

## THE ROLE OF CAVE NAMES IN THE DEVELOPMENT OF TOURISM IN KAZAKHSTAN

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**Abstract:** Geographical names, including speleonyms, which were once not registered in official sources, have been preserved in the form of missing words or errors in the Russian language. Therefore, the task of their collection and systematization is fixed by many resolutions of the government of the Republic of Kazakhstan and other authorized bodies. One of the issues of determining the ways of implementing the project "sacred geography of Kazakhstan" and the direction of research work is aimed at restoring the names of caves. The purpose of the study is to identify the features of the formation of cave names on the territory of Kazakhstan and the geographical prerequisites for their restoration. Research objectives: to determine the role of physical and geographical conditions of Kazakhstan in the formation of speleonyms; to reflect the patterns and areas of cave distribution in Kazakhstan and to analyze the geographical aspects of the formation of speleonyms; analysis of geographical aspects of the formation of speleonyms; determination of the place of speleonyms as tourist and recreational objects; making proposals for the preservation of caves and Speleonyms of Kazakhstan. The object of the study is caves and other underground parts distributed on the territory of Kazakhstan as special objects of the sacred regions of the country, the subject of the study is the conditions and meaning of the formation of the names of these caves, their geographical prerequisites and opportunities for restoration. The caves will be of great interest from a geomorphological, hydrological, bio-speleological, archaeological and paleozoological point of view. In recent years, they are studied as unique natural landscapes. The importance of caves for speleotourism is also difficult to overestimate.

**Keywords:** speleotourism, speleotourists, cave ecology, sightseeing sites, sanctuaries, speleotherapy, Konyr-Aulie cave, Akmeshit-Aulie cave

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### INTRODUCTION

Cave is a special element within a countryside or scenery referred to as "karst" (Rachmawati and Sunkar, 2013). Caves are large open space situated underground (Barbara et al., 1996) which may have been formed due to underground solution of limestone (Oguamanam and Nwankwo, 2015). They were inhabited by humans in ancient times who then left behind ineradicable marks like cave painting and inscription (Itanyi et al., 2013).

Kazakhstan is located in the central part of Eurasia. The natural and climatic conditions of Kazakhstan are largely determined by its location in the very center of the continent. Almost half of the country's territory is occupied by deserts and semi-deserts, and a quarter of the territory is a steppe zone. High-altitude areas cover about 10%. The highest east of

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the country, Khan Tengri (6995 m), rises in the Tien-Shan mountains in southeastern Kazakhstan. The presence of such high peaks indicates the relatively recent appearance of this mountain system. Indeed, the upward trend towards destruction in the Neogene continues to this day. This is confirmed by tectonic fluctuations (earthquakes) of the earth's crust. On the border between Kazakhstan and China, in the southeast stretches a giant mountain range - Zhetysu Alatau, the peaks of which are covered with glaciers. In the east there is an ancient mountain system - the Altai Mountains.

The land of Kazakhstan occupies vast expanses, therefore it borders on zones that differ greatly in their climatic conditions: in the north – with the West Siberian lowland, in the south – with Central Asia. Under the influence of cold and warm air masses, the sharply continental climate of Kazakhstan has been formed, characterized by hot summers, cold winters, significant seasonal and daily temperature fluctuations and uneven precipitation distribution.

The hydrography of Kazakhstan is represented by numerous rivers and lakes. The number of lakes in Kazakhstan includes the Aral Sea, which in the near future ranks third among the largest lakes in the world. However, due to climate change and human economic activity, the number of waterways replenishing the Aral Sea with water has sharply decreased. The Shu, Sarysu, and Talas rivers no longer reach the sea, and the volumes coming from the Syrdarya and Amudarya have decreased. Among the largest rivers in Kazakhstan, one can single out the Irtysh, Tobol, Yesil, Ural, Syrdarya, Shu, etc. (Vilesov, 2009). By the nature of the earth's surface, the territory of Kazakhstan is divided into two parts: mountainous and low-mountainous territories in the east and south-east of the country and plains occupying the rest of the land. The modern relief of Kazakhstan is the result of a long history of development, in which the climate and tectonic regime have repeatedly changed. In the territory of Kazakhstan, it is impossible to find a landscape that has not been influenced by human activities to some extent. Therefore, one of the main challenges in preserving natural landscapes untouched by human hands is the study of geographical names. It covers a range of social and political issues (Rose-Redwood, 2011) as well as toponymy in a wide range of physical geography (Wendt, 2017).

Caves on the territory of Kazakhstan are unevenly distributed (Figure 1, 2). Many of them are typical for mountainous areas characterized by high tectonic activity, a thick layer and cracks of rocks, a deep section of the earth's surface, creating favorable conditions for the intensive course of karst processes. On the plains, karst forms most often refer to river valleys and areas where tectonic faults are observed, where due to the presence of layers of loose formations and a high degree of fragmentation of carbonate and halogen deposits, a deeper immersion of surface waters into the karst massif occurs, i.e. infiltration. This determines the formation of underground cavities, which sometimes reach significant sizes (Saparov, 2024).

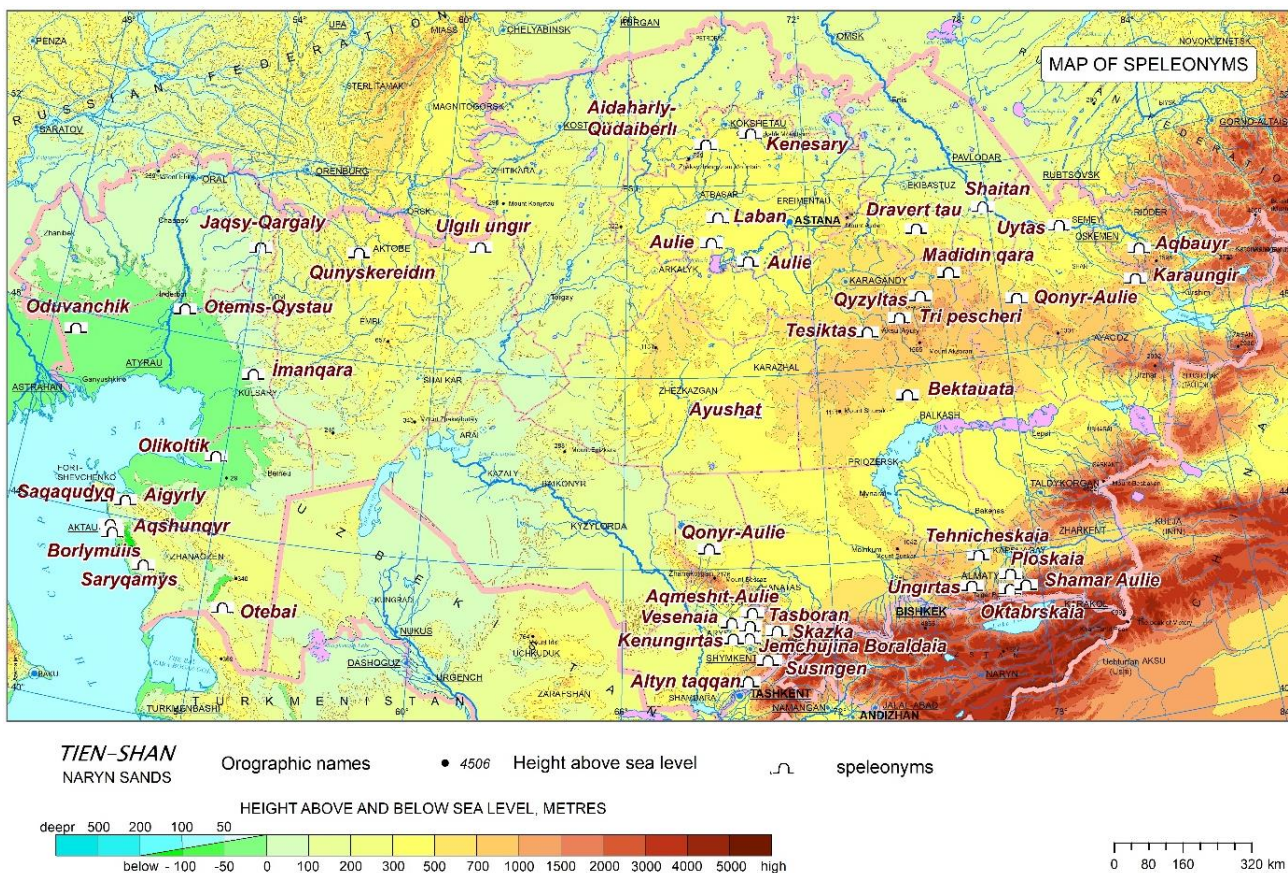


Figure 1. Map of speleonyms of the Republic of Kazakhstan (Source: own study)

## MATERIALS AND METHODS

One of the first works of man, in which his knowledge of caves is systematized, was published by J. Gaffarel in 1654. In his book *The Underworld*, he divided caves into 5 groups: divine, human, animal, natural and artificial. The Jesuit A.

Kircher in his work (1664) stated his opinion about the water cycle on Earth. According to him, seawater seeping into caves (such a phenomenon is actually observed on the Greek island of Kefalia) penetrates into the depths of the Earth, heats up and evaporates from its internal heat and rises to the tops of mountains, where they concentrate and give rise to springs and rivers. In the XVII century, other works on caves were published: I. Valvasor in 1689 described the underground river Shkotsian (Slovenia). By the end of this century, the first descriptions of caves appeared in England, France, and Austria-Hungary.

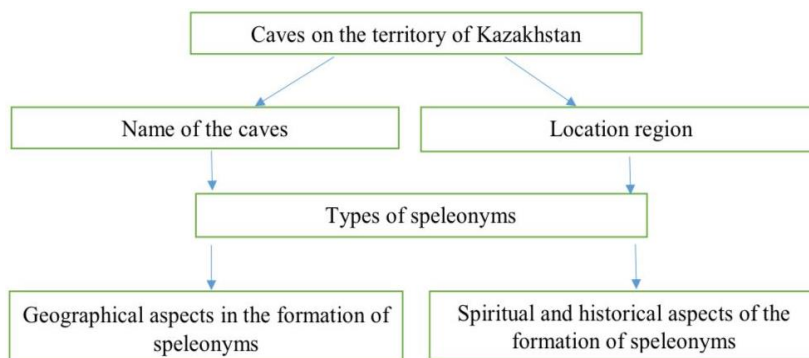


Figure 2. Block diagram of the research methodology from the point of view of the location of caves on the territory of the Republic of Kazakhstan (Source: own study)

The 18<sup>th</sup> century was marked by the beginning of expeditions aimed at exploring remote caves. In May 1748, mathematician I. Nagel led attempts to descend into the Matsocha pit (Moravia), which did not exist at that time. Modern theoretical concepts are summarized in the work of Sisto de la font "Miracles of Nature" (1788). He believed that underground cavities are formed «mainly through mountains spewing torches», and communities in caves are «a kind of underground garden». Back in 1720, V.N. Tatishchev visited the suburb of Kungur, where he showed that the caves are the result of "crushing" (dissolution) and collapse of rocks. In 1732, I. Gmelin explored the Kungur cave and left a drawing of it (Klimchuk et al., 2007). M.V. Lomonosov contributed to the formation of knowledge about the underworld. He proved that caves are the result of physicochemical creation, explaining the formation of "scale" on the walls of caves as the release of calcite from an aqueous solution, offering the Russian equivalents of the latin terms "stalactite" and "stalagmite" ("upper drop" and "lower drop"), explained the movement of air underground and the causes of ice formation in caves. The works of such scientists as I.I. Lepekhin, N.P. Rychkov, P.S. Pallas provide information about numerous caves in the Volga region (Bornukov), in the Urals (Divya, Kapova), in the Caucasus (Failure), in the Crimea (Bolshoy Buzluk), in Altai (Charysh).

In the 19<sup>th</sup> century, cave discoveries and explorations continued in Europe. In the cave of Padriciano (Italy) in 1839, the group of M. Lind sank to a depth of 226 m, and in the Trebich abyss - to a depth of 329 m. Caves are also actively explored in Russia: Kungur in the Urals, Verteba in Ukraine, Kizil-Koba in the Crimea, Gumskaya and Sakinule in the Caucasus, Balagana near Angara, etc. Large caves have been discovered in North America (Friar, Wind, Organ, etc.). Interest in caves is growing among geologists and mineralogists, archaeologists and biologists, hydrologists and meteorologists. The construction of the adjacent parts of the caves (Postojna, Velskaya, Demyanovskaya, Kungurskaya, Mamontova, etc.) begins.

The second half of the 20<sup>th</sup> century was a period of great speleological discoveries. An important role in this was played by the development and improvement of technical means, techniques for overcoming various obstacles, means of communication and life support necessary during multilateral expeditions. Organizational achievements also contributed: more than a hundred countries created speleological unions and associations, in the period from 1953-1997 12 international speleological congresses were held, and in 1965 the International Union of Speleologists was organized (Klimchuk et al., 2007).

The theoretical basis for studying the origin of cave names was the work of such scientists as E.L. Berezovich, S.P. Vasilyeva, G.V. Kolshansky, V.I. Postovalov on toponymy and the linguistic picture of the world (Zhilina, 2011).

In the course of the work, the following *research methods* were used: retrospective analysis - analysis of data from researchers who contributed to the study of speleonyms; geographical image - description of the physical and geographical features of caves and determination of their reflection in speleonyms; historical analysis - discussion of the history of the formation of cave names; cartographic method and GIS - demonstration of the distribution of caves on the land of Kazakhstan and the patterns of their distribution are determined by toponymic areas; linguistic and etymological method - explanation of the formation and meaning of cave names; the statistical method is the processing of quantitative indicators.

## RESULTS AND DISCUSSION

Many people see tourism as travelling, relaxing, getting new experiences and having a good time. However, considering it from a different perspective, tourism can be developed and be related to other things (Koshim et al., 2019). *Speleotourism* means travelling to caves. Along with this term, the term caving is currently used. Caving is an extreme sport that means crossing caves. Depending on the complexity, speleotourism is divided into sightseeing, amateur and sports.

Sports speleotourism involves passing technically difficult caves that require special professional training. The complexity of underground routes is due to the wide variety of terrain in caves (depressions, wells, dumps, narrow crevices, underground rivers and lakes, bottlenecks, siphons), lack of lighting, low humidity (sometimes reaches 100%), a high degree of autonomy during the expedition (the presence of narrow underground camps in the case). In most cases, cave

travel also requires the skills of hiking, rock climbing, scuba diving. Sports speleotourism is usually carried out in combination with scientific research of caves or the creation of a scheme of underground passages. Speleotourism is a type of extreme tourism using various special equipment (scuba gear, carabiner, rope, hook, ladder, personal insurance systems, etc.). The discovery of new speleotouristic routes is accompanied by cave exploration, that is, speleology (Abdullina, 2019).

Sports speleotourism involves crossing technically difficult caves that require special professional training. The complexity of underground routes is explained by the variety of terrain in caves (cavities, wells, embankments, narrow burrows, underground rivers and lakes, bottlenecks, siphons), lack of light, low temperatures with high humidity (sometimes reaching 100%), a high degree of autonomy during the expedition (in the case of narrow underground camps). In most cases, hiking in the cave also requires the skills of hiking, mountaineering, scuba diving. Sports speleotourism is usually carried out in combination with the scientific study of caves or the creation of a scheme of underground passages. Speleotourism is a type of extreme tourism using various special equipment (scuba diving, carabiner, rope, hook, ladder, personal insurance systems, etc.). The discovery of new speleotouristic routes is accompanied by the study of caves, that is, speleology (Saparov, 2023). There are special requirements for the order of speleotourists, their behavior inside the cave, and their attitude to the underground nature. This is due to the special fragility of the cave site, its ecosystem, various fallow formations, mineral and ice crystals. For example, a broken stalactite is restored only after hundreds of years. During the exploration of the caves, numerous mineral formations were destroyed (Abdullin, 2012).

Today, there are several directions in speleotourism: commercial, sports and original. Uncomplicated caves, partially or fully equipped, are used for commercial purposes. Sports routes are built depending on the level of training of the group. Self-guided cave visits are group routes run under the guidance of an enterprising lover of underground nature.

The equipment of caves has been and, it seems, remains one of the most important issues of speleotourism. Unfortunately, vandals, unprofessional tourists, and sometimes even the locals themselves cause damage to both nature and the treasury of the state. Equipment in caves can be broken, partially or completely damaged, or even stolen. As a result of such actions, due to the usual lack of tourist ethics and understanding, the budget of the state suffers and losses significant amount of money. Perhaps that is why the state does not want to invest too much money in exploring caves, building new routes and new equipment. The preservation of the ecology of caves remains one of the priority issues of modern speleology (Kladnik, 2020). There are many cases when a person destroys objects with his own hands. In general, the condition of many caves is deteriorating. Modern paintings and inscriptions appear on the walls, sometimes even inscriptions of different colors, the available shapes are broken, various debris, glass, bottles, etc. are piled up. Thus, despite its socio-humanitarian orientation, tourism is changing the ecology of caves.

The reduction of the consequences of the tourism industry for the environment is regulated at the state and international levels along with the fulfillment of the following conditions: environmental education; limitation of the tourist and recreational load on natural resources; legal regulation; economic regulation; tax regulation, etc (Safarov, 2020).

The main principles of a special type of discipline in the speleological passage of caves should be: careful and effective use of caves; regulation of the consumption of tourist resources based on monitoring the tourist load on the territory of caves; consistency of international cooperation and actions to protect the ecology of caves and the use of these natural objects; reasonableness of nature management; environmental and economic efficiency in the study and passage of caves scientifically based harmonization of interests; compliance with environmental requirements of legislation, etc.

Caves are sightseeing objects of great cognitive value and interest. Colorful lighting can make some parts of the caves even more impressive. The sacred geography of Kazakhstan is of great importance for tourism. Because tourists from all over the world come to see these shrines. And the collection of several thousand tourists to the country will bring income to the world budget. That is why this project is of great importance (Figure 3) (Saparov, 2018).

In many countries of the world, natural caves and mine workings are also used for therapeutic purposes (speleotherapy). Fresh air, in most cases air ionized by radioactive carbon isotopes, stable temperature and other factors make it possible to successfully treat respiratory diseases, arthritis, rheumatism, hypertension, gout and some skin diseases. The prospects for the use of underground thermal karst waters are also expanding widely.



a) Konyr-Aulie (Abay region)      b) Akbaur (East Kazakhstan region)      c) Akmeshit-Aulie (Turkestan region)

Figure 3. Caves with high tourist potential in Kazakhstan (Source: Tlebaldina, 2023)

From this point of view, one of the most promising caves in Kazakhstan is the Konyr–Aulie cave in Eastern Kazakhstan. It has become a place of pilgrimage not only for locals, but also for tourists. Now the cave has been

completely cleaned, and the roof has been cleared of soot, which has been accumulating for a long time (Abdikhalikovna, 2020). In previous years, there were cases when people used torches with candles when they entered the cave, leaving behind debris. For tourists, a special structure with a roof was built in front of the entrance to the cave. Wooden ladders and gazebos for relaxing on the road were also installed in front of it and inside the cave of a winding rocky mountain and on the shore of an underground lake (Figure 4). The Konyr-Aulie cave is considered a sacred place where Abai Kunanbayev and Mukhtar Auezov visited. Systematic work is underway in East Kazakhstan under the Rukhani Zhangyru program (Beketova, 2019). It is assumed that when these works are completed, even more people will come to Konyr-Auliye. In recent years, electric lighting has been installed in the cave, which is based on a diesel-electric engine that generates electricity.



Figure 4. Attempts to equip the Konyr-Aulie cave as a tourist object (Source: Tlebalina, 2023)

Although today the cave has become a place of pilgrimage, the entrance to the cave has its own order, people who enter the cave and the lake must enter with good will, do not say bad words, women enter with their heads covered – all this should be explained to visitors. However, on the other hand, neither guides nor tourists ask to build a good highway here: according to their calculations, it is not easy to get to the sanctuary, both tourists and pilgrims need to overcome obstacles and consciously think about the true meaning of life, the values of life (Berdenov, 2021). At the same time, this region is in dynamic development. A hotel, cafe and other facilities are being built next to the cave.

Conditions have been created here for tourists and pilgrims who come both in groups and in person. However, sometimes haste in such cases can lead to irreversible mistakes. The need to improve such places and protect them from vandals and other "lovers of antiquity" is inevitable, but it must be done with the participation of specialists. Thus, Abai's inscription on the cave wall was erased with his own hands, as the domes and walls of the cave were roughly cleaned with sandpaper. M. Auezov wrote about this in his novel, which is called "The Path of Abay". At the same time, a large burial complex located near the entrance to the cave, covering the time period from the Bronze Age to the Dzungarian invasion, may also be destroyed. To do this, it is necessary to carefully study the cave and its surroundings with the participation of specialists speleologists, archaeologists, divers, etc., who provide reliable information about the history of these places. Not everyone has the opportunity to come here, so it can be demonstrated with the help of modern technology. To do this, you can make a video with a full story or take panoramic pictures and post them on the internet.

The cave of Akmeshit-Aulie has also become one of the most famous speleological monuments. After tour operators were able to accept Chinese tourists on an ADS visa, it turned out that most of the inhabitants of the Middle Kingdom choose the Turkestan region as a tourist destination. During the work with focus groups, during the month of the Expo, 19 groups from China visited this cave, which is more than 1,000 people, and this is only the data of one tour operator. Every year, 70 thousand tourists visit the Akmeshit-Aulie cave. Tiles and ladders were built for tourists on the way to the cave.

The sports development of the Aulie cave began by local speleologists in 1965 (Korablev, 2020). It is interesting to come here in May, when the real summer begins here. According to preliminary data from the nature conservation center, about 100,000 people descend into the cave every year. Many of them are Kazakhstanis. Residents of Russia, Uzbekistan, and Kyrgyzstan are also interested. Paths are marked in the cave, trestles for pilgrims are installed.

Ustyurt also has many unique karst formations. However, they do not have fully equipped highways, respectively, there is no service either. Traffic in all directions was carried out only on numerous dirt roads. Safe driving is possible only in a car that does not specifically choose the road (Yeginbayeva et al., 2016). A traveler walking along the roads of Ustyurt can only rely on himself, he cannot wait for any help. There are only 2-3 routes available for tourists leading to the most accessible sites in Ustyurt. The rest are Terra Incognita for discoverers and explorers. It will be difficult to get here.

Despite the large number of resources for speleotourism, that is, caves, it is difficult to find developed centers of speleotourism in Kazakhstan. However, the development of this industry would be of great economic importance. This direction will allow you to discover and explore unexplored caves, as well as create new jobs. Speleotourism, which is a branch of sports tourism, increases the demand for young people with extreme inclinations (Suiundukov, 2010).

In addition, the location of the Karatau Mountains along the "Great Silk Road" can become the basis for the development of tourism. We have the opportunity to develop speleotourism in Kazygurt and strengthen competition by

creating highly effective advertising of caves in Kazakhstan, creating geographical maps, photographs of good places, videos related to legends, chronicles, creating booklets and brochures, and shows. At the same time, the era of nomads, the revival of culture, the continuity of traditions, customs, and the increased interest of foreign tourists.

The caves are of great educational and tourist importance. Therefore, they need to be studied and promoted (Suiundukov, 2010). Thus, there are both positive and negative sides of the use of caves in Kazakhstan as tourist sites, which can be shown using SWOT analysis (Table 1).

Table 1. SWOT analysis of the use of speleonyms as tourist and recreational facilities in Kazakhstan

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- the presence of many different caves;</li> <li>- most caves are accessible;</li> <li>- a large number of sacred caves can become the basis for the development of pilgrimage tourism;</li> <li>- the presence of caves of varying complexity for sports tourism;</li> <li>- the presence of flood lakes in caves;</li> <li>- provision of state support within the framework of tourism development programs "Sacred Geography of Kazakhstan", "Rukhani Zhangyru", etc.</li> </ul>	<ul style="list-style-type: none"> <li>- most of the caves are poorly explored;</li> <li>- limited anthropogenic load of caves has not been established;</li> <li>- fewer speleologists and specialists in the field of speleotourism;</li> <li>- insufficient development of the tourist infrastructure.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- the ability to coordinate several types of tourism due to the fact that the caves are located in a picturesque mountainous area;</li> <li>- the possibility of obtaining additional income;</li> <li>- creation of additional jobs;</li> <li>- improvement of cave sites and development of tourism infrastructure;</li> <li>- strengthening the interest of foreign tourists.</li> </ul>	<ul style="list-style-type: none"> <li>- threat of environmental damage;</li> <li>- loss of the unique natural appearance of the caves;</li> <li>- unjustifiability of material and financial investments allocated by the state.</li> </ul>

The current task is to create a Kazakhstan tourism brand, imitating what is there, advertising the beauty of picturesque places. In addition, we must develop domestic tourism, while maintaining existing types of tourist services.

*Speleology* is a young field of study, to which new research objects are constantly being added and which is still developing. Therefore, all caves of a certain territory (karst region, district, etc.) are combined into two unequal groups: known (small part) and newly discovered (most) caves. The names of the former should be preserved in some way, because they are a product of the centuries - old history of the local population; when you give names to the latter, they should be carefully studied, considered and named in compliance with the laws of toponymy.

In most cases, there is a certain geographical, historical or linguistic significance of the existing names of caves, since they are associated with a certain object, historical event or are created by tracing paper from the languages of the peoples who lived here earlier (Kondybai, 2008). Long-known caves will have several names. It is worth collecting literary data on the names of famous caves and talking with local residents. This is because they can know useful information to get through the cave or to restore the features of its use. For example, if they contain the words "holy", "sacred", "mosque", it can be assumed that they were used in ancient times as a place of worship, a place to achieve spirituality.

In the 1960s and 1990s, speleologists from Kazakhstan and the former USSR discovered many new caves. Therefore, after analyzing their names, the following preliminary conclusions can be drawn.

Objects discovered in the early stages of exploring a new area are usually encrypted (letters denote an organization or group, numbers denote length, depth, or sequence of numbers), and numbers usually denote the depth of a well or the length of a cave. Later, the numbers began to repeat themselves, and from 1965 they switched to a different numbering. The first cadastral number is rectangular (the sides are equal to minutes of latitude and longitude), the second one indicates the number of caves inside it. Encrypted names do not make any sense and therefore they necessarily give names to those who stand out (large, beautiful, complex), usually this happens spontaneously, sometimes after discussion and making an appropriate decision. The nomination is guided by various positions (Tables 2, 3), (Figure 2):

- by the old name (usually - its translation);
- with the name of the object near the cave (speleonyms Boraldai, Ulyshur, Tuyuksu, Tuttybulak, Beshoky, Utemis-Kystau);
- depending on the location and number of entrances (speleonyms Biraulyzdy, Oymakauyz, Ushauyz, Ushauyzdy);
- depending on the unusual objects at the entrance ("Katyreki agashi" cave name);
- according to the morphology of the cavity (Palatka, Shatyr, Ploskaya, Tuyyk, Grebnevoy karst massif, Akshankyr, Beluy Proval);
- depending on the microclimate characteristics (Karabauyr);
- depending on the characteristics of formations (Tuzbayyr, Kyzyltas, Aktas, Glinyanaya, Borlymuys, Ashchysai);
- depending on the water content (Susingen);
- according to the acoustic features (Symphony);
- depending on the names of living animals, their bone remains or traces of life (Aigyryly, Zhulandy, Botamoynak);
- by the time of opening (Oktyabrskaya, Vesennyaya);
- depending on the group's affiliation to the territory;
- depending on the nature of the event (Sluchainaya, Mechta, Skazka);
- as measurements are taken (Kenungirtas, Alypungir, Uytas);

- memorial: in honor of famous geologists, geographers, karst scientists; in honor of great military commanders; cave explorers; cave discoverers; in honor of the fallen speleologists (Dravert, Kurmangazy, Cave of Kuniskerey, Kenesary, Kenenbai, Leninskaya, Nazugum);
- the rest: incomprehensible names; consonant names; abbreviations that are not decrypted.

Table 2. Geographical aspects of the formation of speleonyms

№	Reflection of geographical features in speleonyms	Speleonyms
1	Named speleonyms depending on the types of rocks	Aktas, Akshunkur (Akshukur), Borlymuys, Glinyanaya, Kyzyltas, Tuzbayyr
2	Speleonyms depending on the types of underground cavities	Akshunkur (Akshukur), Belyi Proval, Karaungir (2), Sakakuduk, Tesiktas (2), Ungirtas (2)
3	Names due to their morphometric characteristics	Alipungir, Balaoyyk (Balauyik, Balayuk, Balayek, Buly-Oyyk.), Bir auyzy, Kenungirtas, Ushauyz, Ush auyzdy, Shatyr
4	Speleonyms named due to their morphological features	Oymakauz, Olykoltyk, Palatka (Bolshaya Palatka, Kamennaya Palatka), Ploskaya, Tuyuk, Uytas
5	Speleonyms due to orographic features	Besshoky 1-4 (Bish-Choho), Grebnevoy karst massif, Kenestobe, Karaly tobe, Karamaya, Korgansay
6	Speleonyms due to their meteorological characteristics	Akbaur, Karabaur, Tasboran
7	Speleonyms due to hydrological features	Susingen, Tuyuksu
8	Phytospeleonyms	Aktogai, Bestogai, Boraldai karst massif, Zhingyldy
9	Zoospeleonyms	Aigyrlly, Ayushat, Botamoynak, Zhulandy, Kepter-Uya

At the same time, with the addition of the term "ungir" (cave), names are formed (Ungirtas, Alipungir, Zhaltyrungir, Ungir, Zhetyungir, Kosungir, Kenungirtas, Kielyungir, Karaungir, Suluungir, Ulgili ungir). Speleonyms formed by this term form a single lexical-semantic group and, therefore, reflect the specifics of mountain landscapes (Konkashbayev, 1951).

Table 3. Spiritual and historical aspects of the formation of speleonyms

№	Type of speleonym	Definition	Examples
1	Agiospeleonym	The names of caves in the meaning of "holy", "sacred"	Akmeshit-Aulie (Aydahar cave), Akmolda, Aulie (2), Atabek ungir (Aulie-Tas, Aulie-Ata, Amangeldy), Bektauata, Duana-Khoja, Zhylagan-Ata, Imankara, Katirenki Aulie, Kieli ungir, Kishi Aulie, Karlygash-Ata, Konyr-Aulie (3) (Aulietas), Kyzyl Aulie, Malyoshak, Omarata, Plachuschaya, Sopybay Aulie, Shakpak-Aulie, Shamar Aulie, Shanyrak Aulie
2	Anthropospeleonym	Cave names related to the human name	Kenenbai, Kenesary, Cave of Kuniskerey, Kurmangazy, Leninskaya, Makpal, Madi's black cave, Nazugum, Utebay, Utemis-Kystau (Utelis-Kotau), Sagyndyk
3	Mythological speleonym	Cave names related to legend stories	Aydaharly-Kudaiberli, Shaitan
4	Chronospeleonym	Speleonyms indicating the time when the name was given	Vesennyaya, Oktyabrskaya
5	Metaphorical speleonym	Cave names that are put in a figurative sense, comparing them with certain objects	Akbaur, Bosaga, Kuvshin mountain cave, Karagan-bosaga, Karachek, Karkara, Syrly

It is obvious that the laws of toponymy are respected in all countries. However, returning to the names of the caves, they should be stored and used correctly, just like the caves themselves. Because this is our history, our linguistic monument. And history, as we all know, in general, cave speleology is a young field of science, both in the world and in the country, and given that it began to develop only from the second half of the twentieth century, data on caves are currently only beginning to accumulate in the complex (Niyazova, 2022). And although the collection of data about the caves themselves is available to science, it is currently very difficult to determine and study the names of caves, that is, the origin, etymology, and form of word formation of speleonyms. This is because knowledge about the names of caves in the Kazakh land has been passed down from generation to generation mainly orally. As a result, a lot of data was lost. Since their recovery depends on the human factor, there are neither real nor evidence-based possibilities.

Secondly, in our opinion, many caves in Kazakhstan have not yet been discovered. Therefore, we believe that as Kazakhstan's speleology develops, it is possible to start naming newly emerged or already existing caves and competently nominate them, taking into account toponymy and linguistic patterns.

## CONCLUSION

Nowadays, people reveal many aspects of nature and creation, forming a new view of nature. The development of science and technology gives the human child many opportunities and significantly expands the boundaries of human consciousness. This also applies to caves, which are unique natural complexes full of many mysteries and, consequently, various mystical, mythological characteristics. Of course, caves have been known to man since their appearance, they were hidden. However, since they have no information about their origin, structure and creation, they were interpreted religiously or mystically. Now it is necessary to conduct a scientific study of information about caves, it becomes possible to reveal their

significance, and the search for ecological ways to use caves for the benefit of mankind is underway. One of these actions is the results of the proposed scientific work. In the course of the research work, the following conclusions were made:

1. Caves are unique objects that occupy the highest public, mineralogical, paleontological, zoological, botanical, archaeological, medical and cultural historical and recreational areas.

According to the current global trend in relation, caves are considered as a special type of coordinated natural resources with high scientific and cultural significance, requiring a special approach to protection and use. Conducted an etymological analysis of speleonyms, distributed on the territory of Kazakhstan, the Kazakh people on the protection of their priests. It is represented by a number of speleonyms, which meet the words "aulie", "ata", "khoja", "kieli", "zheti", "mola".

2. The science of caves is one of the relatively new ones for Kazakhstan. Even the features of the names of the caves have been little studied. However, recently new caves of interest have appeared in Kazakhstan. Currently, there are about 140 caves in Kazakhstan. However, it is obvious that this indicator will still change and replenish. Therefore, the nomination process must be carried out with literacy and thoroughness if newly discovered caves are being restored or the name is assigned anew. It is necessary to take appropriate measures to preserve these unique natural complexes in their original form for future generations.

3. Nature management in karst territories strongly depends on karst-speleological research and scientific justification. In most developed countries, modern world experience shows that all economic activities in areas with developed karst should be planned and implemented only with a clear forecast of direct and reverse impacts in the karst-object system. In this case, the information about the caves becomes crucial. The scientific significance of the caves of Kazakhstan is confirmed by speleological research over the past 30 years. They played an important role in solving a number of major problems of the regional hydrogeological and engineering geology of Kazakhstan and in the development of a number of new areas of theoretical karst and speleology. However, this has not been fully realized, as innovative global research in the field of paleoclimatic reconstruction, hydrogeology and karst speleogenesis is emerging.

4. Despite the fact that the development of tourism for Kazakhstan is one of the priorities, especially in specially protected areas, caves are currently underutilized as tourist and excursion facilities and there are contradictions in the use of caves. Despite the high potential of Kazakhstan, only a few caves are used for tourist purposes. In another row, attempts are being made to conduct excursions. On the one hand, the priority of tourism development involves the use of these unique but very sensitive ecosystems. Therefore, environmental management should be carried out not only by commercial structures, tourist routes should be drawn up with the participation of speleologists.

5. The presented research paper summarizes and examines 134 names of caves out of 140 caves in Kazakhstan. Certain patterns in the formation of these speleonyms have been revealed: most caves are named for orographic and morphological features (shape, size, number, depth, presence of specific orographic forms). They occupy 19,8% (24 names) of the total number of speleonyms considered; some of the caves are hagiotonyms, that is, names associated with giving caves a sacred character. They occupy 19 % (23 names) of the total number of speleonyms considered; in third place are anthrospaleonyms (12 % - 12 names) and speleonyms of a mythological nature (8 % - 10 names); other speleonyms include names related to the types of forming rocks, names of a metaphorical nature, zoo - and phytospaleonyms, chronospaleonyms, meteorological and hydrological, romantic speleonyms related to events.

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