Nomads of the Tibetan Plateau Rangelands in Western China Part Two: Pastoral Production Practices

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Background

Nomadic pastoralism on the Tibetan Plateau is distinct ecologically from pastoralism in the semi-arid pastoral regions of Eurasia and Africa. There, water, or the lack of, usually separates cultivated cropping areas from nomadic pastoral regions. On the Tibetan Plateau, the key distinguishing factor is elevation. In Tibet, productive grazing lands are found at elevations above 3,500 m in environments too harsh for crop cultivation. On much of the Tibetan Plateau, especially in the east, rainfall is adequate throughout the growing season and grass growth is lush, unlike many pastoral areas of the world. However, across most of the pastoral region of the Tibetan Plateau, growing seasons are too short for grain crops to be grown. Tibetan nomads have flourished because they have not had to compete with farmers trying to convert the rangeland to cropland. On the Tibetan Plateau, nomadic pastoralism has been the primary human activity for thousands of years.

Cultural Aspects

The vast majority of nomads on the Tibetan Plateau are Tibetan and share a similar language and culture, although there are some small groups of Kazak and Mongol nomads in parts of Qinghai Province. All nomads can usually communicate with each other in Tibetan, even though local dialects differ. For a distance of almost 3,000 km, Tibetan is spoken and, in fact, has been a written language for about 1,300 years. Religious and cultural beliefs and practices are also similar over the whole Tibetan Plateau pastoral area. All the different nomad tribes and groups are facing rapid change in their lives, brought on for the most part by economic development forces sweeping the region.

Women play an important role in nomadic society on the Tibetan Plateau. Since they bear and rear children, women directly influence future human resources in the pastoral areas. As managers of the household and tent, women make vital decisions about the use of rangeland resources (forage, water, fuel). As herders, women are responsible for many of the daily activities involving livestock production and the harvesting and/or processing of livestock products. Their decisions and actions have direct effects on rangeland resources and livestock.

Almost all animals are owned by individual nomad families, which has been the case since the Household Responsibility System was implemented in the early 1980s. Each family is responsible for its own livestock production and the marketing of livestock products. Rangeland, until just recently, remained the property of the state. Nomads generally use the rangelands communally, often in groups that reflect the previous communal structure. In some cases, grazing practices are similar to the traditional management structure that existed prior to collectivization in the 1950's and 1960's.

Nomads are considered to be living in poverty when their per capita annual income is less than about US$100. With respect to the number of animals in relation to poverty, 25 Sheep Equivalent Units (SEUs) per person was the break-off point for poverty. Families with less than 25 SEUS per person would not be able to meet their basic needs and would be in poverty. One adult sheep is one SEU; one adult yak equals five SEUs. In other words, a person would need at least 25 adult sheep or five adult yaks to meet their basic needs.

Nomad woman weaving, Phala, Tibetan Antonomous Region.

In recent decades, nomads across most of the pastoral areas on the Tibetan Plateau have built houses for themselves and shelters for their livestock, usually in the traditional winter-spring pastures where they may spend up to 6-7 months of the year. As such, the vast majority of nomads are already 'settled' and have been for some time, although they have continued to graze their livestock in a nomadic manner.

Animal Husbandry and Grazing Management Practices

A yak-cattle hybrid cross used for riding, near Zoige, Sichuan Province.

Pastoral production practices are similar across the different regions of the Tibetan Plateau, though the livestock composition and size of herds can be quite different. Nomads throughout the region raise the same kinds of animals: yaks, yak-cattle hybrids, sheep, goats, and horses. Animal husbandry plays an important role in local and regional economies where ever it is practiced, especially since livestock production is the only agricultural activity possible in so many areas. All nomads also have strong economic links with agricultural communities outside of the nomadic pastoral grazing land areas.

Almost all nomads have a base, usually the traditional winter area where they have built houses and barns, and make established moves with their livestock from there to distant pastures throughout the year. The traditional Tibetan yak-hair tent is in common use throughout the region.

Mobility is a central characteristic of nomadic production throughout Tibetan rangelands. The pastoral system is designed around the movement of livestock to different pastures at different seasons of the year and the tracking of favorable forage conditions. Decisions on herd movement also take into consideration factors such as past use, snowfall and rainfall, growth stage of the grass, and condition of the animals.

Livestock subsist almost entirely by grazing the rangelands year-round. Some hay is cut to feed weak animals and horses in winter and spring, but for the most part, animals acquire all their forage needs from grazing. Increasingly, nomads are fencing rangeland to reserve pastures for winter and spring grazing and are planting tame pastures for either winter-spring grazing or for hay.

Nomads raise milking and non-milking herds of yaks, yak-cattle hybrids, sheep, goats, and horses. The yak is a key animal for Tibetan nomads and defines nomadic pastoralism across most of the Tibetan Plateau. Yaks are one of the most important domestic animals as they provide milk and milk products, meat, hair, wool, and hides. Yaks are also used as draught animals and for riding. Yak dung is an important source of fuel in an area were firewood is not available. The yak makes life possible for man in one of the world's harshest environments. Although Tibetan nomads also raise other animals, they place so much value on the yak that the Tibetan term for yaks, nor, is also translated as "wealth". Yaks also play an important role in many pastoral rituals and religious festivals.

Female yaks usually have their first calf when they are four years old and usually only have one calf every other year, although the yak cow is still milked in the second summer. Where forage conditions are better, yaks will have a calf every year. Yaks calve in May and June so newborn yaks are not affected by winter weather. Male yaks are usually slaughtered for meat at four years of age.

Sheep and goats are important species of livestock in many areas, especially in the western regions. Sheep provide wool and meat and are also milked in many areas. Sheep meat is the preferred meat among nomads as well as in agricultural and urban areas where many sheep are sold. Goats provide cashmere, meat, and milk. Cashmere from Tibetan goats is one of the best cashmeres in the world. Sheep and goats can be profitable where it is practical to raise them. They produce wool, cashmere, meat, hides, milk products, and are also used as pack animals. Since sheep and goats normally give birth every year, their numbers can be increased quickly. However, mortality rates for sheep and goats can be high during harsh winters, especially among lambs and kids that are born in February and March. In the winter of 1996/97, some nomads lost 25 percent of adult goats, 70 percent of kids, and 30 percent of lambs.

Tibetan nomads also keep horses and, in some areas in the northeast, horses make up 10 percent of total livestock numbers. Horses are used primarily for riding, but are also used as pack animals. Horses are not milked and Tibetan nomads do not eat horse meat.

Nomad on horseback moving yak herd to summer pasture, Aba, Sichuan Province.

The proportion of different livestock species raised by nomads differs across the region according to rangeland factors and the suitability of the landscape for different animals. Herd compositions within a geographic area can also vary with the skills, preferences and availability of labor of the nomads. Across most of western Tibet, sheep and goats are more common than yaks. For example, in Shuanghu County of Naqu Prefecture in the Tibetan Autonomous Region, yaks only make up four percent of total livestock numbers. In contrast, yaks comprise 53 percent of all livestock 400 km to the east in Jiali County in Naqu Prefecture. These differences can largely be explained by differences in vegetation between the two areas. In Shuanghu, the climate is drier and the dominant alpine steppe vegetation is better suited to sheep and goats. In Jiali there is more annual precipitation and vegetation is dominated by alpine meadow which is better suited to raising yaks. In the extreme northeastern part of the Tibetan Plateau, in Hongyuan County of Sichuan Province, yaks are even more common with the nomads. There, yaks comprise over 85 percent of all livestock numbers (see Figure 1).

In many areas, nomads usually raise a mix of different animal species. Each species has its own specific characteristics and adaptations to the environment. The multi-species grazing system—the raising of yaks, sheep, goats, and horses together—maximizes the use of rangeland vegetation. Different species graze different plants and, when herded together on the same range, more efficiently use rangeland vegetation than does a single species. Different animals also have varied uses and provide diversified products for home consumption or sale. In western Tibet, where yaks are fewer, both sheep and goats are milked, while in the eastern Tibetan Plateau yaks are more commonly used to supply milk products. Maintaining diverse herd compositions also minimizes the risk of total livestock loss from disease or harsh winters.

Diverse herd composition is illustrated in the Phala nomad area in northwest Ngamring County of Shigatse Prefecture. Here, sheep make up 45% of all livestock numbers, goats comprise 40%, yaks make up 14%, and horses account for 1%. Such mixed herd composition requires complex management strategies since each animal species has specific nutrition requirements and production characteristics. The diversity of livestock herd composition demonstrates adaptive responses by nomads to the environment in which they live and the resources available to them.

In terms of herd structure, or the proportion of different sex and age classes of livestock, the traditional structure of nomads' herds often illustrate nomads' expertise in animal husbandry and in managing grazing land and animal resources available to them. In a nomad area in northwest Shigatse Prefecture, adult male sheep and goats make up about 30% of the flock, which may seem high if the flock is to be producing young stock for meat. However, it needs to be pointed out that a significant portion of the nomads' income in Tibet is derived from sheep wool and goat cashmere harvested from adult males and from the sale of adult male animals for meat. In many areas in western Tibet, a nomad family would also butcher 20–30 sheep and goats every year for their own consumption. Large numbers of adult male sheep and goats in the flock are necessary for nomads' survival. The traditional nomadic pastoral system also required pack yaks to move nomads' supplies between different pastures. A nomad family, therefore, had to have a number of pack yaks in its herd in order to survive. In some areas, large numbers of sheep and goats were also kept as pack animals.

Nomad camp with sheep and yaks near Zoige, Sichuan Province.

Yaks are generally thought to characterize Tibetan nomadic production,

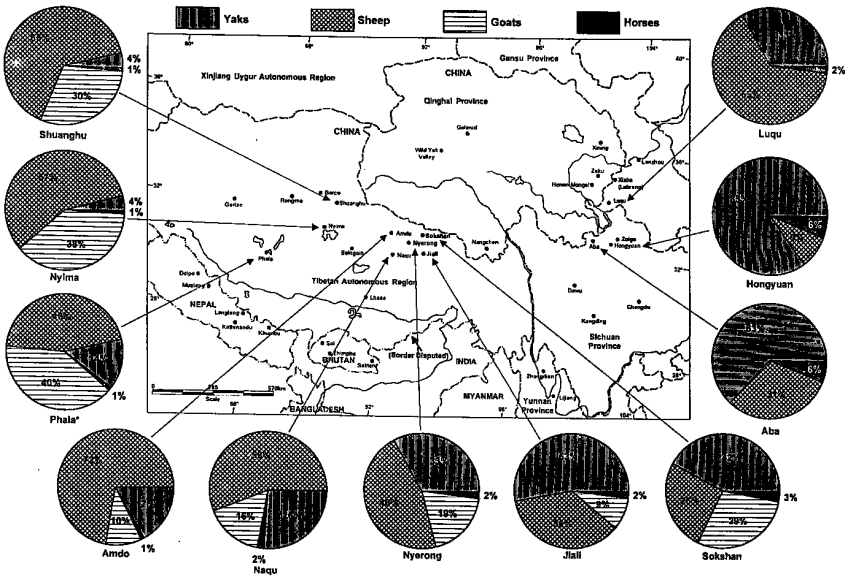

Fig. 1*. Herd composition in different areas of Tibetan Plateau.*

Tibetan sheep being milked at 4,800 m near Phale, Tibetan Autonomous Region.

however, in much of western Tibet sheep and goats are more important economically. For example, in the Phala nomad area of northwestern Ngamring County, Shigatse Prefecture, in a large nomad family where sheep made up only 28 percent of livestock biomass, or Sheep Equivalent Units, they contributed about 60 percent of total income derived from livestock. Goats, which made up about 21 percent of livestock biomass, contributed about 35 percent of total livestock income. Yaks only accounted for about 5 percent of total livestock income, yet they comprised about 46 percent of total livestock biomass in the nomad's overall livestock herd.

The number of animals that an individual nomad family raises varies considerably across the Tibetan Plateau. In Shuanghu and Nyima counties, an average nomad family of 5–6 persons raises about 250 sheep, 100 goats, 15 yaks and 2 horses. In Naqu County, a typical nomad family would have 60 sheep, 20 goats, 30–35 yaks, and 2 horses. A rich family in Naqu may have 200 sheep, 100 goats, and 100 yaks. In Hongyuan County, a typical nomad family would have 100 yaks, 5 horses, and few, if any, sheep. Of the 100 yaks, only 30–40 would be adult, milking females. This is about the maximum number of milking yaks an average family can manage without having to hire additional labor. In Ngamring County, the richest nomad family had 286 sheep, 250 goats, 77 yaks and 8 horses. Of the 286 adult sheep, 126 (44%) were females and are milked during summer. Of the 250 adult goats, 130 (52%) were females that are milked.

Summary

Tibetan nomadic societies have developed sophisticated ways of managing range resources which outsiders often do not understand or fail to acknowledge. Nomadic existence on the Tibetan Plateau—undoubtedly the world's harshest pastoral area—yet today is proof of the rationality for and efficacy of many aspects of traditional Tibetan nomadic pastoral production practices. Over centuries, Tibetan nomads acquired complex knowledge and understanding of the environment in which they lived and upon which their lives depended. The fact that numerous, prosperous pastoral groups remain to this day bears witness to the extraordinary knowledge and animal husbandry skills of the nomads.

Animal husbandry will continue to be the main land use in the high plateau environment of the Tibetan Plateau. Livestock will be the primary source of livelihood for people residing in these rangelands for many years to come. As such much greater effort needs to be directed towards rangeland research and pastoral development. There are no simple solutions to addressing pastoral development in the harsh environment of the Tibetan Plateau and due to the multifaceted dimensions of the problems, actions will need to be taken on several levels: at the central policy level; at the university and research center level; at the level of range and livestock extension services, and at the nomad level.

Additional Reading

Barfield, Thomas. 1993. *The Nomadic Alternative*. Prentice Hall, Englewood Cliffs, N.J.

Ekvall, Robert. 1968. *Fields on the Hoof: Nexus of Tibetan Nomadic Pastoralism*. Holt, Rinehart and Winston, New York, N.Y.

Goldstein, Melvyn and Cynthia Beall. 1990. *Nomads of Western Tibet: The Survival of a Way of Life.* University of California Press, Berkeley, Calif.

Miller, Daniel. 1998. *Fields of Grass: Portraits of the Pastoral Landscape and Nomads of the Tibetan Plateau and Himalayas*. International Centre for Integrated Mountain Development, Kathmandu.

Miller, Daniel and George Schaller. 1996. Rangelands of the Chang Tang Wildlife Reserve in Tibet. *Rangelands*, 18(3): 91–96.

National Research Council. 1992. *Grasslands and Grassland Sciences in Northern China.* National Academy Press, Washington, D.C.

Schaller, George. 1997. *Tibet's Hidden Wilderness: Wildlife and Nomads of the Chang Tang Wildlife Reserve.* Abhrams, New York, N.Y.

About the Author

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