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TOURIST AND RECREATIONAL POTENSIAL OF LANDSCAPES OF A NORTHEST SLOPE OF GREATER CAUCAUS

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Abstract

The article analyzes the tourism-recreational potential of the northeastern slope landscapes of the Greater Caucasus. As a result of the conducted research, 8 landscape-ecological regions were distinguished on the northeastern slope of the Greater Caucasus. Recreational resources were grouped according to the degree of suitability of the territory. The northeastern slope landscapes of the Greater Caucasus are among the areas of Azerbaijan with rich recreational potential and ecotourism resources. Modern landscape complexes of the territory, covering the territories from the shores of the Caspian Sea to the Greater Caucasus Watershed, have undergone complex altitudinal-spatial and sectoral (from northwest to southeast) differentiation.

Keywords: *landscape, recreational resources, tourism, ecology, degree of suitability*

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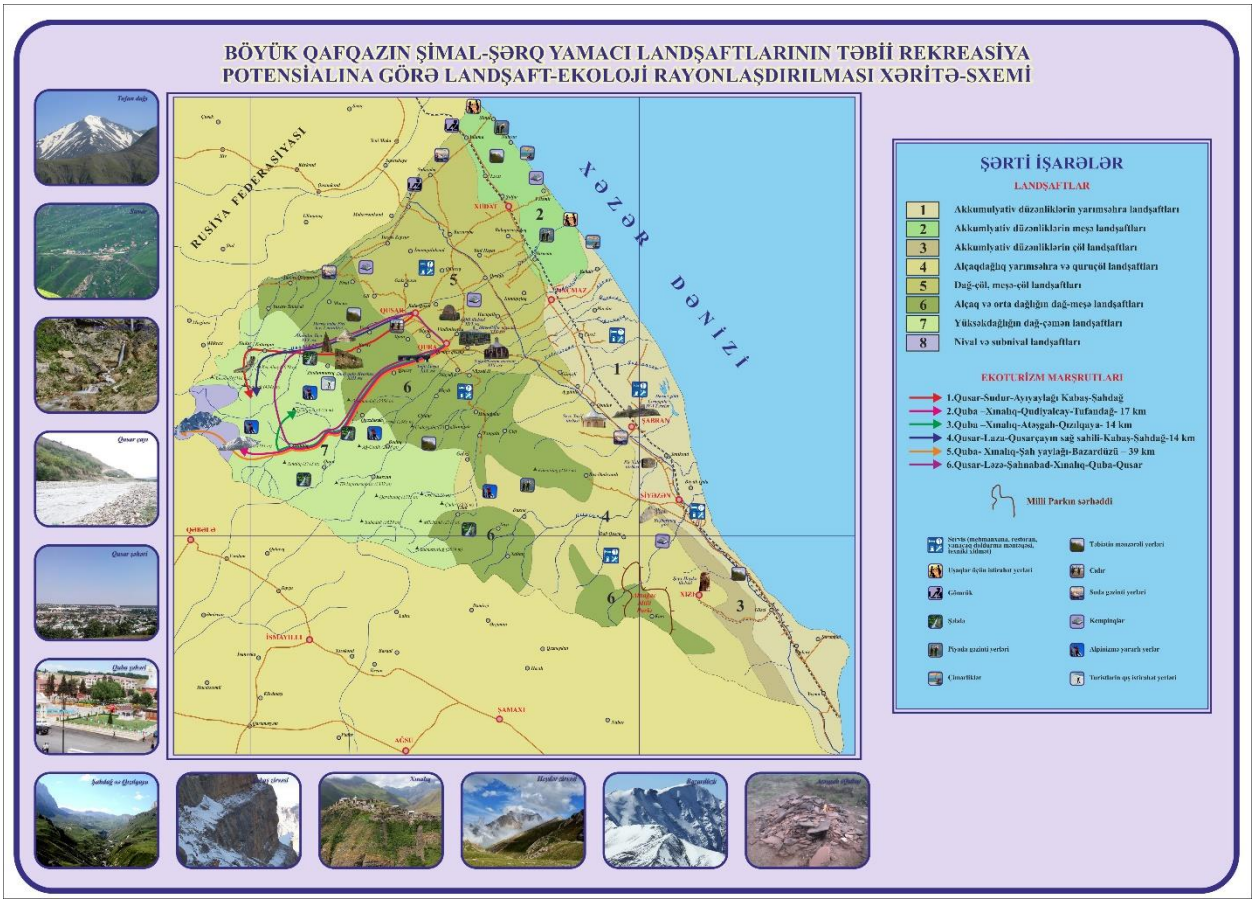
Introduction

The assessment of the landscape-ecological characteristics of recreational resources is also of great importance from the point of view of planning the recreational potential of the studied area. The richness of the recreational resources of the territory and their uneven distribution across the territory create favorable opportunities for using the territory for tourism purposes. The main recreational resources of the region include favorable microclimate conditions, sandy beaches on the seashore, mineral and thermal waters with a high daily flow, exotic landscapes, mountain climatic conditions, natural monuments, historical-architectural and ethnographic monuments [3,4].

The method of landscape-ecological assessment of recreational resources of natural complexes has been carried out by a number of researchers. (Vedenin Y.A., Miroshnichenko N.N. 1969; Kotlyarov E.A. 1978, Blagovenshensky V.P., Gulyayeva T.S.,2006,2008, etc.) The biological diversity of landscape complexes is an indicator of the high recreational resources of the territory. Certain aspects of this problem have been studied in our republic. [2,6,9,11]

As a result of our research, 8 landscape-ecological zonings were distinguished according to the recreational potential of the landscapes of the northeastern slope of the Greater Caucasus. According to the landscape-ecological diversity of the territory, it is divided into: 1) semi-desert of accumulative plains, 2) forest of alluvial-prolluvial plains, 3) post-forest steppe of alluvial-prolluvial plains, 4) semi-desert and steppe of the lowlands, 5) mountain-steppe and forest-steppe, 6) mountain-forest of the middle and highlands, 7) subalpine and alpine meadows of the highlands, 8) subnival and nival rocky landscapes: (Picture), (Table 1)



Picture. Landscape-ecological zoning map of the northeastern slopes of the Greater Caucasus according to their natural recreational potential

The semi-desert landscapes of the accumulative plains cover a large part of the northeastern slope of the Greater Caucasus, from the coast of the Caspian Sea (-27.5m) to 300m in altitude. The territory is dominated by a semi-desert and steppe climate. The average annual temperature is 10-12.5^0 C, the

average January temperature is 0-3^0 C, the average July temperature is 24.6^0 C, the total number of sunny hours is 2200-2500^0, the number of sunny days is 236 days/year [14,15]. The recreational reserve climatic indicators of these landscapes are positive in all seasons of the year. Due to favorable ecological and geographical conditions, the sea coast of the Shollar plain has been intensively used for recreation and tourism for a long time. The area is favorable from the balneological, therapeutic, and recreational point of view. The creation of infrastructures and tourism facilities in the Shabran region and Liman area of this landscape complex will allow the use of the area for year-round recreation in the future.

Natural recreational potential of the landscapes of the northeastern slope of the Greater Caucasus
(Shikhlinski, Madatzada, 1963,1968; National Atlas,2012) Table 1

Landscape type	**Absolute height, m**	**İqlim göstəriciləri**				**Recreation type**
		Annual average temperature, C	**Average January temperature, C**	**Average July temperature, C**	**Annual precipitation, mm**	
Semi-desert landscape of accumulative plains	-27,5-150	+12,5^0	+3-0^0	+24,3^0	200-300	Recreation, leisure, treatment and health
Forest landscape of alluvial-prolluvial plains	-27,5-120	+12-12,5^0	+1,2	+24,6^0	300-450	Recreation, leisure, tourism, treatment-health (thermal, mineral waters)
Steppes of alluvial-prolluvial plains	120-400	+10-12,5^0	+3-0^0	+24,5^0	300-400	Tourism, recreation
Semi-desert and steppe landscapes of the lowlands	200-500	+10-14^0	-3-6^0	+20-25^0	200-300	Recreation, tourism
Mountain steppes, forest-steppes	500-1000	+6-10^0	-3-6^0	+15-20^0	300-400	tourism, recreation, health treatment (thermal, mineral waters)
Forests of the middle and high mountains	600-700 və 2000-2200	+6-10^0	-6-10^0	+15-25^0	300-900	tourism, recreation, health treatment (thermal, mineral waters)

						natural monuments
Subalpine and alpine meadows of the high mountains	1600-1800 və 3100-3200	+2-6^0 0-2^0	-6-10^0	+10-15^0	600-900-1200	Ecotourism, recreation, mountain tourism, natural monuments
Subnival and nival complexes	3200-4466	0^0-10^0	-14^0	+2-4^0	600-900	Ecotourism, recreation, mountain tourism, mountaineering, hunting

Forest complex of alluvial-prolluvial plains. Lowland forests (Nabran-Yalama) formed on the sediments of the Samur, Gusar, Karachay, and Gudyalchay rivers flowing from the northeast of the Greater Caucasus cover areas up to 120 m from the shores of the Caspian Sea. The area of these forests occupied a wider area in the distant historical period, and their area decreased as a result of human economic activity (Museyibov M.A., 1998) [13]. The area of this forest, called the "Yalama forest", which stretches along the coast in a strip, is 12 thousand ha and rises to 400 m. The forest is dominated by pedunculate oak, Iberian oak, alder, poplar, maple, willow, etc. tree species. Among the shrub species, barberry, pomegranate, cranberry, cherry, apple, pear, sea buckthorn, sumac, quince, bramble, hawthorn, blackberry, rose hip, etc. grow here. Mushroom species growing in the forest are also of interest to vacationers. The Nabran-Yalama Caspian coastal areas are used as a type of medical and health tourism. The spontaneous, unsystematic use of this forest, which has rich biodiversity, by vacationers throughout the year, and the grazing of livestock cause great damage to the young tree shoots of the forest. In some cases, the violation of safety rules by vacationers causes fires in the forest. In this forest complex of high recreational importance, which is overloaded with excessive anthropogenic loads, sanitary norms are violated, and the ecological conditions are changing sharply. For this purpose, in December 2012, by the decree of the President of the Republic of Azerbaijan, the Samur-Yalama National Park was established in the northwestern zone of the Caspian Sea in order to protect these forests.

In the area west of the Baku-Derbend railway line, which has been subjected to intensive anthropogenic influences over a long historical period, the forest cover has been destroyed, and in its place, post-forest steppe, meadow, plain-river-swamp complexes have emerged [7,8]. The steppe complex is characterized by the dense location of settlements. Here, settlements and various types of agricultural fields (horticulture, vegetable growing, viticulture) are widely used, while the drained areas of the plain-river-swamp complexes are widely used as fodder fields. The landscape complexes of the area are characterized by high anthropogenicity. The high-flow mineral and thermal waters (Nabran, Istisu) emerging in these landscape complexes are used for the treatment of wind, salt, sugar, and skin diseases.

The post-forest steppe complexes of the alluvial-prolluvial plains cover an altitude of 120-400 m, where the average annual temperature is +10-12.5^0 C, the average January temperature is 3-0^0 C, the average summer temperature is +24.5^0 C, the total number of sunny hours is 1900-2200^0, and the amount of atmospheric precipitation is 300-400 mm. The semi-desert climate type dominates in this complex. The sandy beaches of the sea coast, sea air (microclimate) create conditions for the development of recreation and treatment complexes. The passage of railways and highways of republican importance through the territory causes greater anthropogenic load. Of the natural monuments here, Beshbarmag Rock, Khidyrzin mud volcano, pirs and shrines are important from a recreational point of view.

Semi-desert, steppe landscapes of the lowlands. This complex covers an altitude of 200-500 m and is characterized by a semi-desert and steppe climate. The average annual temperature in the area is +10-14^0 C, the average January temperature is 0-3^0 C, the average summer temperature is +20-25^0 C, the total number of sunny hours is 1900-2200^0, and the amount of atmospheric precipitation is 200-300 mm [1,14,15]. The fact that the landscape complex consists of clayey, limestone sedimentary rock layers of Cretaceous and Paleogene age and the dry climatic conditions have led to the formation of arid-denudation morphosculptural relief forms here. The alternation of sedimentary layers of different colors and compositions of the Paleogene period within this landscape complex attracts attention and is of great importance as a geological monument (along the Gilazi-Altiagach road). Mountain steppes, forest-steppe complexes cover altitudes of 500-1000 m and the average annual temperature is +6-10^0 C, the average January temperature is -3-6^0 C, the average July temperature is +15-20^0 C, the total number of sunny hours is 1900-2200^0, and the amount of atmospheric precipitation is 300-400 mm. The climate type for the area is temperate, with dry winters and cold, with dry winters.

This landscape complex is characterized by a dense hydrographic network and rich mineral and thermal springs with hydrocarbonate-sulfate, calcium, sulfur content. The mineral waters of Khaltan, Khashi, Budug, Yerfi, Jimi in the Guba region, and Galaalti near the Chiraggala village of Shabran region are of the nafusi type. The Khaltan “Istisu” treatment center is located 14 km from the Khaltan village of Guba, 86 km from the regional center, on the banks of the Gudyalchay River at an altitude of 1500-2000 m above sea level. This mineral water is widely used in the treatment of wind, salt, skin, kidney, and biliary tract diseases. Visitors also visit Piri, which is located nearby. A 400-bed treatment facility operates on the basis of the Galaalti mineral water located at an altitude of 1500 m in the Shabran region. The favorable climatic conditions and high-debit mineral Galaalti treatment and recreation center have been operating since 2008, and the number of local and foreign vacationers coming here is increasing year by year. The areas where mineral and thermal springs are spread are distinguished by the exoticism of the landscapes. These areas, surrounded by a large forest massif, create an opportunity for the development of treatment and recreational tourism. In addition, the presence of medicinal herbs is of great importance.

The mountain-forest complexes located on the northeastern slope of the Greater Caucasus cover a vast area from 600-700 m to 2000-2200 m in altitude, where the average annual temperature is +6-10^0 C, the average January temperature is -6-10^{0}C, the average July temperature is +15-25^0 C, and the amount of precipitation reaches 300-900 mm. The mountain-forest complexes are characterized by a mildly warm climate with dry winters and a cold climate with dry winters. The relief of the areas

where mountain-forest landscape complexes are distributed has a different degree of fragmentation and surface slope. The surface slope varies from 10-15^0 to 40-45^0 [10]. The study area has a dense river network (0.30-2.1 km per 1 km^2) and the depth of the river valleys is 200-800 m. In addition to the Tengi canyon-like gorge, numerous canyon-like gorges cut into thick carbonate rock layers (Gudyalchay-Gyriz (width 25-30 m, depth 500-600 m, length up to 5 km), Gusarchay-Laza (width 50-60 m, depth 600-800 m, length up to 3.5 km), Tahircalchay-Navchachay (width 5-10 m, depth 100-150 m, length up to 4 km)) are of particular interest in the area [5]. There are hydrological natural monuments in the area, including numerous waterfalls (Afurja waterfall).

Pistachio, pistachio-alder and oak-alder forests predominate here. In the Tengealti range of the territory, in the Gilgilchay basin, sparse juniper forests, in the high mountainous part of the Velvelachai (2000-2400 m) in the area of the Derk village, a forest area consisting of birch trees has spread over an area of 630 ha. (Mammadov G.Sh, Khalilov M.Y., 2004). In the forests and glades, cranberries, hawthorn, cherry, apple, pear, gooseberry, rosehip, blackberry, etc. shrubs occupy a large area. When assessing the recreational resources of the landscape complex, the vegetation cover of the territory, biodiversity, including open and closed zones, where forest cover accounts for 50-70%, and dense forest massifs are of great importance (Vladimirov, Makunina, Yapgina 1986).

According to medical studies, the most beneficial areas for human health are areas at altitudes of 800-2000 m above sea level. These heights are very important for the development of recreation. The condition of modern roads (motorways) in mountain villages in mountainous areas limits the use of the rich natural resources of the region and hinders the development of various directions of mountain tourism. Although the roads to high mountain villages are reconstructed and restored every year under State Programs, there are still inter-village roads that are in a dilapidated condition. In the cold season, the intensification of exodynamic processes (landslides, avalanches, and mudslides) leads to the collapse of roads and disruption of communication between villages.

Subalpine and alpine meadows of the highlands have developed at absolute heights of 1600-1800m–3000-3200m. The complex orogeomorphological structure of the terrain is distinguished by the intensity of horizontal and vertical fragmentation. The climate of the high mountain-meadow complexes is cold and humid. The variety of temperature and humidity here divides the complex into subalpine and alpine meadow semi-belts. The average annual air temperature in subalpine meadows is -6^0 C in January, +15^0 C in July, and +2-6^0 C in the year. Sufficient heat and humidity allow the formation of a vegetation cover with a rich flora. The richness of various grass cover and medicinal plants here, as well as a beautiful aesthetic appearance, are of interest to vacationers. Unlike subalpine meadows, the average annual temperature in alpine meadows is 0-2^0 C, the average January temperature is -10^0 C, the average July temperature is +10-15^0 C, and the average annual amount of precipitation is 600-1200 mm. The total amount of solar radiation is 110-135 kcal/cm^2. The ground surface is covered with snow for 120-140 days a year, and its thickness reaches 70-100 cm. [1,14,15]. High mountain geosystems are used as summer pastures, and subalpine meadows are used as hayfields. Among the subalpine meadows of the Greater Caucasus with rich vegetation, the Sudur plateaus are distinguished by their special aesthetics. The distribution of various medicinal plants here and the view of Shahdag (4243 m) are very interesting for vacationers.

The "Shahdag Winter-Summer Tourism Complex", established by the Decree of the President of the Republic of Azerbaijan (Order No. 19 dated November 19, 2008) in the Shahdag National Park, covering an altitude of 1600-3200 m in the Gusar district (in the area of the former Boyuk Aladash village), on an area of 2058 ha (1300-2300 m above sea level), is distinguished by its ecological purity, richness of flora and fauna. The complex offers mountain skiing and other winter sports throughout the year and opens up comprehensive opportunities for the development of tourism in the country. Thousands of local and foreign vacationers come here every year, and the creation of high-quality service areas can turn the region into one of the most developed tourism centers in the world in the future.

In 2006, the construction of the "Guba-Ispik-Khinalıq" road (65 km) and an alternative road to it by the Decree of the President of the Republic led to an increase in the number of local and foreign tourists visiting the recreation centers (Nazlybulag, Khal-Khal, Minare, etc.) operating in the Gachresh area of the Guba region and the surrounding high mountain villages (Gachresh, Qizilqasma, Kusnetqasma and Qiriz), as well as the unique ethnographic, natural and historical monument of Azerbaijan, the village of Khinalıq (2100 m) and the surrounding areas. In the area of the village of Khinalıq, the flame of natural flammable gas, which has been burning for thousands of years and has come to the surface through the cracks of Jurassic limestone rocks, creates an amazing "landscape of burning earth". The majestic and picturesque canyon-like river valleys formed along the tectonic cracks that cut the side ridges (Shahdag, Qizilgaya, Budug, etc.) attract tourists. The presence of 14-15 million year old Sarmatian sediments of marine origin (3550 m) [10] on the Shahdag plateau is of great interest and is very valuable as a natural monument. The construction of the circular Gusar-Laza-Shahnabad-Khinaliq-Guba-Gusar road in the Shahnabad depression and Khinaliq village area will contribute to the maximum use of the natural resources of the area and the further development of such types of tourism as mountain tourism, ecotourism and hunting in these areas.

The area of the Laza village of the Gusar region, the mysterious nature of the Shahdag and surrounding areas, the waterfalls flowing from mountain rivers, clean air, and ecologically clean food products increase the recreational opportunities of the area during most of the year and are especially favorable for winter tourism. The construction of a road from the center of the Gusar region to the Laza village (39 km) allows the development of mountaineering, mountain tourism, and ecotourism in the frozen waterfalls in the area during the winter months, and the number of foreign tourists visiting the area increases year by year [3,5,12]. The Budug and Charaka plateaus, which have a relatively low slope, are very favorable for skiing in the winter season.

Frequent flooding of the Velvelachai River during the rainy season destroys the mountain roads of Gonagkend and its surrounding villages (Afurja, Nohurduzu, Yerfi, Khaltan, Jimi, Budug) and makes them unusable, leading to disruption of communication between these villages. Within this complex, which is well-provided with forests, meadows, clean mountain air, and mineral waters, it is possible to increase the number of local and foreign tourists coming to the area for recreation and health restoration by improving transportation, communication, and service services. During the rainy season, landslides and avalanches also create certain difficulties on the Baku-Altiagach road (120 km) in the Khizi district. The recreation centers in the area, "Shefa Bulagi", "Jannat Baghi", Gizilqazma, and

Yarimca, are used by vacationers throughout the year. A cable car has been built to allow those who come to "Jannat Baghi" to reach the top of the mountain in a short time.

The northeastern slope of the Greater Caucasus is covered by subnival-nival complexes at an altitude of 3200-4466 m, including Bazarduzu, Shahdag, Gizilgaya, Tufandag, Babadag, etc. These complexes consist of cliffs, rocky outcrops, high-inclined (45-80^0) exposed surfaces, and are characterized by mono-channel valleys, moraine ridges, snowfields, and circuses formed by ancient glaciers [10]. The subnival and nival complexes are characterized by a mountainous tundra climate. The average annual air temperature is below 0° C, the average January temperature is -14° C, and the average July temperature is +2-4° C (Shikhlinsky 1963). The average annual amount of precipitation is 600-900 mm. The high rock outcrops in the area, high plateaus constantly covered with snow, and snowy ice flows resembling waterfalls are of great interest to tourists. The rocky subnival-nival zone is very suitable for mountain tourism, mountaineering, and ski tourism.

The studied region is divided into 5 categories according to the degree of suitability of its natural landscapes, and the characteristics, duration, type and nature of the use of recreational resources in each of them are given: Table 2

Grouping of recreational resources Table 2

Group	**Availability rate**	**Landscape complexes**	**Rest period**	**Type and nature of recreation**
I	Very affordable	Semi-desert (in the north) and forest complexes of accumulative plains	Used all year round	Tourism-recreation, rest, treatment-health
II	Affordable	Mountain-forest and forest-steppe complexes	Used during the warm season	tourism, recreation, health care, hunting
III	Relatively affordable	Steppes of accumulative plains, semi-desert complexes of lowlands	Used periodically	tourism, recreation
IV	Partially affordable	High mountain subalpine and alpine meadow complexes	Used during the warm season	recreation, ecotourism, mountain tourism
V	Poorly favorable	Subnival and nival complexes	Episodic use during the warm season	Mountain tourism, mountaineering, hunting

When assessing the recreational resources of the studied area, negative anthropogenic loading should be taken into account, along with natural features. Negative anthropogenic loading includes excessive noise, dust, odor, an increase in the number of cars moving along highways and an increase in heavy metals and gases emitted by these cars into the air, pollution of gravel quarries in river valleys, oil and gas production facilities with oil and oil products, etc.

The noise, dust of heavy machinery operating in gravel quarries used as construction material operating in the Velvelachai, Gudyalchay, Karachay, and partly in the Gusarchay valleys, as well as the odor emitted into the environment as a result of the continuous operation of diesel engines, have a serious negative impact on the recreational potential of the area.

The Baku-Rostov (280 km) highway allows vacationers coming to the area to travel to recreation centers in private cars. This situation, along with the maximum use of the recreational resources of the area, affects the nature of the surrounding areas, worsening the ecological situation. Harmful gases emitted from cars have a negative impact on the environment, cultivated crops and human health.

Due to the privatization of the coastal areas of the Shollar plain, the number of recreational and tourism facilities has increased here and the landscapes have become more loaded. For this reason, rare lowland forests have been subjected to greater degradation. It would be possible to weaken the anthropogenic load by placing the tourist facilities here in the areas deprived of forests in the villages of Salimoba, Zeykhuroba, Tel and the Yalama settlement [2]. Since the ecological conditions in the plains located southeast of the city of Khachmaz on the Samur-Shabran plain are relatively favorable for recreation, these areas are rarely used as recreation areas. Therefore, it is necessary to bring the ecological conditions of the landscape to a favorable state for the organization of recreation zones here. It is important to organize a favorable infrastructure to support tourism and recreation facilities in the area. To achieve these, it is necessary to build improved roads and recreational facilities in these areas. In addition, in order to expand recreational zones and fully and efficiently use the recreational resources of the area, it is possible to organize a recreational zone by creating infrastructure in the Shabran-Siyazan area of the Caspian Sea and on the coast of the Shabran Strait sector. The efficient use of the landscape complexes of the area would allow attracting more tourists here. The creation of a new recreational zone in the areas of Urva, Boyuk Suval, as well as the villages of Hazra, Piral and Ukor of the Gusar region by effectively using the recreational resources of the Gusarchay and upper parts of the studied area would be of great importance. The tourism facilities to be built in the areas of Shahnabad and Khinalig villages can be widely used for mountain tourism, ecotourism and hunting. In order to use the recreational resources of the landscape complexes of the Velvelachai valley, it is of great importance to create tourism facilities in the Tangealty-Gonagkend areas and ensure their functional development. This requires the creation of new facilities and infrastructure.

Conclusion. As a result of the assessment of the recreational potential of modern landscape complexes of the studied region, it was determined that the areas where people are most concentrated for tourism purposes and where landscapes are most exposed to anthropogenic transformation are semi-desert and forest complexes of accumulative plains. Despite the targeted measures taken by the state, the Yalama-Nabran zone, which is most exposed to anthropogenic load, still belongs to the intensively changed areas, but is quite attractive in terms of tourism and recreation.

The mountain-forest, forest-steppe, forest-meadow landscapes of the studied region are used for recreation mainly in the warm periods of the year, depending on climatic conditions. These areas used for recreational purposes are overloaded in the summer months. The relatively less developed areas of the region include areas covering altitudes of 800-1000 m. This zone is mainly developed for tourism purposes in the winter months and mainly covers the high mountainous areas of

the Gusar region. Those who rest in this region for recreational purposes prefer ecotourism. These landscape complexes are relatively less anthropogenically loaded areas of the region.

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