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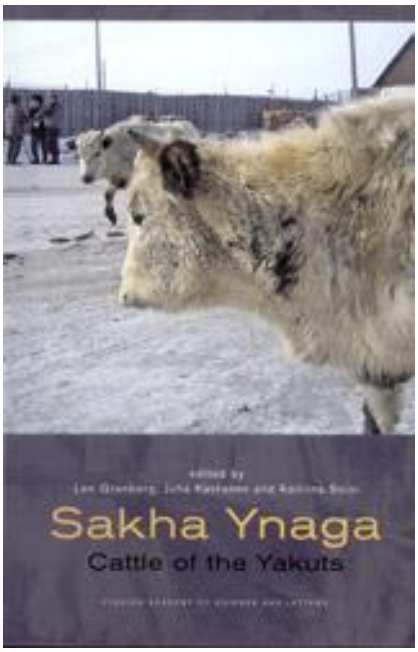

Sakha Ynaga
Cattle of the Yakuts

1. Introduction

LEO GRANBERG, KATRIINA SOINI AND JUHA KANTANEN

In the three remote Siberian villages of Batagay-Alyta, Dzhargalakh and Kustur in the Eveno-Bytantay district of the Republic of Sakha, a region of the Russian Federation known also as Yakutia, there exists a small population of Yakutian Cattle (*Sakha Ynaga* in the Yakutian language). The villages are located about 150 kilometres north of the Arctic Circle. Both cattle and people inhabit the coldest permanently settled region on earth, enduring the harshest of climates and environmental circumstances. Yakutian Cattle accompanied the Yakuts and their horses as they drifted to the region centuries ago. The cattle adapted well to the Siberian environment and helped the Yakuts to settle in these distant northern territories, producing milk and meat, providing hides and supplying draft power in the villages.

Yakutian Cattle were once ubiquitous in Yakutia, but currently represent an endangered population. In 2007 there were 1212 head, including 525 milking cows (Table 2.1), but the population is now near to risk status as according to the Food and Agricultural Organization of the United Nations (FAO), 'a breed is categorized as endangered if the total number of breeding females is … less than or equal to 1000 or the total number of breeding males is less than or equal to 20…' (FAO 2007b, 37).

The extinction of locally-adapted farm animal breeds is a global problem. In 2006 FAO listed 1311 known cattle breeds from around the world and suggested that about 16% of them were already extinct and a further 16% at various levels of risk – and only about 38% were not at risk[1] (FAO 2007b, 39). Cattle breeds can become extinct for various reasons. Migration from rural to urban areas hinders the continuity of breeding using traditional methods. The economic and political efforts for maximum milk production per cow and the trend towards high input and output agricultural systems does not favour local or regional breeds, which are naturally multipurpose and less productive than commercial breeds. Animal breeding methods such as artificial insemination and embryo technology have facilitated easier and more efficient production of desirable genotypes and such technological possibilities promote rapid loss of many local breeds.

1 This calculation is complicated by existence of a large number of cattle breeds of unknown status, which represent 30% of the total. Risk status includes four subgroups: critical, critical-maintained, endangered and endangered-maintained. Yakutian Cattle belong to the subgroup 'endangered-maintained'; they are on the one hand endangered because of the small number of cows and bulls, but on the other hand are 'maintained' due to official acknowledgement of their existence and active programmes to assist their survival.

Today, the danger is not only loss of some domesticated animals breeds, but also large-scale loss of valuable genetic diversity. If current trends continue, the diversity of cattle breeds, which has developed during many thousands of years, will be replaced during a few decades by a very small number of international commercial breeds.

GENETIC RESOURCES OF LOCAL BREEDS

Yakutian Cattle are among the most threatened domestic cattle (*Bos taurus*) breeds. In the socio-cultural sense the breed can be compared with endangered wild animal species such as the Siberian tiger (*Panthera tigris altaica*). They both inhabit Siberia, but their characteristics and their relationships with human beings are completely opposite. Tigers have been feared and cows have been appreciated and loved during human history, but today many people have lost their interest in locally adapted cattle breeds as they no longer fulfil the productive needs of modern agri-business. Tigers, however, have attracted considerable publicity in the form of globally distributed, colourful and informative TV documentaries shot in their natural environment, the forests around the Amur River. However, both tigers and cattle are components of global biodiversity and should be given due consideration in local and global conservation activities.

Globalisation clearly exerts a pressure to concentrate animal production in large farming units and to direct animal breeding towards fewer, more specialised breeds. This makes economic sense for the dairy and meat industries and for specialised farmers. However, future requirements are difficult to predict and in the long run the global picture is likely to be different from the present one.

Diversity among farm animal breeds will be an important factor whatever changes might take place in production environments. Diversity plays a fundamental role in safeguarding opportunities for animal husbandry in such changing production environments. For example, breeds with strong resistance to diseases and which are adapted to various climatic and environmental conditions, have valuable genetic traits that will be needed in future breeding programmes. Another argument for preserving local animal breeds is to reduce poverty. Local breeds often provide products and additional income for poor families that improve their livelihoods and ensure the maintenance and development of local communities.

Genetic diversity and the struggle against poverty are the main arguments for intergovernmental efforts in animal genetic diversity organised by FAO. They are intertwined in the studies on community-based management of animal genetic resources,

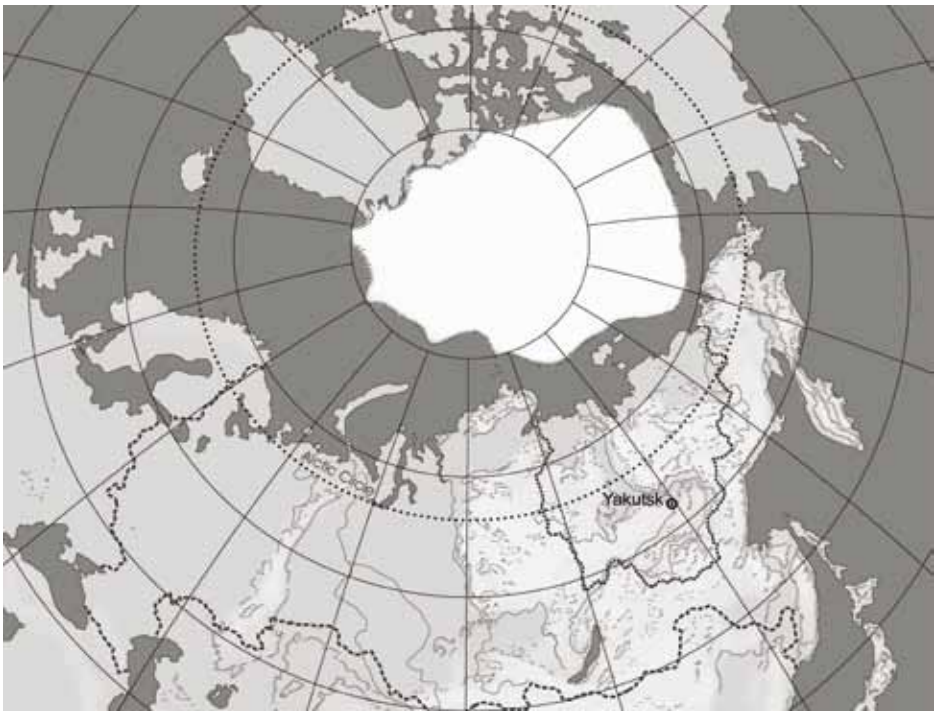
among others (FAO 2003, Editorial AGRI 2007, I). Beyond these production-based arguments there are ethical, cultural and practical perspectives to consider.

The ethical perspective refers to animal rights, and in the case of domestic animals our obligations towards animals as our companions. Cattle have lived with humans through agricultural revolutions, migration of peoples and settling of the most distant territories. During the present times, local breeds still contribute to maintaining local traditions and cultures, and supporting cultural diversity. From another angle, erosion of cultural diversity is detrimental for conservation of biodiversity at all levels (Global Biodiversity Strategy 1992). In the future, domesticated animal breeds may play new roles in society that are not production-based. One example from the western world is use of domestic animals in the so-termed 'green care sector' as therapeutic aids. An alternative is to employ animals in agro-tourism, supplying niche products and services. A further opportunity is to maintain traditional landscapes by grazing. All these examples are found today on a small scale on farms in the European Union. In two of the cases the value of cattle relies on them being kind, communicative, social and clever – quite different qualities from those regarding production of milk and meat.

Animal genetic resources can be conserved by maintaining living specimens of rare breeds (*living gene bank* or *in situ* conservation) or by collecting and freezing semen from male animals and embryos and oocytes from females and storing the genetic material in liquid nitrogen (*frozen gene bank* or *ex situ* conservation). The method of *in situ* conservation of rare cattle breeds through their continued use by cattle farmers in natural agro-ecosystems is typically preferred because it offers possibilities to utilise and develop breeds. Using this method, the economic, cultural and social objectives of conservation can be met. However, if the cattle population is small, there are risks of inbreeding and of the loss of genetic diversity through effects of genetic drift over generations. Furthermore, disease epidemics can lead to the death of animals or to preventive slaughtering by the authorities. To replace the lost animals in these cases, the *ex situ* gene bank is a necessity. Therefore, storing gametes and embryos is necessary to conserve genetic resources in the long run (FAO 2007b).

CATTLE AND LOCAL LIVELIHOODS

About 10 000 years ago aurochs (wild ox, *Bos primigenius*) were domesticated and integrated into human communities, becoming the property of human beings. Since then the close co-existence of humans and cattle has been at the centre of societal development of local communities, shaping local cultures and local livelihoods. The



Map 1.1. *Northern hemisphere.*

traits of the cattle gradually changed while living with human beings, as did the relationship between humans and animals.

The Yakutian Cattle need to be viewed in terms of their co-existence with human beings, as a part of the communities in which they live. We suggest that 'Sustainable Livelihoods approach'[2] is an appropriate framework for analysing the role of cattle production, the conservation issue and the societal development of the three Yakutian villages. According to Chambers and Conway a livelihood is sustainable,

> when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term. (Chambers and Conway 1992, 7)

2 The historical origins of the sustainable livelihood framework are most frequently traced back to Amartya Sen (1981), who established that the ability to cope with famine was a result not only of the evident resources of a household, but also of a household's capacity to access resources in times of need. Later, Chambers and Conway (1992) brought together Sen's concepts of capability and notions of equity and long-term environmental sustainability. In the course of the 1990s the sustainable livelihoods approach became popular in various forms, especially in studies focusing on rural poverty (see Carney 1998).

Usually five capital assets – physical, financial, human, social and natural – comprise the set on which people draw to sustain their livelihoods. They are owned, controlled, claimed or by some other means accessed by households. Local livelihoods face various types of stress and shock, to which they are more or less vulnerable, and try to adapt to changing natural, social or political environments and to find appropriate strategies to sustain their livelihoods.

In line with the Sustainable Livelihood approach, Eveno-Bytantay district has a range of resources and activities, with and without direct monetary return, which are important for maintaining livelihoods. The inhabitants usually undertake various activities that yield them food, housing and money. The most common of these are production of cattle, horses and reindeer, hunting and fishing, entrepreneurship based on forestry, transport, trade and handicrafts, work in the public sector, bartering and loaning. Cattle production is not only based on natural, physical, financial and human aspects, but also on social ones. For many households everyday life is arranged around their cattle, as will be evident in later chapters.

The collapse of the Soviet Union was a major shock with serious consequences for the local economy and society. The structure of cattle production was one of many systems that changed totally. The critical issue is how well local inhabitants succeeded in coping with changing circumstances, and how successful individuals were at local and republic level in succeeding to design political interventions to contribute to, and not to hinder, sustainable and adaptive strategies. These are among the topics discussed in more detail in this book.

CONTENTS OF THE BOOK

In writing this book, we apply a multidisciplinary approach. Our research group is composed of an artist and researchers in animal genetics, anthropology, geography, history and sociology. The book presents important research results from Finnish laboratories, provides a summary of previous studies of Sakhan history and Russian transition, uses statistical data and other material from the region and first and foremost includes interviews with inhabitants from the northern Siberian villages. Interviews and field observations were complemented with articles from newspapers. The data were collected during four separate field trips to the villages with teams comprising various members and representing various disciplines.

The book begins with detailed information on Yakutian Cattle. In the second chapter by Juha Kantanen, Innokenti Ammosov, Meng-Hua Li, Anu Osva and Ruslan Popov, the phenotypic characteristics of the cattle are described, followed by the latest results from genetic studies of the cattle. The writers discuss the relationship of the Yakutian Cattle with several other European and Asian cattle breeds to highlight their genetic uniqueness. Photographs are used to indicate the enormous phenotypic variety within the breed. The writers describe the value of the Yakutian Cattle as a genetic resource. The data sets for this part of the study were collected during two field trips to Eveno-Bytantay district. During the first visit in 2001, tissues of a random sample of individual Yakutian Cattle were collected for DNA extractions. During the second visit in 2005, phenotypes were documented and analysed.

In order to understand how local people and their animals live in the villages, Eeva Pääkkönen conducted two anthropological field trips in 2004 and 2005. The mainstream anthropological research in the Russian Far East has not taken place in the villages but in the taiga and tundra, where researchers have lived together with nomadic peoples.[3] Recently, new insights into the study of northern rural communities have emerged (see Jordan and Jordan-Bychov 2001, Crate 2006). The third chapter studies everyday life in the villages through an ethnographic documentation study, with the focus on traditions and rituals, as well as on nature and culture. An additional aim of the writer is to discuss the relationships between macrostructures and everyday practices, as well as between past, present and future.

In the fourth chapter Inna Kopoteva and Ulla Partanen present a general view of the three villages in the Eveno-Bytantay district by introducing the history of Sakha and the region since medieval times, through Soviet collectivisation until the post-socialist era of privatisation. In the Soviet Union and following its demise, rapid organisational changes took place in the region. Borders of local administrations were redrawn from time to time, collective farms were established, united, reformed and closed, and throughout this time people had to find their own ways to cope with everyday life. The data consist of original statistical material collected during the field trip in 2005 and interviews with authorities and experts in Eveno-Bytantay and Yakutsk.

Cattle production in the district is based on one large-scale farm in two villages and numerous private small-scale producers in all the three villages. In the fifth chapter Leo Granberg and Inna Kopoteva describe how cattle production functions in the villages and how it has changed during the transition from socialism to capitalism. They describe production systems as a mixture of public and private elements. The writers report on the various steps in privatisation of state farms and discuss the outcomes of

3 See Kasten (ed.) 2002, Takakura 2004, Vitebsky 2002 and 2005, Stammler 2005.

Batagay-Alyta (Sakkyryr), viewed from the air. April 2005. Photograph by Anu Osva.

the process. The chapter is based mainly on interviews carried out during the field trip to villages and Yakutsk in April 2005.

The Yakutian Cattle breed was still dominant in Yakutia during the beginning of the Soviet period. In the sixth chapter Ulla Partanen and Juha Kantanen describe how the Yakutian Cattle changed from being the major breed to a minor one during the 20th century and how conservation activities developed at local and global levels. Without the resistance of local people and some Yakutian intellectuals against mainstream Soviet agricultural policy, the breed would have disappeared long ago. It is noteworthy that the government initiated various measures to protect the cattle and also in 2001 instituted

legislation with this aim.[4] The writers point out the highlights and the most critical phases in the protection of Yakutian Cattle.

In the seventh chapter Katriina Soini and Ulla Partanen turn to the question of the value and the meaning of the cattle and the impact of cattle breeding on local livelihoods. They analyse how values are expressed by different individuals in various contexts and they pose the question of how such values are related to the global discourse on conservation of animal genetic resources. In 2005 the writers interviewed local residents and public officers in the villages and in Yakutsk. They also analysed articles in newspapers concerning Yakutian Cattle and their conservation.

In the final chapter Leo Granberg, Katriina Soini, Anu Osva and Juha Kantanen return to the challenges of conservation of Yakutian Cattle. The cattle and the villagers in northern Yakutia existed together before and during socialism and survived the hardships of migration to the northern territories where they live today. Paradoxically, it seems that survival has been most difficult during the better times, when modern technology should promise a better life and easier production than ever before. The writers discuss the threats to the continued existence of Yakutian Cattle and they highlight the urgency of maintaining Yakutian Cattle for reasons of social meaning and value as cultural heritage, and not least, because of the genetic value they represent.

Artist Anu Osva shared the experiences of a field trip to the villages. On this basis, in spring 2007 she produced a series of artworks, entitled *Yakutian Cattle – Exploring Expedition to Siberia in the 2000`s*. The Epilogue comprises five of these works.

* * *

The changing context of our research topic includes elements of the scientific revolution in genetics, the transition of Russian society from socialism to capitalism, questions of biodiversity and considerations of the value of domesticated animals. This millennium has begun with increasing concerns about global climate changes. During our editorial work another severe crisis arose, that of food availability. Facing such major challenges, mankind has to think hard and innovate in order to meet the constantly changing requirements of the human population. This work represents a small contribution to this.

We were privileged to witness an enormously interesting and complex way of life, to fly over the mountain range of Verkhoyansk and to be welcomed by people from a distant world, to learn about DNA, cows, and human beings. During our research work we wanted to synthesise all the diverse information we gathered on Yakutian

4 To the best of our knowledge the Yakutian Cattle are the only cattle breed in the world whose conservation is stipulated by law.

Afternoon in Batagay-Alyta. April 2005. Photograph by Anu Osva.

Cattle and their keepers. This volume represents the results of that effort, which we hope will open a small window to a very different way of life to that which most are familiar with.

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We are indebted to the numerous people in the three Siberian villages who welcomed us and who provided us with an in-depth insight into their circumstances. We also received substantial background information from experts and public officers in Yakutsk. Professor Mikhail Prisyazhny and his students assisted us in collecting data and research material.

The idea of the project was begun following provision of information on Yakutian Cattle by Zoya Ivanova to Juha Kantanen in 1998, urging him to begin studying them. Much later, our research project, 'Genetic Resources of Russian Farm Animals – the state of endangeredness and ethno-ecological, technical and social opportunities for conservation', was initiated by MTT Agrifood Research Finland, Jokioinen and the project was formed in partnership with the Aleksanteri Institute, University of Helsinki. The project became a part of the 'Russia in Flux' research programme of the Academy of Finland. We acknowledge the Academy for giving us this unique possibility to conduct our studies, the main results and conclusion of which are presented in this book. The project was led by Asko Mäki-Tanila from MTT Agrifood Research Finland, Jokioinen. Our colleagues in the project, Jere Kaivosoja, Petri Kapuinen and Pentti Ruokokoski assisted us with their knowledge and opinions and helped us advance the work. Sirpa Kurppa also read an early version of the manuscript and provided helpful comments. Numerous other colleagues in Finland and Russia assisted us in many ways. Beata Scherf from FAO provided us an important opportunity to discuss our preliminary results with the organisation's experts in Rome in autumn 2007.

Jonathan Robinson revised the language, Vladimir Mineev, Dmitri Guzenko and Kristiina Hietala translated the interviews and Kristiina Hietala also checked the transliteration of Russian into English. We are grateful to all the above-mentioned and special thanks go to Hannele Nyman and the Helsinki Artists' Association for co-organising the art exhibition and the multidisciplinary seminar on Yakutian Cattle. A final thanks also to the series editors, Heikki Palva and Kaj Öhrnberg.

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