



# The Role of Weather and the Natural-Climate Factor in the Daily Nomadic Life of the Kalmyks in the Context of Traditional Nature Utilization: Effective Frontier Practices

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## Abstract

The article is devoted to the role of the climate factor and weather in the everyday nomadic life and history of the Kalmyks, closely linked with traditional nature management. Based on the study of published and archival materials from the State Archive of the Astrakhan Region, the State Archive of the Saratov Region, and the National Archive of the Republic of Kalmykia, the article examines the main features of the nature management system, the functioning and life of the Kalmyk nomadic society in new geographical conditions, and analyzes the processes of adaptation of nomads to the specific resources of an arid ecosystem. For the Kalmyks, who led a nomadic lifestyle in the past, nature was not only a habitat but also the basis of life. Moving in search of pastures for livestock, Kalmyk pastoralists learned to use natural resources rationally. The article shows how people tried to harness these resources through magical rites. The nomadic way of life, the economic structure, the natural landscape, and the life of the nomad cattle breeder – all predetermined the nature of magic as a whole. Special attention is paid to a system of prohibitions related to nature, land, and water. “Russia’s Steppe Frontier” is an invaluable resource for understanding the Kalmyks’ historical experience in the field of nature management.

## Keywords

History; Climate; Weather; Nomadic Life; Kalmyks; Adaptation; Frontier Studies; Nature Management and Folk Knowledge; Arid Ecosystem; Pastoralists



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# Роль погоды и природно-климатического фактора в повседневной кочевой жизни калмыков в контексте традиционного природопользования: эффективные фронтальные практики

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## Аннотация

Статья посвящена роли климатического фактора и погоды в повседневной кочевой жизни и истории калмыков, тесно связанных с традиционным природопользованием. На основе изучения опубликованных и архивных оригинальных материалов Государственного архива Астраханской области, Государственного архива Саратовской области и Национального архива Республики Калмыкия в статье рассматриваются основные особенности системы природопользования, функционирования и жизни калмыцкого кочевого общества в новых географических условиях, анализируются процессы адаптации кочевников к специфическим ресурсам аридной экосистемы. Для калмыков, которые в прошлом вели кочевой образ жизни, природа является не только средой обитания, но и основой жизни. Перемещаясь в поисках пастбищ для скота, калмыцкие скотоводы научились рационально использовать природные ресурсы. Показано, как люди пытались поставить их на службу магическими обрядами. Кочевой образ жизни, хозяйственный уклад, природный ландшафт и образ жизни кочевника-скотовода предопределили характер магии в целом. Особое внимание уделено системе запретов, связанных с природой, землей и водой. «Степной рубеж России» — бесценный ресурс для осмысления исторического опыта калмыков в области природопользования.

## Ключевые слова

история; климат; погода; кочевая жизнь; калмыки; адаптация; фронтальное исследование; природопользование и народные знания; аридная экосистема; скотоводы



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## Introduction

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Kalmyk steppe is the conventional name for the frontier steppe region in the northwestern part of the Caspian lowland. The Oirats, the ancestors of modern Kalmyks, migrated here at the end of the 16th–17th centuries from Dzungaria. The Kalmyk steppe was an administrative-territorial unit within the Astrakhan province of the Russian Empire.

The study deals with the history of the relations between the Kalmyks and the peoples of the given area, including Russians. In the process of developing new territories, peoples constantly had to come into contact with representatives of other cultures. During these contacts methods of communication and perception of the Alien were developed.

The geographical framework of the study is the territory of the Kalmyk steppe, a special administrative unit of the Astrakhan province, in which the nomadic Kalmyk population with a traditional way of life lived, and the territory of the Kalmyk Autonomous Region (1920), the Kalmyk Autonomous Soviet Socialist Republic (1935).

The paper is structured chronologically, following the process of incorporation of the Kalmyk steppe region into the Russian Empire over the course of the seventeenth to nineteenth centuries. It is concerned with the final period of the end of the late nineteenth century–the beginning of the twentieth century, which was accompanied by the evolution of government policy towards land settlement. The chronological scope of the work covers the end of the 19th century – 1943 (deportation of the Kalmyk people to the eastern regions of the country). Studying the problem within the specified chronological framework allows us to analyze changes in the economic activities, lifestyle, and worldview of former nomads.

The main subject of our study is the role of climate factor and weather in the context of traditional nature management and efficient frontier practices. The choice of this research subject is based on the frontier nature of the region and the frontier practices of traditional environmental management. Previously, the Kalmyk natural and economic complex was considered from a broader historical and geographical perspective.

This problem is associated with the adaptation of the Kalmyks to the new conditions and their interaction with Russian peasants-settlers in the Kalmyk steppe, which was generally peaceful. The topic that we discuss here is without question of the foremost importance to the history of the Kalmyks in Russia.

We used a corpus of varied materials relating to the history of the relationship between Kalmyks and their steppe neighbors, including some archival documents and field data.

## Background

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In recent decades, researchers' interest in nomadism has grown significantly. The influence of the natural environment on the formation of the cultural and economic identity of various peoples, including those for whom the main economic and cultural type is nomadic and semi-nomadic cattle breeding, including the Kalmyks, is indisputable. This topic has been deeply studied in domestic and foreign research. Here we can recall the classic work of E. E. Evans-Pritchard on the nomadic pastoralists of North Africa (Evans-Pritchard, 1985), the works of N. L. Zhukovskaya about the Mongolian nomads and many other authors.

Speaking about the current stage of historiography concerning the history of nomadic peoples, it should be noted that there has been a complete rethinking and change of scientific paradigms, new methodological approaches to the history of nomadism have been developed, taking into account the mutual influence of foreign and domestic concepts, which is confirmed by the scientific works of contemporary Russian and foreign researchers (Trepavlov, 2015; Kradin, 2006; Vasyutin, 2005; Masanov, 1995; Khodarkovsky, 2002; 2019, etc.). Michael Khodarkovsky, examining the Steppe as a frontier region, considers the points of conflict and cooperation between settled and nomadic societies.

Regarding the current state of research on the stated issues in world science, it is necessary to analyze the publications of an earlier period. In connection with the transformation of the lifestyle and way of life of nomads, their transition to a sedentary lifestyle and changes in the forms of economy, research works appeared with different views and assessments of the nature and degree of influence of natural conditions on the historical development of nomadic societies (Radlov, 1882; Radlov, 1883; Aristov, 2003, etc.).

A number of works are devoted to the analysis of the role of the frontier in the history of the Kalmyk ethnic group and the Caspian region of Russia (Tsyuryumov, 2012; Andreeva, 2017, etc.).

Climate change is one of the global environmental problems of our time. Natural and climatic factors have always had and still have a huge impact on the life and development of society. In the history of mankind, this is one of the most important characteristics of the natural environment: "The dependence of mankind on the nature surrounding it, that is, on the geographical environment, is undeniable" (Gumilyov, 1972, p. 44).

The economic activity of nomadic peoples, the peculiarities of their life are closely connected with the landscape and climate of the inhabited territory. Nomadic pastoralism is traditionally regarded as a way of adapting the economic system to local natural and climatic conditions (Gumilyov, 1987, p. 64).

There are indeed many issues that have yet to be properly researched (Yakushenkov & Yakushenkova, 2014; 2016; Badmaeva & Omakaeva, 2021; 2022, etc.).



Scientists have tried and are still trying to comprehend the role of the natural and climatic factor (Drobyshev, 2017) in the life and political history of the nomadic peoples of Central Asia in the light of ideas about the sacred nature of the supreme power. This is what the relatively recent work of the famous Orientalist-historian Yu. I. Drobyshev is devoted to (2018).

Another monograph by the author, being a logical continuation of his work “Man and Nature in the Nomadic Societies of Central Asia (3d century BC– 16th century AD)”, published earlier (Drobyshev, 2014), is just as relevant and in demand. The publication of this book, as well as the previous monograph, naturally aroused interest among specialists involved in the study of nomads (Tishin, 2016; 2020). Yu. Drobyshev considers in detail the issue of the influence of climate and weather on the course of battles, campaigns and other events. Thus, the climate influenced the timing of military campaigns: “The military activity of the nomads had a clearly pronounced seasonal character” (2018, p. 69).

### **Territory, settlement, cattle breeding, and agriculture**

Closely linked with the other Central Asian nomadic peoples, the Kalmyks have historical and ethnocultural peculiarities which distinguish them from their eastern relatives. The Oirat ancestors of the Volga Kalmyks left Dzungaria for the Caspian steppes in the early 17th century. Arriving in new land, they changed their environment in all aspects: climate, way of life, surroundings.

Nomadic researchers note that “the geographical factor in the modern historiography of nomadism is clearly insufficiently represented, mainly only in connection with the study of certain aspects of the economy of the nomads” (Masanov, 1995, p. 13).

Let's consider local forms of interaction with the environment and frontier practices of adaptation not only in the historical-geographical or economic-economic context, but also in the linguocultural, spiritual-mental perspective (Omakaeva, 2005; 2006).

The subject of the study is the analysis of the influence of natural conditions in which the life and economic activity of nomads has occurred, and the formation of the characteristics of the material culture and mentality of the Kalmyks.

In Russian historiography, it is noted that the transition from nomadic to semi-nomadic and sedentary animal husbandry could not but affect the process of settling the nomadic population of the Kalmyk steppe (Kostenkov, 1870; Palmov, 1925; Erdniev, 1964; Komandzhayev, 1999; Gunaev, 2022, etc.). Agriculture was seen as an aid to cattle breeding.

The world of nomads has always been terra incognita for the inhabitants of settled agricultural civilizations (Kradin, 2001, p. 108). The development of agriculture in the Kalmyk steppe is associated with the transition to a settled way of life (Badmaeva & Erdneeva, 2022). The Soviet government took measures to settle

the Kalmyks and spread agriculture among them. The sown area of the Kalmyk Autonomous Region grew from year to year and by 1926 had already reached 50,000 hectares. The most prosperous in terms of water cut are Ergeni, i. e. a hill separating the low-lying Caspian steppe from the high plain of the Don region, in particular, the spring area, which extends in a narrow strip along the watershed ridge of Ergeni from south to north (SASR. F. R-841. Op. 1. D. 14. L. 27).

Ergeni was the birthplace of agriculture. Kalmyks who switched to a settled way of life were entitled to certain benefits: they were endowed with land.

The State Archive of the Saratov region has a document called “The state of agriculture and the tasks of the land and economic organization of the Kalmyk region in connection with the settling (according to the conclusions of the preliminary processing of survey materials of the Volga colonization expedition of 1924)” (SASR. F. R-841. Op. 1. D. 66. L. 2). The section “The Current Situation of Agriculture and Its Movement in the Past” states: “Only in the materials of surveys of the Kuma-Manych Expedition for 1868, there is an indication that 153 families were engaged in farming in the Kalmyk steppe with plowing of 1120 acres. Further, there is a reservation that the sowers were mainly those who lived in Russian villages” (SASR. F. R-841. Op. 1. D. 66. L. 2). As K. Kostenkov writes, “from this number, in addition, it is necessary to turn off a significant number of peasants who plow the land together with the Kalmyks, so that there will be only a few very modest units of Kalmyk nomads who have taken up agriculture” (1870).

Kalmyks during their migrations passed *malyndyg uga hazr* ‘land without pasture’. The production cycle of pastoralists consisted of grazing in winter and in the warm season. Territories suitable for keeping livestock were needed. Suitable land was considered to be land with soil, topography, and climate characteristics consistent with efficient cattle breeding. The land was allocated for summer and winter pastures. When it was warm and windless, cattle grazed on hills, windward sides of slopes and hills, in cold weather – in hollows, reeds, bushes, etc. As for the reeds, it does not have much importance as a fodder. Here it is more used for buildings (reed houses, huts, etc.) and fuel. Huge reed thickets along the *ilmens* are not completely used by the Kalmyks, representing less valuable raw materials for them (SASR. F.R-841. Op. 1. D. 298. L. 13).

### **Kalmyk ideas about land and water**

The land was the basis of life support for the nomad (Sanzhina, 2007; Esenova, 2011; Mulaeva, 2019, etc.). The image of the earth in the perception of the Kalmyk nomad is closely merged with the image of not only the sky, but also water. Water was of great importance for the Kalmyk pastoralists. Water is not only a separate liquid substance intended for drinking and purification, but also an attribute of hydrographic objects (rivers, lakes, seas, oceans).



Water (*usn*) and earth (*shora*) are considered the most important primary elements (*mahmud*).

The Earth, like the Heaven, is attributed as the beginning of all things: the sky is the father, the earth is the mother. Moreover, the Earth acquires the properties of a chthonic deity, which is called *hazr usn* (Earth-Water). Various natural anomalies and elements were interpreted as signs of Heaven.

But back to earth. The concept of earth includes both physically localized linear space (*hazr*) and solid substance (*shora*). No less important is the figurative meaning of the word – *hazr* ‘land, world’.

Ideas about the earth are closely connected with the concept of the Motherland. The starting point for the Kalmyks was the ancestral nomad camp—*tørskn hazr* ‘homeland, native land’.

In the Kalmyk language, the word *əвсн* denotes the generic term ‘grass’. There is a variety of grass suitable for livestock feed, for example: *əлн* ‘green grass’, *hagd* ‘last year’s grass’.

The concept of *shora* ‘earth’ is also connected with the meaning ‘dust, sand’: *shorad dargdh* ‘to be covered with earth’. The concept of sand became relevant for the Kalmyks in the new territory.

In the Astrakhan province during the imperial period, sandy steppes occupied the entire eastern part of the Kalmyk steppe on the right side of the Volga and the entire left bank, starting from the Cherny Yar (SAAR. F. R-622. Op. 1. D. 137. L. 57).

The special word *elsn* ‘sand’ is found in phrases: *elsn shora* ‘dust and sand’; *elsn ulan* ‘sand dunes’; *elsn shuurhn* ‘sand storm’.

By the way, it was “the word *elsn* that gave the name of the modern capital of the Republic of Kalmykia—the city of Elista: *els* + *tə* ‘with sand, sandy’. The area where the city is located is distinguished by sandy soil, this characteristic of the place is the basis for the nomination of the settlement as a whole” (Esenova, 2011, p. 41). This oikonym, like many other toponyms, testifies to the importance of the feature indicating the characteristics of the soil surface for nomads. In such names, an important sign of the territory is fixed from the point of view of the cattle breeder.

For the historical territories inhabited by the Oirats, the ancestors of modern Kalmyks, sands and dunes were not particularly relevant. However, with the arrival of the new territory in connection with economic activity, land degradation occurred, and, as a result, desertification is being combated today.

The Kalmyk language has a special word for a desert area – *kədə*. Any deserted place is called by the word *kədə*: both a desert field and a steppe. So, the deserted, white-burnt steppe is called *əжго erm tsahan kədə*. A worthy death for a man, according to the Kalmyks, is death in the vast, desert steppe: *Zalu kγγnə γkl əжго erm tsahan kədə*.

The central place in the spatial representations of the Kalmyks is occupied by the *teg* 'steppe'. The steppe, unlike mountains or forests, is characterized by a flat horizon, where nothing obstructs the view.

Here, an important attributive feature is 'infinity, no limit'. This sign turns out to be an integral characteristic of a spatial object.

Another important marker of the Kalmyk steppe is desertedness: *ежго erm tsahan teg*, 'deserted steppe'; *ezn uga erm tsahan teg*, where *ezn* is the owner, *uga* is no, *erm* is naked, empty; *tsahan* – white; *teg* – steppe.

Life in the deserted steppe formed an important feature of the national character of the Kalmyk herders – laconicism, restraint.

### **Characteristics of the land fund of the Kalmyk Autonomous Region**

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The Kalmyks called the flat area *tal* 'open space, field, plain'.

For the successful conduct of economic activities for pastoralists, the main thing is *idg*, 'pasture'. *Buurldata idg*, 'wormwood pastures', were highly valued, *ködän idg*, 'desert pastures', *ködä teegin idg*, 'semi-desert pastures', *teegin idg*, 'steppe pastures' were distinguished.

The researchers note that "depending on the season, livestock was grazed on certain pastures, which allowed the herbage to be preserved and eliminated soil degradation. There was a group *idg*, 'distant pastures' and *увлэчн, увлин idg* 'winter pastures'. The steppe salt licks (*teegin khujrmud*) were also important. There are special territories called *khar hazr* – 'black lands'. These lands are practically not used for grazing in the summer due to low watering, and by winter they retain a good herbage, being a reserve fund for winter grazing. In winter, the land there was not covered with snow, and therefore cattle could graze in winter (NARK. F. R-3. Op. 2. D. 667. L. 155; D. 533. L. 156).

Today in the Republic of Kalmykia there is *Khar hazr* district 'Chernozemelsky district', which is famous for its distant pastures. These pastures are leased to neighboring regions" (Esenova, 2011, p. 42).

In the desert area (*ködä teg*) there were oases (*ködä dundk urhmlta hazr*), where one could rest in the shade and enjoy the water.

The Kalmyks distinguished different types of meadows. For pastoralists, water meadows were important, on which, after the water receded, grasses grew abundantly, which had special nutritional properties. For agricultural needs, a special type of meadow was specially distinguished – *tseev* 'floodplain meadow'. Cattle could graze in the *tsarng* (estuaries). The presence of estuaries motivates the name of the administrative center of the Oktyabrsky district of modern Kalmykia. We are talking about the village of Bolshoy Tsaryn.



Firth irrigation in the steppe region was extremely necessary (SASR. F. R-841. Op. 1. D. 14. L. 28). In Soviet times, an irrigation canal was laid across this territory, the waters of which were used to grow *tutrh* 'rice', a new crop for Kalmyks.

In the "Materials of a statistical-economic and natural-historical survey of the Kalmyk steppe of the Astrakhan province" for 1910, it is noted that in connection with the transition to semi-nomadic cattle breeding, the Kalmyks began to prepare feed for livestock, "such rich meadows were formed, producing a huge amount of hay, the reserves of which stacked in stacks" (NARK. F. I-9. Op. 4. D. 1695. L. 105).

The climatic features of the region largely determined the uniqueness of the flora and fauna of Kalmykia. It is interesting what types of vegetation were relevant for nomads, for what reasons the steppe cover changed over time.

### **The Kalmyk flora**

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Plants and man... Plants, first of all, symbolize a close relationship with the earth. It is impossible to imagine our earth, the surrounding world without these green friends of humanity. One of the ancient Russian manuscripts says: "The earth is like a person, only instead of hair it has trees and grass".

Flora is a historically established set of all plant species of a territory. Wild plants, together with the main cultivated and cultivated species, constitute the plant wealth of the Kalmyk flora. Perennial herbaceous plants predominate here, in particular, turf grasses (feather grass, fescue, serpentine, thin-legged, wheatgrass, etc.), various types of sedges, wormwood, and herbs. The steppe flora served as a fodder base for the nomadic pastoral civilization.

There are plant species that grow almost everywhere: for example, fescue grass, etc. Some species are found only in a certain area (they are called endemics). Each type of plants has certain requirements for environmental conditions.

Vegetation determines the appearance of the territory. Among the steppe flora, plants of great economic importance are distinguished. This is mainly fodder vegetation that grows in the steppe and forms pasture lands. A key place in the flora of Kalmykia is occupied by fodder plants, mainly pasture plants (196 species).

The world of flora is a "magic book of nature", which is originally beautiful and given to man in order to see this beauty. Steppe grasses formed the basis of many poetic images of Kalmyk folklore and poetry. Thus, the image of the *buurl teg* 'gray steppe' is motivated by the color of the most famous type of steppe wormwood *buurlda* (*Artemisia absinthium*), which has medicinal properties. Color gives a special charm to all wormwood: the plant is distinguished by gray shades with a silvery coating. Another name for this plant is *sharlæn* (from *shar* 'yellow'). Kalmyks associate their native steppe with the tart smell of wormwood. The ability of this plant to grow in difficult climatic conditions (under the mercilessly scorching sun and piercing winds) on infertile and waterless soils is simply amazing.

There is a touching legend about the reason for the appearance of wormwood in the Kalmyk steppe. It is about a poor beautiful girl named *Polyn'* and a rich young man named *Kovyl*. Having escaped to the steppe from an obsessive guy, the girl asked for asylum near the steppe, forever remaining in it in the form of a plant. Another well-known herb is mentioned in this legend. This is feather grass, in Kalmyk *tsahan øvsn* 'white grass'.

### **The four kinds of livestock of the Kalmyks: *dörbn züsn mal***

Livestock is the main source of wealth of Nomad, and the economy substantially depends on its production and development. Livestock keeping provided food, clothing, and means of transportation. Animal husbandry based on extensive pastoralism was the basis of the traditional nomadic economy.

Nomadic cattle-breeding vocabulary is very rich. Oirats (Kalmyks) prefer the four kinds of livestock (*dörbn züsn mal*), the basis of nomadic wellbeing (Erdniev, 1980). These are *ükr* 'cow', *khön* 'sheep', *temän* 'camel', *mörn* 'horse'. Goats were used to facilitate the grazing of numerous sheep in the steppe; it was believed that the goats lead the flock in the right direction.

Horses and sheep constituted the backbone of the nomad pastoral economy. The veneration of horse and sheep and giving them the status of "hot-breathing" animals is "due to the fact that they occupied key positions in the mythological genealogy of nomads" (Sodnompilova & Nanzatov, 2020, p. 96).

A horse is the most beloved creature of the Nomads. Horse breeding in a nomadic society traditionally occupied an important place in economic activity. This was reflected in the Kalmyk proverbs and sayings, praising the qualities of a horse, a pacer. For example: Kalm. *Agtyn biid – er taltn, avalin biid – em taltn*: As long as there is a horse, a man is confident in himself, while a legal husband is alive, a woman is confident in herself. *Sən yr cholun erst orkhñ bat, sən mörn burgdt orkhñ khurdn*: A good friend is stronger than a stone wall, and a good horse is faster than a golden eagle.

Horses were distinguished for their speed and endurance. They were herded in groups called *adun*, consisting of 100 to 200 horses.

Sheep were used as sacrificial animals. The sheep was dedicated to the popular among the Kalmyks deities *Tsagan Aav* (White Elder) and *Okon-Tengri*. L. Erdenebold in his work describes the rite of dedication of a yellow-headed sheep to the constellation Ursa Major, which was once common among the Altai Uriankhians (2012, p. 98).

The image of a yellow-headed sheep is found in Kalmyk folklore. Here is an example of a Kalmyk riddle: *Жирлһнә тса әҗирн шар толһата хһөн (тәрәнә толһа)* 'Behind the mirage are sixty yellow-headed sheep' (ears of wheat). This riddle reflects the idea of the Kalmyks about the ears of wheat as about 60 yellow-headed sheep. The correlation of "sheep" and "ears" is based on the zoofact-phytofact



metaphorical model, which is so close to the nomads. Implicitly, this riddle reflects the view of the nomads on the surrounding endless space, covered with ears of wheat, as filled with sheep, since the number 60 marks the age.

The ram's shoulder was used as a divinatory tool (Ochirova, 2008), and the tibia as a talisman. Mutton is the preferred meat for Kalmyks and it is prepared in a variety of dishes.

We found an interesting message about a ram's leg falling into a pit (burrow) in the work of U. Dushan:

“Of great importance for the Kalmyks was the case of a ram or goat getting into a pit with a foot. The Kalmyks believe that these animals can put their feet into the pit only as a result of the machinations of unclean forces. Such animals portend great misfortunes to their master. Their owner has no right to touch and help free their leg from the pit. Such help can bring misfortune. Such an animal can only be touched by a spiritual person, and no one else. This is reported to some Gelung or Khurul, who take a ram or a goat for themselves. Since there is no shortage of ground squirrels and other similar animals in the steppe, there are also decent burrows. Hence, getting animals into burrows is far from a rare occurrence” (2016, p. 373).

Camels and cows were of relatively less significance. Camel was used for transportation of household goods during migrations.

A person born in the year of a certain animal (Sheep, Horse, Cow) should not kill that animal.

## **A system of prohibitions**

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Respect for land and water was formed through a system of prohibitions. It was strictly forbidden to injure the earth with sharp objects, for example, a knife, to draw on it, especially to dig out the earth more than one handful, thereby violating the integrity of its soil surface.

“Digging the ground is considered a bad omen because it's tantamount to digging your own grave. You can't destroy the roots [of plants. – E.O., E.B.], because you yourself will be left without it. It is impossible to plow without destroying the roots, hence the reluctance to engage in farming” (NA RK. F. R-3. Op. 5. D. 51. L. 130).

This could lead to the destruction of pastures, changes in the structure of plants, etc. If it was necessary to lay the foundation of a building or dig wells, it was necessary to conduct a special ritual of obtaining permission for these actions and a magical rite.

The availability of water resources was the main condition for the economic activity of Kalmyk nomads. Kalmyks said: “Be careful about water sources. Use well-cleaned buckets when taking water from springs”. It is strictly forbidden to pour blood or milk into the water of the spring, to wash dirty things, to defecate in the nearby area, to kill fish and water insects. It is strictly forbidden to bring down houses from milking households on the upper side of the source of water, to pollute and muddy the water, to wash the body because the spring water is raw

water, and to take water from the well with a sooty pot. It was forbidden to swim in the river, draw water with gold and silver dishes.

It is necessary to use water from a spring within reasonable limits, otherwise the earth and water will “revolt”, which can lead to destructive natural disasters (earthquake, storm, strong wind, storm, tornado, hurricane). Violation of all these prohibitions entailed misfortune.

In the 19th century the Russian state, placing great emphasis on the development of livestock farming and providing the population of the empire with food, began to pay increased attention to the development of state programs for irrigation of the steppe and water supply to the nomadic population.

The Kalmyks roamed mainly where there were natural water resources, but due to the increase in the number of livestock, they had to master a new occupation – the construction of wells and *khuduks*.

On the territory of the Kalmyk steppe of the Astrakhan province there were no large river basins, except for the Volga River, a large water artery. “Only settlements located on the banks of the Volga and its delta use fresh Volga water or the water of the Eriks and Ilmens, separated from the Volga. The population of the rest of Kalmykia uses ground salt water (*khuduks*, etc.)” (NA RK. F. R-3. Op. 5. D. 51. L. 132).

“Local people have repeatedly tried to get good [fresh.– E.O., E.B.] water. They erected dams, dug *khuduks* and wells, but to no avail. The groundwater quickly went into the sandy soil, evaporated and spoiled, and even the cattle did not drink the bitter-salty groundwater” (NA RK. F. I-9, Op. 5. D. 1835. L. 21). Thus, the water in them was not always fresh.

Mining engineer Alekseev wrote to the chief trustee of the Yandyko-Mochazhny ulus M. Sokolov that “there is no fresh water in the Bargasyn-Nur tract. This happened because the old people of the mentioned family did not agree to drill more than two wells” (NA RK. F. I-9. Op. 5. D. 371. L. 4a).

“Since watering cattle is the main concern of nomads in the summer” (Kornilov, 1854, p. 22), the Kalmyks knew perfectly well the quality of river and lake water, where and at what depth soil waters are kept. According to the steppe people, the best and shallowest water is found in quick sands lying on clay subsoil. Therefore, they located their tents not far from such sands (Kornilov, 1854, p. 23).

The wells of the nomads were divided into seasonal (winter, summer) and permanent. The number of *khuduks* and wells in the Kalmyk steppe increased every year. In 1890 there were 26 new wells (with log houses) and 95 *khuduks* (without log houses). In conditions of a hot climate and a lack of drinking water, each well in the Kalmyk steppe was strictly registered, and also had its own name.

Among the Kalmyks there were people who knew where to build wells. From the report of the head of the Aleksandrovsy ulus M. Fedorov to the Administration of the Kalmyk people on October 8, 1890: “I have the honor to inform the UKN that there are no wells in need of construction yet, with the exception of the noyon of



Tyumen, which can itself indicate places for the construction of wells” (NA RK. F. I-9. Op. 5. D. 371. L. 11). And today, according to our field data, farmers are looking for places where there is water, inviting knowing people who carried out their research early in the morning using folk signs, observing vegetation and animals. The bright color and abundance of moisture-loving vegetation (sedge, reeds, cattails, willow, willow, coltsfoot, etc.) indicated that it was possible to dig a well in this place. There were certain days in the year that were considered the best to start a well (AFM).

### **Rain and wind as natural phenomena**

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Rain for the Kalmyks was a question of life and death. As U. Dushan notes, “Kalmyks are no less interested in rain than anyone peasant farmer. The state of the pasture depends on the rains” (2016, p. 178). Special authority among the population enjoyed *zadchi*, who commanded the rain.

As for the causes of rain, the Kalmyks said:

“According to the Kalmyks, rain can also be caused by simply shaking off objects. A severe thunderstorm can break out if a white object (milk, flour, etc.) is taken outside on a cloudy day. Therefore, on cloudy days, Kalmyks do not take out such objects from the yurt. If they take it out, they certainly cover it so that the sky does not see them” (Dushan, 2016, p. 183-184).

In the life of the nomads, the winds play a big role. In winter winds accompanied by snowstorms, blizzards, bring ruin to them, because cattle deprived of pasture, die of hunger. In summer the sultry east wind dries steppe, turning it into a continuous bare desert.

A tornado was a particular danger. We are talking about a huge funnel that descends to the ground from a thundercloud. This rare natural phenomenon, called *the hanging dragon* (mong. *luu unzhih*), is reflected in oral traditions (Batmunkh, 2020).

The wind can be a threat to a yurt, a nomad’s dwelling. The Kalmyks have a belief about how a person can call the wind: “Kalmyks consider a great sin to stand leaning against gratings of the yurt. This portends the owner of the yurt that there will be a strong wind and the yurt will have to be held in this way, otherwise it may fall” (Dushan, 2016, p. 66).

The Kalmyks have some signs of whether there will be wind or not. If rainbows appear near the sun or moon, this is a sign of strong winds. Exactly also, when at sunset they are shown from the western side of the cloud, then this is also a sign of the winds. The form of the clouds is considered one of the best signs of the possibility of winds. If they resemble the figure of camels, then the Kalmyks say: “Camel clouds have appeared, there will be no peace sky”, and expect strong winds and rains (Dushan, 2016, p. 177).

The relationship of astronomical objects with the weather deserves special attention. The nomads believed that the movement of the Pleiades star cluster across the sky entailed weather changes, but this is a topic for a separate article.

## **Conclusions**

We made an attempt to study the values that have been accumulated by the ecological practice of the Kalmyks in the process of adaptation to the natural environment. Rational methods of housekeeping were identified, from the point of view of adaptability to climatic and weather conditions, environmentally sound principles of everyday life, as well as the influence of the surrounding natural-geographical environment on spiritual culture.

The specificity of the centuries-old pastoral economic activity of the Kalmyk nomads determined the key place of climate in the practice of nature management. This type of economic activity, which was completely dependent on natural conditions, gradually formed the main character traits of the Kalmyks, in which the harmony of man with nature can be traced.

Much attention was paid to folk ethics and traditional mechanisms of control over environmental management. In the future, it will be necessary to identify the possibility of using a number of specific traditional methods of environmental management at the present stage, primarily in the field of cattle breeding.

Since the life of the nomads was completely dependent on the surrounding nature and climatic conditions, the pastoralists developed observation skills; careful attitude to the environment was formed. Kalmyk nomads learned to predict a possible change in the weather by signs and prepare in advance for this. So the nomads formed a special complex of interaction between man and nature, based on a system of ethical rules and norms.

Ecological ethics is considered as part of everyday frontier practices that structure the relationship between the nomad and the natural landscape. We consider frontier practices as borderline between the known and the unknown.

Of particular note is the connection between the weather and the cyclical calendar. Years of the 12-year animal cycle were considered either favorable or unfavorable, depending on the animal symbol of the year. The need to ensure existence in a new natural environment determined the implementation of adaptation in an optimally short time frame. But the adaptation process actually slowed down due to the direct dependence of the productivity of the work of a Kalmyk nomad, and later also a farmer, on the unpredictable and controllable weather conditions in the region of residence.

The folk knowledge of the Kalmyks in the field of nature management that we have identified and the analyzed historical experience of pastoral and agricultural management can be used today. Modern Kalmyks are facing almost the same problems as their distant ancestors a century ago.



Scientific research on frontier topics shows the multidimensionality and complexity of the problem of both border cultures and territories, as well as regional and local communities. The frontier as a complex, multifaceted phenomenon includes not only economic-geographical, economic-historical, but also philosophical, cultural, spiritual, and mental aspects.

The formation of a special alimentary landscape of the frontier region as the set of practices associated with the production, processing and consumption of food under consideration deserves a separate study.

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