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Evaluation of tourist and excursion activities development in the nature reserve of Western Altai State, Kazakhstan

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ABSTRACT

Specially protected natural areas (SPNAs) are essential in developing ecological tourism when used wisely and carefully. Ecotourism is recognized as a sustainable alternative to mass tourism and is intended to contribute to the protection and enhancement of various environmental components. Since natural and cultural diversity is considered the greatest asset of ecotourism, the Western Altai State Nature Reserve, with its unique diversity of nature, is a key destination for ecotourism and other forms of nature tourism. This article analyzes the visitation of the reserve's territory from 2017 to 2023, assessing the data on the attendance of protected areas. There was a decrease in the number of tourists during the pandemic period, while a gradual increase in the protected area during post-pandemic. Notably, there has been an elevation in interest from citizens of the Republic of Kazakhstan during and after the global pandemic. The development of ecotourism contributes to preserving biodiversity as a primary source of internal funding for protected areas.

Keywords: Ecotourism, Specially Protected Natural Areas (SPNAs), Sustainability, Coronavirus Pandemic.
Article type: Research Article.

INTRODUCTION

One of the key tools for conserving natural resources and reducing anthropogenic impact is the creation of specially protected natural areas (SPNAs). Within the framework of SPNAs, natural resources are regulated to preserve biological diversity, species habitats, natural landscapes, and biological and cultural heritage. There are more than 217,155 SPNAs worldwide, covering 14.7% of the Earth's surface and 4.12% of the planet's total marine area. This highlights the growing recognition of the role of SPNA in biodiversity conservation and sustainable development (Canteiro *et al.* 2018). The Republic of Kazakhstan has an extensive network of SPNAs, including reserves, national parks, nature reserves, wildlife sanctuaries, protected zones, natural monuments, and botanical gardens. Overall, the SPNA network comprises more than 200 sites; however, its development requires further strengthening and improvement. SPNAs undoubtedly play a crucial role in global conservation strategies, and with proper management, they can become an essential resource for tourism development. Visiting "wild" nature sites and objects is one of the most popular and widespread leisure activities. Tourism and recreation in these areas allow visitors to enjoy interacting with nature, improve their health, and recharge. They also broaden their horizons by providing opportunities to learn about the region's history, culture, and unique flora and fauna. Visitors can learn to live harmoniously with the environment, contributing to their personal growth and well-being. Moreover, such recreation instills a sense of responsibility for the protection and support of the values of these areas (Leung *et al.* 2018; Buongiorno & Intini 2021). The possibilities for tourism and recreation development in nature reserves evoke debate among scientists, conservation organizations, and reserve staff. Some researchers believe that developing tourism in reserves infringes on the fundamental principles of reserve management (Ceballos-Lascurain 1996). The main argument is that the reserve system should be used in a

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particular way as a benchmark of untouched nature, permitted only for scientific research. Mass tourism is incompatible with natural reserves, such as national parks. However, many reserves need more educational and carefully regulated potential for tourism development. Access of individuals to SPNAs in the Republic of Kazakhstan is regulated by order of the Ministry of Agriculture of the Republic of Kazakhstan No. 555 "On the Approval of Rules for the Stay of Individuals in Specially Protected Natural Areas" dated September 1, 2010 (Minister of Agriculture of the Republic of Kazakhstan 2010). According to this order, the presence of individuals in state nature reserves is allowed only for scientific and ecological educational purposes. It also permits individuals to conduct organized excursions and tourist hikes along designated tourist routes and trails, which must be pre-approved by the administration of the conservation institution and conducted under the guidance of tour organizers or SPNA inspector guides (Minister of Agriculture of the Republic of Kazakhstan 2010). Today, nature reserves in East Kazakhstan are interested in developing excursions and tourist activities. According to the approved list of specially protected natural areas of republican significance, approved by the Government of the Republic of Kazakhstan Resolution No. 593 dated September 26, 2017, and as amended by Government Resolution No. 192 dated March 16, 2024, on the territory of East Kazakhstan there are two state nature reserves, one national nature park, five state nature reserves in adjacent areas, one natural monument, and one botanical garden (Ministry of Justice of the Republic of Kazakhstan 2017). The establishment of SPNAs has become a societal necessity. Various natural areas have different purposes, but their common role is to protect the environment in a broad sense. They aim to protect human habitats and health, natural landscapes, economic, technical, and residential facilities, and the ecological balance in all utilized or unutilized areas in any geographical zone. Their exclusion from intensive types of use is not due to inconvenience or undesirability, but because they play a crucial, albeit unique role without requiring additional efforts and resources. Additionally, the system of SPNAs can be viewed as a special sector of the economy, indirectly contributing to the growth of the national product by maintaining the ecological balance (Mkrtchyan & Blam 2021; Ministry of Ecology and Natural Resources of the Republic of Kazakhstan 2021, 2022, 2023, 2024; Korostelyov & Zelyutkina 2022). The indicators of cultural and educational activities of reserves and tourism activities are of great importance for the development of ecological tourism in SPNAs. Therefore, this study analyzed the tourism activity indicators of the Western Altai State Nature Reserve. The Western Altai Reserve offers unique opportunities for developing the tourism sector due to its stunning natural beauty, diverse wildlife, rich vegetation, the majesty of the Altai Mountains, and the mountain peaks' rocky outcrops.

MATERIALS AND METHODS

Study area

During the research, the authors employed various methods, including general theoretical and specific scientific approaches. The former methods included analysis and synthesis, comparison, and a comprehensive approach that ensured a holistic consideration of the problem. The latter methods included collecting and analyzing both primary and secondary information, observation, and comparative analysis, which allowed for obtaining deep and multifaceted data necessary for a comprehensive study of the issue. The analysis was conducted using a systematic review of information about all Western Altai State Nature Reserve excursions. The excursion records from 2017 to 2023 on the reserve's routes were thoroughly studied. The number of visitors to the Western Altai Reserve for tourism purposes was divided into the following periods: Period I: 2017-2019; Period II: 2020-2021 (the global pandemic period); and Period III: 2022-2023 (the post-pandemic period). The Western Altai State Nature Reserve was established in 1992 in the East Kazakhstan region. It covers an area of 86,122 thousand hectares and is located in the northeastern part of the Kazakh Altai, known as the Rudny Altai. The reserve's territory extends along the slopes and spurs of the main ridges of the Western Altai: Koksuysky, Kholzun, Ivanovsky, and Ulbinsky, which are joined by less powerful ridges - Turgusunsky and Lineysky (Fig. 1). In terms of natural, climatic, and other conditions, the territory of the Western Altai State Reserve reflects the specific features of the entire mid-mountain and high-mountain part of the Western Altai. The main ridges of the Western Altai - Tigiretsky, Koksuysky, Kholzun, Ivanovsky, Ubinsky, and Ulbinsky, are the western and northwestern spurs of the Central Altai ridges, descending towards the periphery. They vary in length and spatial arrangement. The highest point of the Western Altai (2776 m above sea level) is the summit of Vyshe-Ivanovsky Belok (Voroshilov Peak) located on the Ivanovsky Ridge (Sokolov AA 1977,1978; Alisov 1997; Iskakov & Medeu 2006; Minister of Agriculture of the Republic of Kazakhstan 2010). The reserve's territory has a significant abundance and diversity of flora as well as fauna and aesthetic appeal. Tourism development in the reserve has been ongoing since 2005.

Fig. 1. Geographical location of the study area, Western Altai State Nature Reserve, East Kazakhstan region.

The reserve features various types of landscape-natural complexes, ranging from mid-mountain forests and valleys to high-mountain nival areas, formed on different mid-mountain and high-mountain terrain types. There are unique natural objects and monuments within the reserve, the most significant of which include (Republican State Institution 2023; Fig. 2):

1. "Idols" - human figures carved into tree trunks at various points throughout the reserve. They are located about 20 kilometers apart, forming a triangle. They may have had a religious origin, but who carved them, when, and why remains unknown.
2.The geomorphological complex "Black Knot" is located at the source of the Bolshoy Turgusun River.
3."Stone River" is a glacier-origin kurumnik located on the western slope of the Lineysky Ridge. It is a picturesque place that can be viewed by those traveling along the three routes of the Western Altai Reserve.
4.The 400-year-old Cedar (*Pínus sibírica*) on the Lineysky Ridge has a trunk diameter of 2 meters and a height of 18.5 meters. At a height of 2 meters, the trunk branches into 7 trunks. Its age ranges from 400 to 500 years.
5."Monomakh's Cap" - a small hill with a perfect geometric shape resembling a hemisphere, located on the eastern slope of the Lineysky Ridge and covered with cedar-spruce forest. It is surrounded by a swamp, which especially highlights Monomakh's Cap as a distinct natural feature.
6."Lari" - a complex cascade of rapids on the Chornaya Uba River featuring a waterfall.
7.Kholzun Ridge—The highest point of the Western Altai Reserve is located on the summit of the Kholzun Ridge and is called Lineysky Belok. It stands at 2598 meters above sea level. Kholzun serves as a natural boundary between Southern and Western Altai and the border between Kazakhstan and the Russian Federation.
8.The high-altitude swamp complex "Gulbishche" is located on the watershed of the Chornaya Uba and Barsuk Rivers.
9.A state natural monument - the geo-architectural complex of granite outcrops, "Lineysky Columns" or "Stone Fairy Tale," located on the eastern edge of the Lineysky Ridge.
10.Cedar Lake - the largest moraine-dammed lake of the Ivanovsky Ridge. The shoreline, surrounded by a dense cedar forest, is bordered by a moraine ridge. The lake has a depth of 20 meters and can be seen from the summit of the Lineysky Columns.

These and other equally significant objects and components of natural complexes reflect the richness and diversity of Western Altai's nature, determining the protected area's conservation and tourism value (Fig. 2). Five routes have been developed in the reserve for ecological education and tourism: "Western Altai Standard," "Alyoshkin Paths," "Protected Distances," "Stone Fairy Tale," and "Ubinsky Rifts" (Republican State Institution 2024). Given the need to protect many unique plant and animal species in the reserve and to avoid disturbing its inhabitants, the intensity of ecological excursion routes is determined by the permissible recreational loads on various parts of the reserve. The "Western Altai Standard" route is the first route of the reserve, created in 2005. The route runs along a public road that starts in Ridder City outside the reserve, passes through the picturesque territory of the reserve, and reaches the border of the Russian Federation. The direction of the route is Ridder – "Belaya Uba" cordon -

Lineysky Pass - Chornaya Uba River - Ridder. This route is organized for excursion, educational, and public informational purposes. The total length of the route is 122 km. The duration of the journey along the route is 8-9 hours. The recreational load is once a week, with no more than 25 people in one group. The start and end of the route season depend on climatic conditions and generally cover the period from May 15 to October 10. A unique feature of this route is the absence of age restrictions. One of the main requirements for visitors is patience and endurance for the long car journey. This route offers a stunning view of the highest peak of Western Altai – Voroshilov Peak (Vyshe-Ivanovsky Belok - 2776 meters above sea level), the Uba River basin, the Kurumnik "Stone River," and "Monomakh's Cap." Tourists receive information about the orographic and hydrological structure of the region as a whole. The route includes viewing the main points of interest from nine observation platforms. The first three are outside the reserve and intended for short stops. Observation platforms No. 4-8 are specially equipped, featuring informational and warning messages, symbolic signs, or graphic maps. Observation platform No. 9 is located on the right bank of the Bolshaya Razlivanka River, outside the reserve, on the territory of the Klimovka recreation base (Republican State Institution 2024).

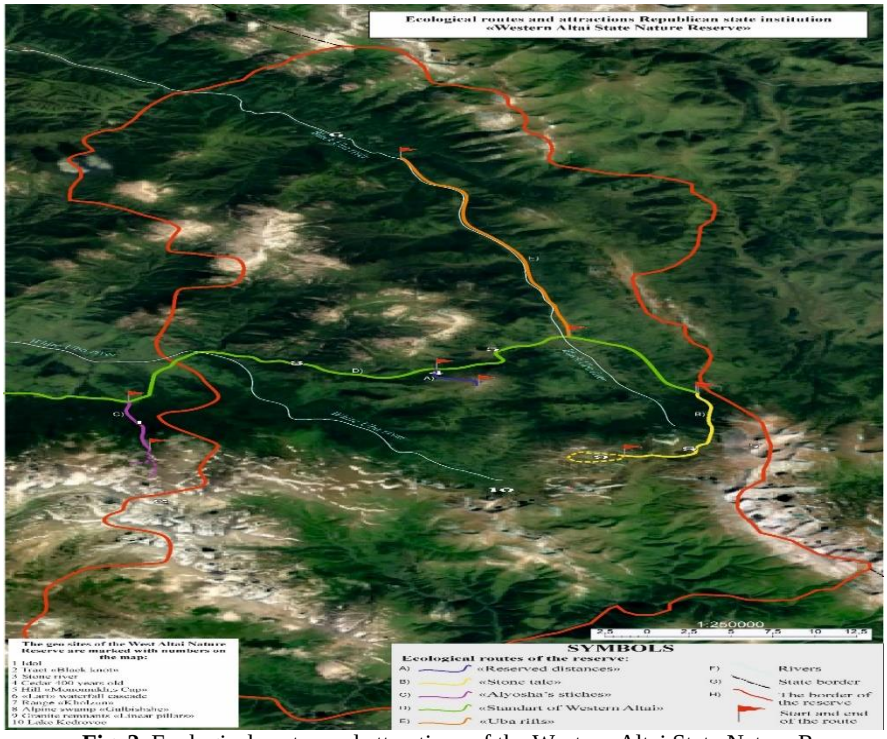


Fig. 2. Ecological routes and attractions of the Western Altai State Nature Reserve.

The "Alyoshkin Paths" route, established in 2005, is one of the earliest tourism routes in the Western Altai State Nature Reserve. This educational and excursion route has a total length of 98 km, with 78 km by car and 20 km on foot. The transportation part of the route follows the Ridder-Russia border road, heading east along the northern foothills of the Ivanovsky Ridge. The walking part of the route passes through the erosion-glacial valley of Alyoshkov Key, located in the highest part of the northern slope of the Ivanovsky Ridge. The final checkpoint of the route is Alyoshkov Key, a typical flat stream about 12 km long with a developed valley and a vast river network, a right tributary of the Bolshaya Razlivanka River, which includes the basin of the Belaya Uba River. A unique feature of this route is that the educational tour lasts for two days, with an overnight stay in nature. The operational period of the route starts in June and continues until early October. The start and end dates may vary depending on weather conditions, and restrictions may apply. The route has specific requirements for visitors: groups are formed with no more than 15 people, it is intended for adults and children over ten years old, and participants must have the endurance for a long car journey, suitable seasonal footwear, and clothing for hiking in the mountains, as well as protection against insect bites. Along this route, stops are planned at ten observation platforms. Two stops (No. 1-2) are made during the sightseeing portion by car. Then, the hiking part of the route begins, offering visitors views of plant complexes with clearly defined altitude zones, dark coniferous taiga, subalpine pine forests, and high-mountain tundra. This route also offers views of Voroshilov Peak, and tourists visit three moraine-dammed lakes. They receive information about the origin and types of mountain lakes, their

role in river runoff formation, and vegetation composition in the alpine and tundra-naval belts (Republican State Institution 2024). The "Protected Distances" route was established in 2006 for educational, ecological excursions and training purposes. Its total length is 111.1 km, of which 106 km are along the road and 5.1 km are on a walking ecological trail. The total duration of the route is 9-10 hours, with 4 hours by car and 5-6 hours on foot. The route starts from the Western Altai State Nature Reserve building and follows the highway "City of Ridder - Russian border." The return journey to Ridder is made by turning back along the highway with stops at the Belaya Uba cordon and the Klimovka recreation base near the Bolshaya Razlivanka River. The operational period of the route begins in June and continues until September. Depending on climatic conditions, the start and end dates may vary. The excursion group can consist of up to 30 people, with the route's permissible capacity being no more than two groups per week, as specified in the route passport. The main points of interest included in the route are the altitude complexes of Western Altai and the exit to the rock ridge "Bastion", the Panorama summit, where a triangulation point is installed. The famous cedar, over 400 years old, is also located on the "Protected Distances" route. The "Monomakh's Cap" can also be viewed from this route. The route features nine observation platforms. Platforms No. 1-2 are located on the road outside the reserve and are intended for short stops, so they need specific facilities or markings. Platform No. 3 is situated on the "Belaya Uba" cordon territory, with a tent, a toilet, and a place for collecting drinking water. The cordon has informational and warning signs and a reserve territory map. Platform No. 4 has a pull-out area on the highway, equipped with a smoking area, a place for drinking water, a toilet, and a garbage bin. Informational and warning signs are installed here. Platforms No. 7-9 are located along the trail and are equipped with signs and informational boards (Republican State Institution 2024). The "Stone Fairy Tale" route was a scientific and educational route opened in 2014. Its total length is 157.7 km, with 140 km by car and 17.7 km on foot or horseback. The route is designed for one day and passes through the territory of the Western Altai State Nature Reserve, covering the natural landscape complexes of the upper parts of the Kara-Oba and Borsyk river valleys, as well as the outskirts of the Koksinsky, Kholzun, and Lineysky ridges. The route operates seasonally, starting in early June and continuing until September. During the season, the permissible recreational load is limited to one weekly group. The maximum number of people in a group should be at most 5-6 people, which is determined by the route's objectives. The route is primarily intended for scientists such as zoologists, botanists, ornithologists, etc. The larger the group, the more noise is generated, reducing the likelihood of seeing animals. A small number of people is also undesirable due to the high density of bears in the area – it is safe to travel only in groups of 5-6 people. The route also considers permissible recreational loads at different times of the excursion season. Seasonal visit restrictions are possible only due to bad weather. Since the route runs at altitudes ranging from 1700 to 2200 meters. Two hundred seventy-eight route documents were analyzed to determine the number of visitors and their categories over the past four years across the five tourist routes of the Western Altai Reserve. It was found that tourists visit the reserve primarily for conservation and educational purposes. In 2020, 34 route documents were created, and permits for 33 vehicles were issued yearly. In 2021, 66 route documents were registered for vehicle owners, and 55 vehicle permits were issued.

Table 1. Classification of the number of visitors to the Western Altai State Nature Reserve in 2017-2023.

Years	Number of excursions	Number of route sheets	Number of visitors to SPNA	Number of visitors by routes	Number of visitors to SPNA for other purposes	Citizens of Kazakhstan	Foreign residents
Before the pandemic:							
2017	*	81	776	*	*	718	58
2018	*	95	929	*	*	824	105
2019	*	105	1141	*	*	1018	123
Pandemic period:							
2020	34	34	258	241	17	258/241	0
2021	66	66	392	355	37	382	10
Postpandemic period:							
2022	72	106	881	711	170	786	95
2023	57	72	700	649	51	637	63

Note: * Times when the number of visitors on the itinerary and route sheet were not counted.

In 2022, 106 route documents and 130 vehicle permits were issued. In 2023, 72 route documents and 34 vehicle permits were registered. It's worth noting that there was a 32% decrease in the number of route documents in 2023 compared to 2020, which may require further investigation (Fig. 5).

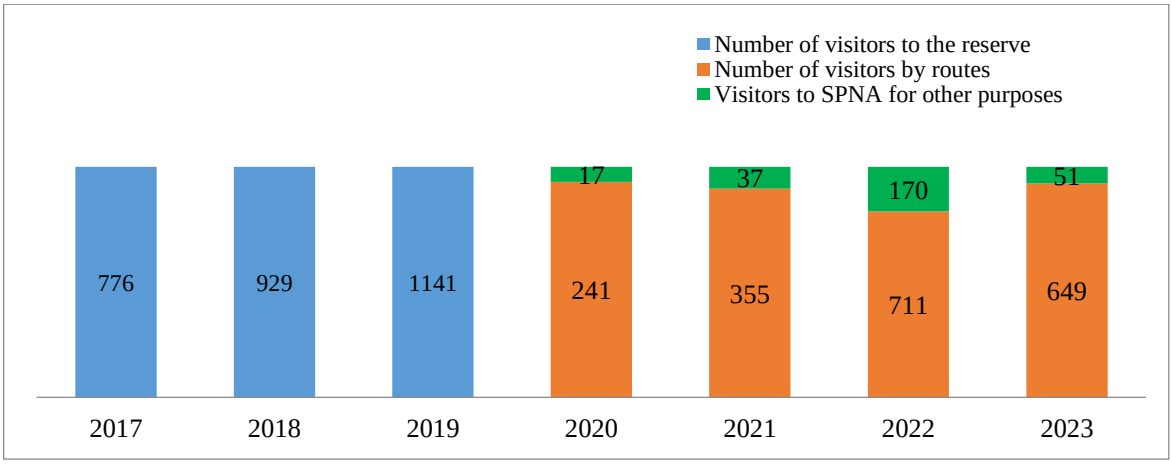


Fig. 3. Number of visitors to the Western Altai State Nature Reserve.

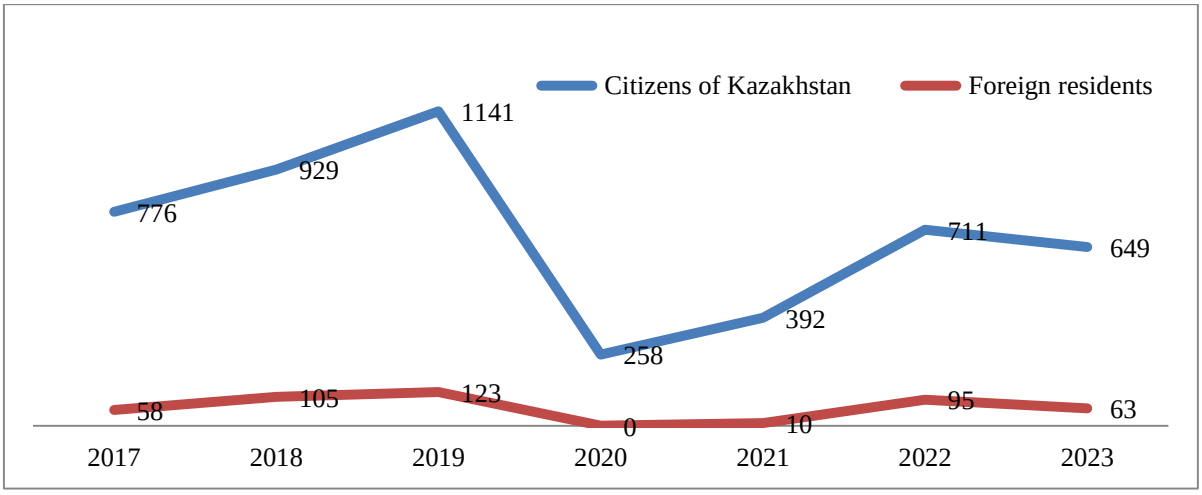


Fig. 4. Analysis of the number of visitors to the Western Altai State Nature Reserve.

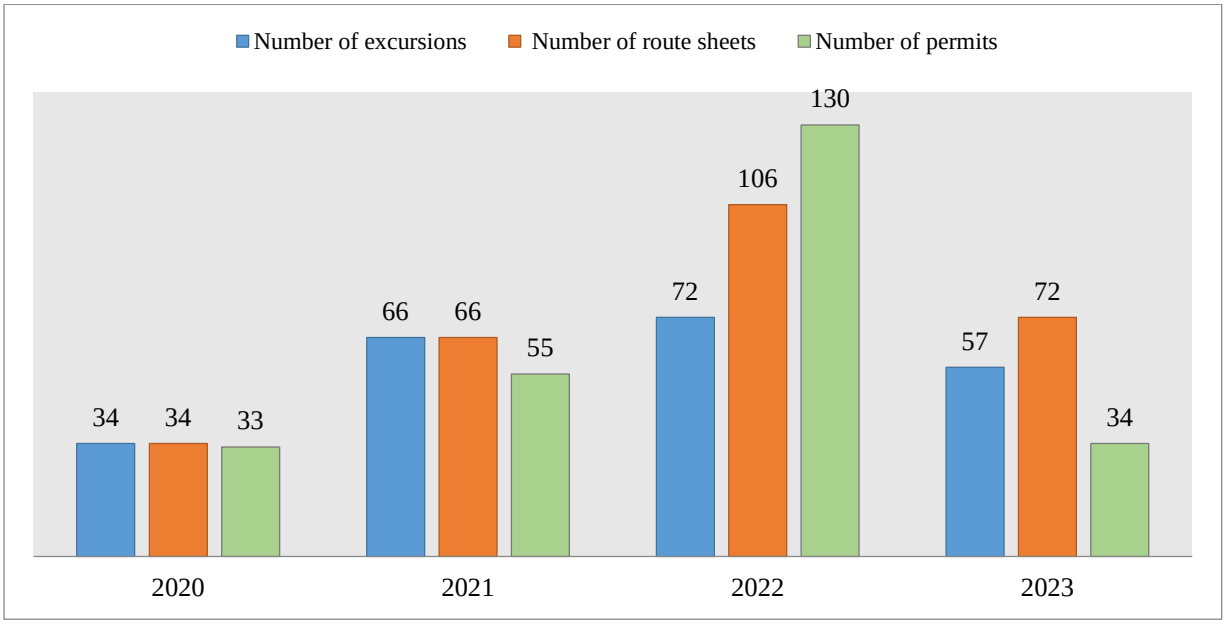


Fig. 5. Number of excursions and route sheets issued in the Western Altai State Nature Reserve.

Following the rules for the presence of individuals in specially protected natural areas, approved by the Acting Minister of Agriculture of the Republic of Kazakhstan on September 1, 2010, No. 555, the Western Altai State Nature Reserve allows the presence of individuals in specially protected natural areas (SPNAs) without the status of a legal entity. This is carried out within the framework of the protection and use regime of SPNAs, considering the features related to preserving state nature reserve fund objects. Presence is conducted according to the passport of these SPNAs, with mandatory annual registration of visitors in the "Visitor Registration Journal". Additionally, according to the instructions on the reserve's official website, https://www.zagpz.kz/kak-popast-v-zapovednik.html (Republican State Institution 2023), visitors are issued a route document, which serves as a permit for entry into the reserve. This numbered primary document grants visitors the right to enter, drive, and move around the reserve's territory. For group visitors, an entire group is organized. The route document specifies the group leader, the purpose of the visit, the chosen route, the group leader's details (identity documents, residential address), and the visitor's signature confirming familiarity with the behavior rules and fire safety regulations in the SPNAs. Additionally, it includes information about the payment of the visit (receipt number, date, total amount), driver's license, number of visitors, duration of stay in the reserve, permit number, and the name of the guide, confirmed by the signature and seal of the reserve's director. The crucial tasks of registering reserve visitors, completing route documents, and issuing them to visitors are all handled by the dedicated staff of the Department of Science, Monitoring, Environmental Education, and Tourism. Our analysis also revealed the popularity of the "Protected Distances" route among the five tourist routes of the Western Altai State Nature Reserve. This route has consistently been a visitor favorite over the past three years, a testament to the effectiveness of the reserve staff's recommendations. The second most popular route is the "Western Altai Standard," as the tourist season in the reserve is very short. Regardless of weather conditions, the "Western Altai Standard" route is accessible for viewing natural attractions by car. Therefore, most tourists who cannot travel on foot or encounter unfavorable climatic conditions choose this route. Given that the reserve's tourist season is limited to May to September, there is an increased demand for the "Western Altai Standard" car route (Fig. 6).
The "Stone Fairy Tale" and "Alyoshkin Paths" routes are offered for tourists capable of physical exertion. They rank third and fourth in popularity among visitors. Some visitors to the reserve prefer not to follow specific routes and instead enjoy staying within the reserve to appreciate its beautiful nature. For nature lovers of East Kazakhstan, the reserve offers a variety of routes, from the 'Stone Fairy Tale' to the 'Alyoshkin Paths', catering to different preferences. This diversity is sure to excite visitors who wish to travel different routes.

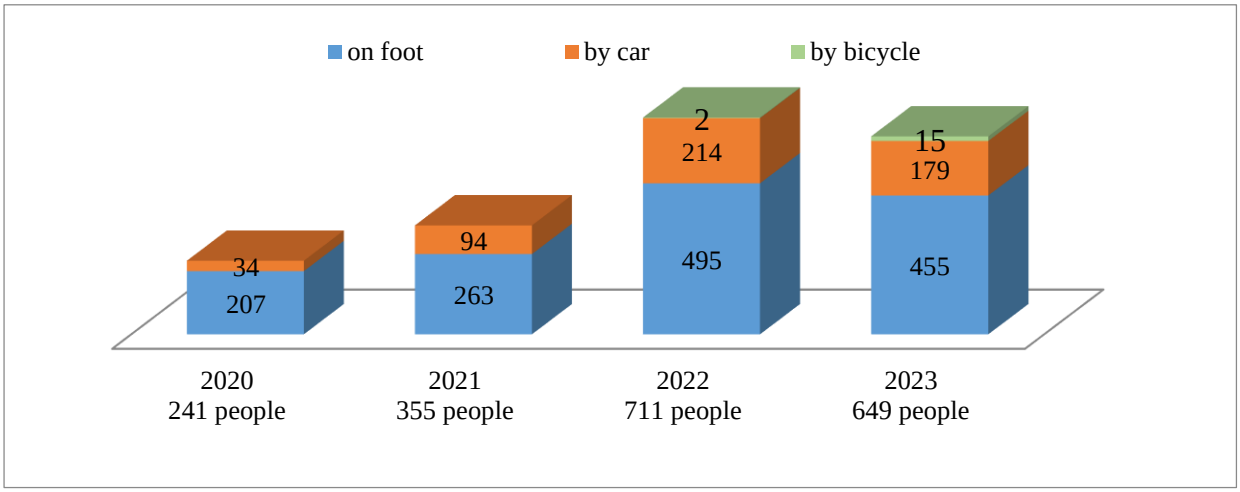
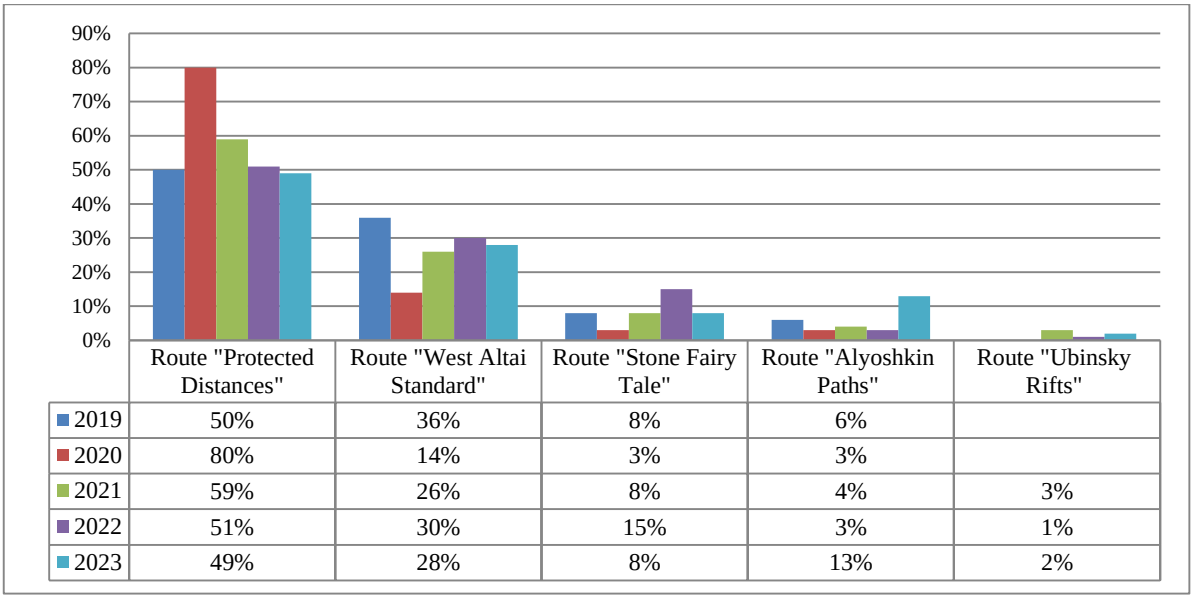


Fig. 6. Analysis of the number of visitors in 2020-2023 by mode of travel.

This important indicator shows that the Western Altai State Nature Reserve maintains a high-quality system of tourist and excursion activities that meets tourists' needs (Fig. 7). Based on the Western Altai State Nature Reserve's annual reports for the years 2019-2023, it was possible to classify tourists by their purpose of visit. On average, a significant 74% of the annual visitors to the reserve have tourist excursions and educational purposes. This high percentage reaffirms the reserve's commitment to conservation and education. In order to systematically replenish the photo and video archives of the reserve within the framework of state programs and for commercial purposes, the number of visitors for photo and video shooting has increased each year, averaging 16% over the past four years. This indicates the widespread use of visual forms to promote the unique natural landscapes of

East Kazakhstan. This approach is one of the pathways for developing tourist and excursion activities in the Western Altai State Nature Reserve. It is one of the most important measures for enhancing tourism potential, making the activities of specialists in this field precious (Fig. 8).



	Route "Protected Distances"	Route "West Altai Standard"	Route "Stone Fairy Tale"	Route "Alyoshkin Paths"	Route "Ubinsky Rifts"
2019	50%	36%	8%	6%	
2020	80%	14%	3%	3%	
2021	59%	26%	8%	4%	3%
2022	51%	30%	15%	3%	1%
2023	49%	28%	8%	13%	2%

Fig. 7. Attendance rate on tourist and excursion routes on the territory of the Western Altai State Nature Reserve (%).

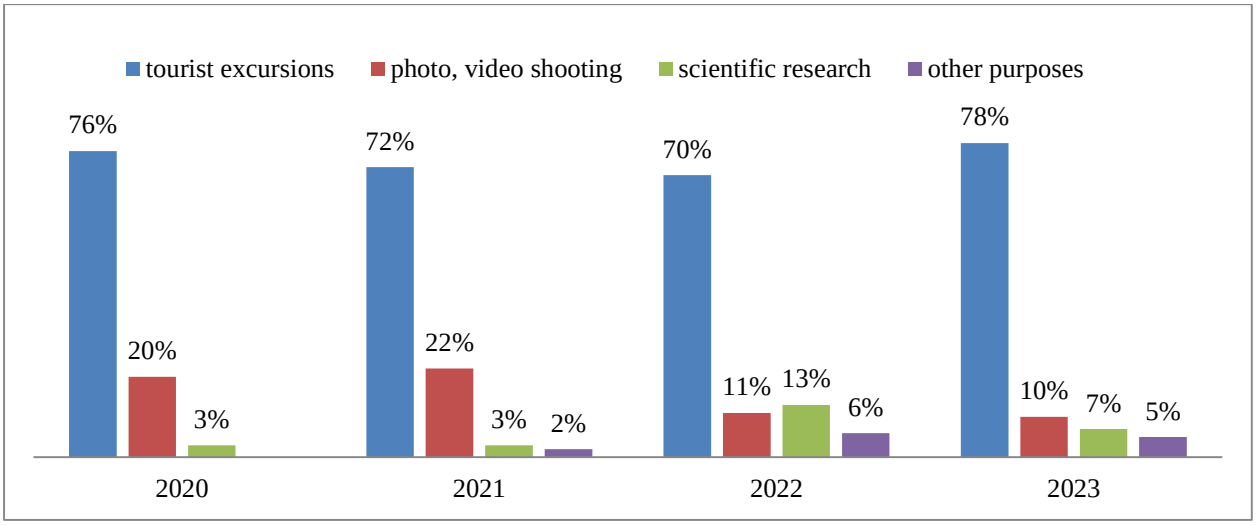


Fig. 8. Analysis of visitors to the territory of the Western Altai State Nature Reserve in 2020-2023 by purpose of visit.

However, the average rate of visits to the reserve for scientific purposes in 2023 was only 7%. This indicates the need for further study of the unknown aspects of Western Altai's "wild" nature and a lack of research objects of interest to scientists within the reserve (Fig. 8). We also analyzed visitors from nearby regions (Fig. 9). The diagram's analysis shows that residents of Ridder are regular visitors to the tourist routes organized within the Western Altai State Nature Reserve. The average percentage of all visitors over the four years is 43%. During the emergency period, there was a significant increased interest in the reserve from residents of the nearest regional center, Ust-Kamenogorsk, and the districts of the East Kazakhstan region, who previously did not show significant interest in visiting the reserve. In 2020, the share of such visitors was 35%, which gradually decreased to 19% in 2021 and 11% in 2022 but sharply increased to 81% in 2023, indicating the priority given to residents under the conditions of restrictions. The diagram shows that the average number of visitors from other cities is about 23%. The main flow of tourists comes from cities such as Almaty, Pavlodar, Semey, Astana, Shymkent, Karaganda, Kostanay, Taldykorgan, Shchuchinsk, Temirtau, and others. There has been a steady stream of tourists from these locations. In 2021-2022, after the end of the country's state of emergency, the number of foreign tourists sharply

increased from 8% in 2021 to 35% in 2022. This indicates a high interest of foreign tourists like East Kazakhstan and is a result of the post-pandemic efforts of the reserve's ecological education and tourism workers (Fig. 9).

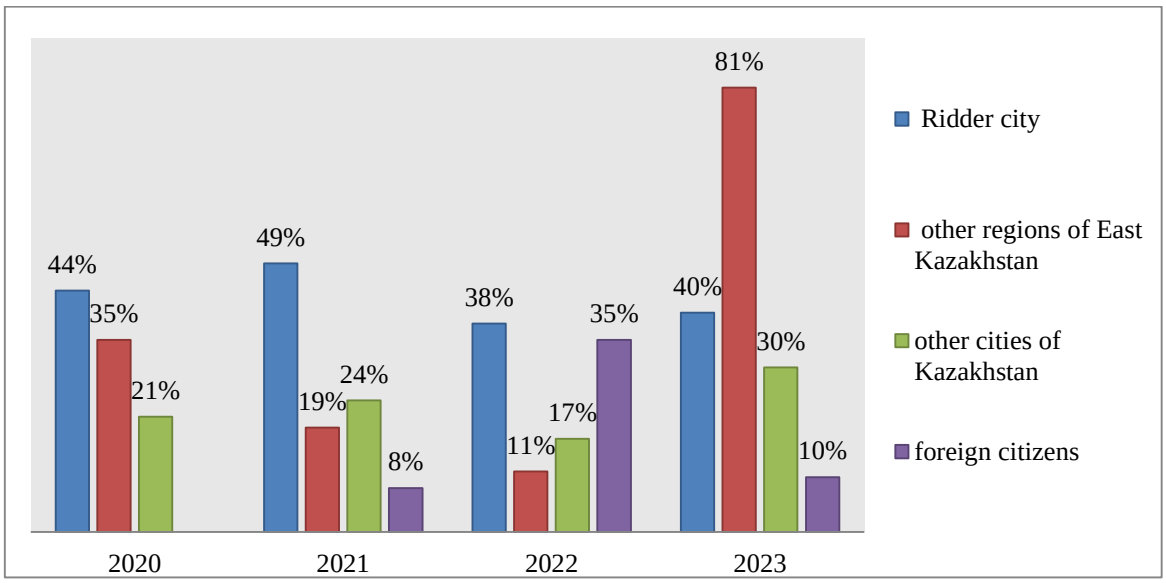


Fig. 9. Analysis of visitors to the Western Altai State Nature Reserve from neighboring regions for 2020-2023.

Economic benefits from tourism in protected areas can be a powerful argument for nature conservation (Ministry of Justice of the Republic of Kazakhstan 2017). We analyzed the reserve's annual reports, reflecting the funds received from the provision of paid services. Data for 2019 (before the pandemic), 2020-2021 (pandemic period), and 2022-2023 (post-pandemic period) were processed. Compared to 2019, the volume of tourism funds decreased by 30% in 2020. In 2021, this figure increased to 76% of the 2020 level. In 2022, the volume of funds increased by 55% compared to 2021; however, in 2023, there was a 13% decrease compared to 2022. It has been determined that the reserve is granted full autonomy in managing the funds generated from tourism activities. This autonomy allows the reserve to implement measures to develop tourism and excursion activities, thereby addressing several critical issues and significantly enhancing the efficiency of the reserve management.

CONCLUSION

The Western Altai Reserve, with its unique opportunities for tourism development, remains attractive to tourists who prefer “wild” nature. The reserve's exceptional landscape and biodiversity, coupled with the five key routes offered, present a promising future for tourism. The tourism season in the reserve is limited due to the region's climatic conditions. The coronavirus pandemic, which necessitated strict travel restrictions, caused a sharp decline in the number of tourists visiting the reserve. The increase in visitor numbers from residents of cities in the Republic of Kazakhstan indicates greater awareness and responsibility among tourists regarding environmental sustainability, which could contribute to the development of a more sustainable domestic tourism industry in the future. However, despite the efforts of the reserve's staff, there is still insufficient marketing and promotion of alternative tourist destinations and attractions within the reserve. After the introduction of travel restrictions abroad during the COVID-19 pandemic, local interest in national landmarks and tourist sites increased. This unexpectedly became a catalyst for the development of ecotourism among the local population, encouraging their pursuit of more sustainable and environmentally responsible forms of recreation. As the Eurobarometer study (Ministry of Justice of the Republic of Kazakhstan 2017) showed, COVID-19 had a long-term impact on citizens' travel behavior. After the quarantine measures ended, local tourism to the reserve remained steady, indicating a sustained interest and support for ecotourism among the population. Additionally, tourist flows from other countries have resumed, contributing to further tourism development and economic growth in the region. Thus, the development of ecological tourism in the reserve will attract interested tourists, resulting in additional income from tourism activities. This income can then be invested in the development of SPNAs, which do not have their revenues, thereby fostering economic growth in the region.

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