ten out of 36 households in June, fifteen households out of 28 in September/October 2000, and fifteen households out of 24 present in May-June 2001. Informal interviews with all households present in the basin were conducted during at least one of our three trips, and interviews with local leaders and Tibet Autonomous Region (TAR) Forestry Bureau officials was also carried out. Separate counts of livestock numbers were conducted in some areas in conjunction with wildlife populations estimates during the same field trips.

## Results and discussion

### *Pastoralism*

The Aru basin has, according to the nomads, been used by pastoralists and hunters for several thousand years. However, with the onset of the Cultural Revolution in western Tibet in 1972, the basin was left uninhabited for around 15-20 years. During this period private ownership of animals was banned and nomads were settled into

these changes did not affect the nomads from the Aru basin until 1983, and only in the early 1990s did nomadic pastoralists again start to use the basin, both because some wanted to move back to what they referred to as their "homeland", and also because they were told to move there by the government. Although nomads have utilized the basin for a very long time, the use of the area has changed in modern times. Prior to the recent changes, the basin was used only seasonally, and then mainly during winter when hunting was most productive; the rest of the year they lived outside of the basin.

Today, administrative responsibility for the basin is divided between two counties, or *xians*, Rutok and Gertse (Fig. 1). During 2000-2001 fifteen households from Rutok Xian and about six or seven households from Gertse Xian used the basin permanently. Approximately 27 other households (21 within Rutok Xian and around six in Gertse Xian) used the basin seasonally for grazing, and move their livestock outside the basin during winter. Consequently, the use of the basin changes seasonally, with summer as the season with the highest number of livestock and people (Table 1).

The Aru nomads rely mainly on sheep and goats, with a smaller number of yaks (Table 1). Horses are few, according to the nomads because they graze untended and thus subject to predation by wolves

<sup>2</sup>During June 2000 Gertse nomads were not interviewed, and livestock numbers there are based on survey counts only. All numbers for Rutok during this period are based on interviews only. All numbers for September-October 2000 are based on interviews only, whereas numbers for June 2001 are based on both interviews and survey counts.

<sup>3</sup>Numbers in this area are somewhat questionable due to sampling difficulties (see Næss, 2003 for details).

<sup>4</sup>This number only refers to one group of nomads from Rutok, and the number of people from the two other groups is unknown.

food, shelter and clothing. The yak's coarse belly hair is spun and woven into tent material. The much finer wool, or *kullu* as the Aru nomads call it, is used to make ropes and blankets. Traditionally, the yaks' hide was used to make soles of shoes or boots, but nowadays most nomads prefer to buy shoes, which, although of lower quality, are labour saving. Yaks also provide the nomads with meat, and the female yak can provide large quantities of milk throughout the year. Nevertheless, yaks comprise only about 4% of livestock numbers, probably linked to the low forage productivity in this region.

Both sheep and goats produce milk, meat and wool and skins for the nomads. Goats produce more milk, and for longer periods of time than sheep, but the Aru nomads prefer milk and meat from sheep. Sheep were traditionally more important in the Tibetan nomads' overall economy. However, it is probable that goats have long played an important role in the economic life of nomads inhabiting the Aru basin and surrounding areas, because of close proximity to the Indian cashmere market. There has been a long tradition of bartering cashmere wool to traders from Ladakh, and cashmere wool was to some extent used to pay taxes. Nevertheless, sheep were traditionally more important for overall subsistence, because of the nomads' preference for sheep milk and meat. Recently, however, with government interest in the production of cashmere wool for cash, nomads have started to value goats more than sheep.

As with pastoralists in other marginal environments, the Aru nomads experience significant fluctuations in their livestock numbers as a result of unpredictable and uncontrollable natural disasters. For example, snowfalls in the spring of 2001 had significant effects on livestock survival in the Aru basin. In May-June 2001 twelve households from one group in Rutok Xian reported an average of 35% mortality to their livestock, against an average recruitment of newborns of 20%. The high losses were attributed primarily to severe snowfall conditions, especially during April and May. Within these 12 households, 9 experienced an overall decrease in livestock from the previous year, whereas 3 saw their herds increase. Families in the Aru basin that had campsites near the mountains (where forage is better) were probably most detrimentally affected by the deeper snow that is associated with sites near the high mountains. The livestock losses and births varied considerably from one family to another, ranging from 15-63% mortality and 9-56% recruitment, based on herd

size from June 2000. Predators such as wolves and bears (*Ursus arctos*) are also a constant threat to livestock and contribute to unpredictable livestock mortality. For example, Schaller (1998:209) reported that five households in the Aru basin lost about 4.5% of their animals to wolves during 1991. Such uncontrollable ecological factors change from year to year, causing growth and decrease in herds in a typically non-stable manner (Goldstein *et al.*, 1990; Miller, 1998; Miller 2000). The nomads themselves stress the fact that life in the basin, at the northern edge of human presence in the Chang Tang, is very hard. Consequently, the Aru nomads have traditionally relied on other means of subsistence to compensate for the unpredictable losses, for example, hunting.

#### *Hunting*

Nomads in Aru have traditionally relied on hunting as a supplementary means to make their living. Locations such as the Aru basin have supported a high diversity and density of herbivores (Schaller & Gu, 1994), and recent surveys indicate that this is still the case (Fox *et al.*, 2004 & unpubl. data). The Aru nomads hunted chiru primarily to obtain meat but also to trade the skins. Pelts from the chiru were traditionally traded to Ladakh, India, from where they were transported to Kashmir and the fine "shahtoosh" wool was woven into high quality shawls (Schaller, 1998). Wild yaks were also hunted, primarily for meat, but the skins made good material for shoes. Blue sheep, Tibetan wild ass and Tibetan gazelle were hunted mainly for meat. Some people also used the skins from blue sheep to decorate their dresses, and monks occasionally bought the skins because they are good material for making drums. According to the nomads, the various wildlife species were hunted in different seasons, with wild sheep and gazelle only hunted during February, chiru of both sexes hunted in winter and male chiru primarily during summer after the females migrated north for calving.

From the late 1980s and early 1990s the motivation for hunting chiru changed. By the early 1990s the demand for shahtoosh had increased dramatically. Shahtoosh shawls had become fashionable for the elite in Europe and America, and prices for the skins increased accordingly. Prior to 1990 one skin could bring in ¥60-70 (10 ¥ = ca. US \$1.26), but in the early 1990s one skin could give up to ¥400. With the traditional flintlock rifle and leg-hold traps (Fig. 2), one hunter could

typically kill around 20-30 animals per year. The chiru began to give nomads a potential for cash income that far exceeded their income from sale of livestock products. By investing in modern rifles the take could easily increase to over 100 chiru per year. As a consequence, an average household in the Aru basin, with a modern rifle, could easily make ¥40 000 annually by selling skins from the chiru, about 10 times as much as an average household would make by selling livestock products, and enough to purchase a good used truck.

In 1993 a ban was declared on all hunting in the nature preserve, and in 1995 it began to be effectively enforced in the Aru basin. In other parts of their range the chiru were being killed by the thousands, often by organized poaching rings, and the overall population was decreasing dramatically. The Aru nomads, who until then had relied on their ability to hunt, albeit exaggerated in recent years, now experienced a substantial decrease in living standard. Several nomads have emphatically noted that their livestock do not produce enough milk, wool and meat to sustain them throughout the year. Thus, with no hunting the nomads have to consume a larger part of the yield of their capital (livestock) than they would otherwise have done. This can have dire consequences, since they constantly are under threat of losing part of their herds due to environmental factors, and smaller herd size makes it more difficult to survive a disaster by recouping herd size during good years (Goldstein *et al.*, 1990). Hunting gave the nomads a sense of getting something substantial back from the presence of wildlife. Today they feel strongly that wildlife, and especially the chiru, compete with their domestic animals for forage, and some nomads showed strong resentment about this still abundant animal. Such resentment, however, is grounded in their belief that traditional hunting, using homemade traps and flintlock rifles, poses no extinction threat to the wildlife species inhabiting the basin. Today, because of these circumstances, the hunting ban is not rigorously enforced for a limited hunting take (although the ban on sale of chiru skins is enforced), but it is clearly an issue that

will have to be dealt with in determining appropriate management for the nature reserve.

#### *Cashmere wool*

During the last 15-20 years cashmere wool products have become more and more popular internationally. Before that, cashmere was considered a luxury and only the elite could afford to buy it. With the increasing popularity of cashmere products, the government of The People's Republic of China (PRC), including the TAR, has increased its control over cashmere wool markets within its borders. This is mainly done by imposing quotas on production of both sheep and goat wool for nomad families, determined by the local government based on the individual household's herd size. The nomads complain that government quotas are based on yields per animal that are higher than Aru animals produce (1 kg quota per sheep *vs.* 0.75/male and 0.5/female produced by Aru animals; 0.25 kg quota per goat *vs.* 0.15/male and 0.10/female produced by Aru animals), thus causing further strains on livelihood. Failure to provide the quota is punished by a fine of ¥15 for each animal producing less than the quota, but fines are usually determined after estimating the households' economic situation, *i.e.* its capacity to pay. Failure to meet the sheep wool requirement is usually not punished since sheep wool is not as important as cashmere wool.

The sale of cashmere wool (Fig. 3) provides a substantial part of the nomads' cash income, but because prices fluctuate according to world market demand, such income can also fluctuate significantly on an annual basis. The price for cashmere wool has seen an overall increase during the last ten years, although seasonal and annual fluctuations on the international market can be dramatic. On the southern plateau, in 1988 the county trade office in the Phala area, Shigatse Prefecture, paid nomads ¥13 for one jin (*ca.* 0.5 kg) of cashmere wool (Goldstein & Beall, 1991), whereas in 2000 nomads from the Aru basin were paid ¥150/jin. Over the same period, sheep wool prices have not increased, with the Phala nomads receiving ¥3/jin in 1987 (Goldstein *et al.*, 1990), and the Aru nomads receiving ¥2.1/jin in 2000.



Fig. 2. Aru basin nomads demonstrating how to use a traditional leg-hold chiru trap, and an old Tibetan flintlock rifle.



Fig. 3. Nomads comb the shedding cashmere wool from their goats in June every year.

Over the past decade the average price for cashmere wool has increased, but prices still fluctuate dramatically on a year-to-year basis. During the years 1990-1999 prices received by Aru nomads ranged from ¥65 to ¥170/jin, with such large differences often occurring from one year to the next (Table 3). The nomads have to sell all their cashmere production to the government, even though they would get better prices from private traders. In 1999, for example, the government paid ¥65/jin, while the price from the private traders was almost ¥20 higher. This had also been the case between 1993-1999, but in 2000 the government

price was high enough that it didn't make much difference whether they sold to private traders or to the government. Cashmere production makes up a substantial portion of the Aru nomads' cash income. In September-October 2000, for example, an average household in the Aru basin (4.5 people, 165 sheep, 82 goats and 12 yaks) had made about ¥4000 from their June production of cashmere and sheep wool; 70% from the former. Although white cashmere can get a better price than coloured, there are no organised efforts in western Tibet to market separately and herds are apparently not managed to increase the white proportion.

Table 3. Cashmere wool prices received from government buyers during 1993 to 2000, as reported by Aru nomads. 1 jin = ca. 0.5 kg.

Year	Yuan (¥) per jin
1993	75
1994	75
1995	65
1996	110
1997	75
1998	170
1999	65
2000	150

Noting an increasing percentage of goats in the herds of Phala nomads on the southern part of the high plateau, Goldstein & Beall (1990) suggested that with the increasing value of cashmere wool, goats could be a new economic basis for nomadic pastoralists in Tibet. However, even though the cashmere prices have increased dramatically since the Phala study (Goldstein & Beall, 1990), our data from Aru indicates a continued relatively low proportion (30%) of goats. One of the reasons for this, according to some of the nomads, is that the mortality rate for newborn goats is much higher than for sheep. Some claimed that this was so because the grass in the basin is much better for sheep than for goats, resulting in goats not producing enough milk for their kids. On the other hand, there are more male goats in the nomads' herds than are necessary for reproductive purposes; an average 1:1 male/female ratio. In a herd of 100 goats, only 2-3 male goats are kept fertile, the rest are castrated. The emphasis on cashmere production has apparently led to an increase in the male component of the goat population, thus potentially negatively affecting the herd's ability to recover following environmental catastrophes. The rationale for keeping herds with such a large number of males is apparently related to their greater production of cashmere wool, as also suggested by Miller (2000). The nomads explained that adult male goats tend to yield more and better quality cashmere than females, since pregnant animals canalise energy to the baby, which reduces the growth and quality of the wool. Pregnant goats also tend to demand more care, and greater physical contact with these animals leads to the shedding of some wool. The nomads also report that wool quality is dependent on the amount of fodder the animals get, and during years with heavy snow and limited access to fodder, the cashmere will be of relatively poor quality. All these factors influence

the nomads' cash income, and they strongly feel that they seldom make enough money to cover their basic needs.

With the increased importance of cashmere wool, the general pastoral production system has changed, thus introducing an additional source of livelihood uncertainty for the nomads. Such volatility in income from cashmere, coupled with dramatic income swings associated with the shahtoosh trade, restrictions on subsistence hunting, and changing societal demands for education of their children that affect manpower on the rangelands, the nomads are increasingly dealing with decision trade-offs that are difficult to calculate and anticipate. If the protection of wildlife is to become a primary management goal in the Aru basin, then re-establishing some stability to the nomad livelihood decisions will be an important component to achieving that end.

### Acknowledgments

Support for this research was provided through personnel assignments and other inputs by the Tibet Autonomous Region Forestry Bureau, and the Tibet Academy of Social Sciences (TASS), with primary funding supplied through the Network for University Cooperation Tibet – Norway. We thank Ms. Beimatsho (TASS) for her help in the early fieldwork, and extend great appreciation to all the nomads of the Aru basin for their cooperation in the project.

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