

Artículo de investigación

On the evolution of the aesthetic advantages of cultural landscapes**К ЭВОЛЮЦИИ ЭСТЕТИЧЕСКИХ ДОСТОИНСТВ КУЛЬТУРНЫХ ЛАНДШАФТОВ**

Evolución de las ventajas estéticas de los paisajes culturales

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Anastasia A. Nikolaeva²⁸⁴**Abstract**

The *goal* is to substantiate the change in the social significance of the cultural landscape in the development of new aspects of human activity (the development of the tourism cluster), leading to the formation of a new kind of aesthetic potential of the cultural landscape. *Materials and methods.* The objects of study were artificial waterways (canals and dams) of the islands of the Solovki archipelago in northern Russia, Longji rice terraces in China and lupine fields in the floodplains of New Zealand rivers. For a quantitative assessment of the aesthetic properties of landscapes, a scale of assessments of the landscape-aesthetic value of cultural landscapes was used.

Discussion. The aesthetic functions of the landscape, the integrative connections between the aesthetic potential of the landscape and a comfortable favorable habitat, the role of the historical and cultural landscape in preserving the historical memory of society are considered. The quantitative and qualitative assessments of the aesthetic functions of landscapes are proposed, allowing to argue the organization of the economic system of their preservation, maintenance and restoration. It is shown that the preservation and development of the aesthetic potential of cultural landscapes can lead to a change in their development, a change in the method of nature management and the formation

Аннотация

Целью является обоснование смены общественной значимости культурного ландшафта при развитии новых сторон деятельности человека (развитие туристического кластера), приводящее к формированию нового вида эстетического потенциала культурного ландшафта. *Материалы и методы.* Объектами исследования были искусственные водные пути (каналы и дамбы) островов Соловецкого архипелага на севере России, рисовые террасы Лунцзи в Китае и люпиновые поля в поймах рек Новой Зеландии. Для количественной оценки эстетических свойств ландшафтов использована шкала оценок пейзажно-эстетической ценности культурных ландшафтов.

Обсуждение. Рассмотрены эстетические функции ландшафта, интегративные связи между эстетическим потенциалом ландшафта и комфортной, благоприятной среды обитания, роль историко-культурного ландшафта в сохранении исторической памяти общества. Предложены количественная и качественная оценки эстетических функций ландшафтов, позволяющие аргументировать организацию экономической системы их сохранения, поддержания и восстановления. Показано, что сохранение и развитие эстетического

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of a completely new type of aesthetic perception of the landscape.

Conclusion. Currently, the aesthetic component of cultural landscapes has become a more significant factor than the economic functions for which they were created.

Keywords: Cultural landscape, quantitative assessment, aesthetic potential, preservation.

потенциала культурных ландшафтов может приводить к изменению их освоения, смене способа природопользования и к формированию совершенно нового типа эстетического восприятия ландшафта.

Заключение. В настоящее время эстетическая составляющая культурных ландшафтов стала более значимым фактором, чем те хозяйственные функции, ради которых они создавались.

Ключевые слова: культурный ландшафт, количественная оценка, эстетический потенциал, сохранение.

Resumen

El objetivo es corroborar el cambio en la importancia social del paisaje cultural en el desarrollo de nuevos aspectos de la actividad humana (el desarrollo del grupo turístico), lo que lleva a la formación de un nuevo tipo de potencial estético del paisaje cultural. Materiales y métodos. Los objetos de estudio fueron vías fluviales artificiales (canales y presas) de las islas del archipiélago Solovki en el norte de Rusia, terrazas de arroz Longji en China y campos de altramuces en las llanuras aluviales de los ríos de Nueva Zelanda. Para una evaluación cuantitativa de las propiedades estéticas de los paisajes, se utilizó una escala de evaluaciones del valor paisajístico-estético de los paisajes culturales. Discusión. Se consideran las funciones estéticas del paisaje, las conexiones integradoras entre el potencial estético del paisaje y un hábitat cómodo y favorable, el papel del paisaje histórico y cultural en la preservación de la memoria histórica de la sociedad. Se proponen las evaluaciones cuantitativas y cualitativas de las funciones estéticas de los paisajes, lo que permite argumentar la organización del sistema económico de su preservación, mantenimiento y restauración. Se muestra que la preservación y el desarrollo del potencial estético de los paisajes culturales puede conducir a un cambio en su desarrollo, un cambio en el método de gestión de la naturaleza y la formación de un tipo completamente nuevo de percepción estética del paisaje.

Conclusión. Actualmente, el componente estético de los paisajes culturales se ha convertido en un factor más significativo que las funciones económicas para las que fueron creados.

Palabras clave: Paisaje cultural, evaluación cuantitativa, potencial estético, preservación.

Introduction

Throughout the entire period of the development of civilization, man influenced nature in the process of his socio-economic activity, including transforming landscapes. In addition, humanity has always been worried about the beauty and harmony of landscapes. Ancient Greek and ancient Chinese philosophers noted that it is possible to assess the aesthetic potential of a landscape through a comprehensive analysis of the combinations of individual elements that create the beauty of its landscapes. They admitted the presence in natural landscapes of some objective characteristics that determine the harmony of the landscape. We find the same thing among modern authors who note that “landscape aesthetics is a special scientific field that studies the appearance of a landscape (landscape) as a special type of renewable natural

resource that affects a person’s psychological comfort” (Kochurov and Buchatskaya, 2007). An aesthetic approach to the analysis of landscapes allows to assess the level of modern contact between man and nature. The landscape, both natural and cultural, undoubtedly has an aesthetic potential, while actively affecting the emotional and psychological comfort of a person, but at the same time is under pressure from society. Moreover, the aesthetic potential of the landscape is an ambiguous concept, and can cause not only positive, but also negative emotions and consequences.

The preservation and development of the aesthetic potential of cultural landscapes testifies to the integration of tangible and intangible values. The current instability of some cultural

landscapes is associated with the degradation of resources in modern society. The vulnerability of various historical and cultural landscapes is due to various reasons. It is often caused by the impossibility of achieving the socio-economic stability of a region or a specific object, which entails either its oblivion and non-use, or radical changes. In both cases, this leads to the gradual disappearance of such an object. An interesting material for the development of approaches to the study of the aesthetic resource of the cultural landscape is provided by industrial territories, the development history of which was predetermined by a change in active use and subsequent desolation (Yezhova, 2007). Changes associated with globalization, and affects the rural landscape, as changing technologies for the cultivation of agricultural products, which leads to the use of new materials and farming methods (Van Zanten, Verburg, Espinosa and Gomez-y-Paloma, 2013). Therefore, understanding and analysis of global processes that take place in the field of preserving the aesthetic component of the potential of the world historical, cultural and natural heritage is of particular importance.

In the works of K.I. Eringis (Eringis and Budryunas, 1975), M.Yu. Frolova (1994), V.A. Nikolaev (1999), A.V. Belov (Belov, Lyamkin and Sokolova, 2001), N.N. Nazarov (Nazarov and Postnikov, 2002), D.A. Dirin (Dirin and Popov, 2010), B.I. Kochurov (Kochurov and Buchatskaya, 2007), L.N. Vdovyuk (Vdovyuk and Motoshina, 2013), T.M. Krasovskaya (2014) and others considered the methodological and theoretical foundations of similar studies, proposed a conceptual apparatus, and also provided methodological developments and proposed approaches and techniques for the aesthetic assessment of landscapes. Evaluation of aesthetic resources makes it possible to carry out a comprehensive analysis of the modern landscape, taking into account both the natural and socio-economic characteristics of the territory.

The problem of preserving, maintaining and restoring the aesthetic potential of cultural landscapes remains relevant and is becoming increasingly important in the modern historical period. The objective of this study is to show that during the decline in economic activity, which previously led to the desolation of a specific territory, the development of new aspects of human activity (the development of a tourist cluster) contributes to a change in the social functions of the landscape that exist in the

consciousness of the population and power structures. In case of non-use or changes in the process of use related to the cultural landscape, there may be a change in the method of nature management and the organization of its development. In turn, this process can form a completely new type of perception of landscape aesthetics. Numerous examples of the destruction of harmonious historical images of cultural landscapes are known. For example, the historical view of the Moscow River and floodplain meadows in its floodplain opposite the Arkhangelskoye estate in the suburbs of Moscow is disrupted by the construction of a high-rise housing estate and detached multi-story buildings, which completely changed (reduced) the aesthetic value of the landscape. Although, the place for the construction of the manor ensemble was chosen because of the aesthetic value of the landscape.

Materials and methods

Artificial waterways (canals and dams) of the islands of the Solovetsky archipelago in the White Sea in northern Russia, rice terraces of Longji in the Longsheng district of the Guangxi Zhuang Autonomous Region of China, and lupine fields in the floodplains of the rivers of the southern island of New Zealand were chosen as a testing ground for the study. At first glance, these places are not interconnected: their economic functions are different, they are located in different climatic zones. However, the processes taking place in these places demonstrate a steady tendency to transform their social significance.

Quantitative assessment of the aesthetic properties of the analyzed landscapes was carried out according to the method developed on the basis of the methods of Kochurov (Kochurov and Buchatskaya, 2007) and Vdovyuk (Vdovyuk and Motoshina, 2013) (Table 1). The following were assessed: the spatial organization of the landscape-landscape complex, the diversity and number of landscape-compositional elements (the presence of water bodies, forest cover, symbolic and symbolic objects), decorative landscapes, manifestations of an unfavorable or favorable anthropogenic transformation that changes the aesthetic perception of landscapes. According to aesthetic value, cultural landscape-landscape complexes can be analyzed and distributed according to the proposed rating scales of the selected criteria, the values of which are translated into points (Table 1).

Table 1: The scale of assessment of landscape and aesthetic value of the landscape

Estimated indicators of the aesthetic value of the landscape		Points
Diversity of the landscape	The whole landscape view consists of 1 plan	0
	The whole landscape view consists of 2-4 plans	5
	The whole landscape view consists of more than 4 plans.	2,5
Expressiveness of the landscape	The featureless	0
	Changes once during the growing season	2,5
	Changes more than once during the growing season	5
Type of the area	The forest presence over 50%	0
	Half-open (the forest presence from 20 to 50%)	5
	Open area (the forest presence less than 10%)	2,5
The presence of water bodies	Rivers (clean / polluted with littered banks)	5/-5
	Lakes (clean / polluted)	5/-5
The presence in the landscape of symbolic objects	Absent	0
	Represent	5
The degree and nature of anthropogenic change	Absent	0
	Unchanged	0
	Slightly modified	2,5
Landscape suitability for tourism	Rationally transformed	5
	Convenient (extensively used in economic activity, accessible territory)	5
	Inconvenient (hard-to-reach or territory intensively used in economic activity)	2,5

Earlier, scales for assessing the landscape-aesthetic value of landscapes were used to analyze the landscape-landscape structure of natural territories. According to this principle, aesthetic zoning was carried out and applied maps of the territories of the Baikal region, Perm Territory, and Tyumen Oblast were compiled (Nazarov and Postnikov, 2002; Vdovyuk and Motoshina, 2013; Bibaeva, 2018). This analysis made it possible to identify areas with high aesthetic potential and recommend their further use. However, evaluating the hedonic price function for aesthetically valuable natural landscapes is a bit complicated. There are a number of environmental and economic methodologies for conducting such assessments developed by experts of the World Bank; these techniques provide estimates only by indirect indicators.

Results and discussion

A quantitative assessment of the aesthetic properties of cultural landscapes has not been conducted previously. The results of assessments of the aesthetic attractiveness of landscapes of both cultural landscapes indicate the possibility of using quantitative methods and methods based on the integrity of the perception of landscapes. According to the scale of ranking of integral scores (Table 2), the analyzed cultural landscapes can be classified as high-value landscape objects (artificial waterways of the islands of the Solovetsky archipelago (32.5 points) and rice terraces of Longji (32.5 points) and landscapes of medium value (lupine fields in floodplains of New Zealand rivers (22.5 points) However, it must be taken into account that the more diverse the landscape structure of the evaluated object, the higher the likelihood of divergence of these estimates.

Table 2: Scale of ranking integral ball scores

Aesthetic value assessment	Points
High value landscapes	25-35
Landscapes of average value	15-25
Low value landscapes	to 15

In addition to the aesthetic function, landscapes play a significant environment-forming role, which is most often directly related to the complex of sensations in the perception of the landscape. The harmony of space is only in those cases when it fully implements the full diversity of its functions. A number of authors refer to the possibility of economic assessment of landscape aesthetics, which allows determining their value from consumer positions of environment-forming ecosystem services (Krasovskaya, 2014; Bibaeva, 2018). The preservation of aesthetically valuable cultural landscapes can contribute to the organization of an economic system of stimulating development, which contributes to the creation of an economic platform for their preservation and development in a market economy.

The development of the Solovetsky Islands with continuous intervention in the natural environment began at the beginning of the 15th century with the settlement of Russian Orthodox monks on the islands and the construction of a monastery, which became the main city-forming object (Martynov, 1992, 1993). When the full-scale construction of the Solovetsky Monastery began at the beginning of the 16th century, numerous migrants and temporary workers were faced with a shortage of drinking water in the

immediate vicinity of the monastery. Then the Solovetsky lake-canal “drinking” system, grandiose in terms of the use of manual labor, was built, uniting 78 lakes and feeding the Holy Lake located near the monastery. Due to the difference in lake levels, water flowed by gravity into the last lake, then through the underground channel fell into the territory of the monastery. Until now, the Holy Lake is the main source of water supply for the only village on the islands, not counting the monastery monasteries.

In the 19th century, between the two islands of the dam archipelago, a unique engineering construction with a length of 1220 meters was built (Fig. 1). At the beginning of the 20th century (from 1906 to 1918) a “navigable” lake-canal system was built, which, in addition to participating in the rapidly growing needs of the monastery, was also a convenient waterway connecting the monastery, village and remote isolated monastic settlements. It combined ten large lakes with canals of 3-5 m wide and 2 m deep. Support dams were built along the shores of three lakes to maintain water levels. The slopes of the canals were strengthened by retaining walls (a prism), and where high boulder hills met along the path, terraces were formed on both sides of the canal.



Fig. 1. Stone dam between Bolshoi Solovetsky Island and Bolshaya Muksalma Island

Several locks were built to control the water level in the canals. Boats and steam boats for transporting goods passed through the shipping channels, along the canals, hiking trails were arranged. The last part of the canal system was built for rafting the forest into the sea while in the islands of the Solovetsky Special Purpose Camp

(prison) in 1923-1933. In total, 235 inter-lake compounds were built.

After the resumption of the monastery in 1990, the flow of pilgrims added to the flow of tourists. According to official statistics for 2008-2018, 30-50 thousand people came to the Solovetsky

Islands. В 1992 году The Solovetsky historical and cultural complex was included in the UNESCO World Heritage List as an object that is an outstanding example of the construction of an architectural or technological ensemble, as a landscape illustrating a significant period of human history.

The restoration of aesthetically valuable landscapes of the Solovetsky archipelago affects the lake-canal system, which is one of the main architectural and economic attractions of the archipelago. It fits perfectly into the concept of a significant cultural landscape, enabling dynamic perception of the surrounding landscape paintings.



Fig. 2. Modern excursion route along the Solovki canals

The canals that appeared due to the long-term economic work on connecting the lakes, previously performing purely economic functions, are currently used for water tourist trips. The longest boat route through the lake-canal system takes 6 hours (Fig. 2). The banks of the canals, thanks to the harmony of the surrounding landscapes, allow modern visitors to enjoy and appreciate the natural beauty of the northern lake-forest landscapes.

No less interesting object of study is the Longji rice terraces in the Longsheng district of Guangxi Zhuang Autonomous Region of China (Longji Terrace Fields in Guangxi Zhuang Autonomous Region). These territories, on which two thousand years ago mainly the Chuang people lived (as well as the Miao, Yao, Dong and others), were annexed to China in the III century BC. The population mastered the hillsides for growing crops. Terraces in this case are a complex hydraulic engineering structure, in contrast to European terraces, where changing

surface slopes simply naturally redistributes precipitation (Fig. 3).

Longji terraces in the Guangxi Zhuang Autonomous Region with an area of almost 66 km² rise to a height of more than 1000 m above sea level and have slopes from 25 to 50 degrees. Longsheng Terraces are about 800 years old; in this area, their construction began during the reign of the Yuan Dynasty (1271-1368) and ended during the reign of the Qing Dynasty (1644-1911). These terraces were called the "Dragon Ridge" (Longji) because of their appearance, as the locals associated the size and shape of the terrace complex with the body of the Dragon, covered with scales. An unusual view of the hills with terraces flooded with water in a vast space attracts a large number of tourists. Similar methods of terracing slopes are found in the Chinese province of Yunnan, the terraces of which are recognized as a UNESCO World Heritage Site, as an example of an artificial sustainable ecosystem.



Fig. 3. Rice terraces around the village of Dazhay Yao, Longsheng, China

The use of the aesthetic appeal of Lunsheng's terraced landscapes has gained popularity only in recent decades, since such objects have never been included in the classification of China's recreational landscapes according to functional features (Goloso, 2011). The conservation of aesthetically and ecologically significant elements of the rural cultural landscape in Longsheng in the Guangxi Zhuang Autonomous Region is an example of the conservation of the natural and cultural heritage of high aesthetic value. It should be noted that the aesthetic value of rice terraces has been formed over the centuries, but terraced hills did not adapt for recreational use and terraces are not an object of improvement. They are perceived by the viewer in the context of the overall picture of the picturesque mountain landscape, where the texture of the mountain slopes is man-made changed for economic purposes, but it has acquired new aesthetic properties demanded by the population as a by-product of this activity. The mosaic of the landscapes was formed as a result of using the territory for the production of rice. After a change in the technology for growing this crop (the use of new high-yielding rice varieties not requiring water), a decrease in the area of irrigated land should be expected (Tilliger, Rodríguez-Labajos, Bustamante and Settele, 2015). Changing the method and type of land use will inevitably affect the appearance of the surrounding space. The use of cultural landscape elements and historical visual spaces can compensate for the loss of rice production in a given region. The landscape expressiveness of space and harmonious combinations of elements and landscape paintings determine the high aesthetic value of rice terraces inscribed in the general appearance of the mountainous area,

which is an important resource for the development of ecotourism (Min, Zhang, Jiao and Sun, 2016). In addition to traditional ecological and geographical objects (historical architecture, flora and fauna), nevertheless, the landscape created by human hands occupies the most significant value. Contemplation of a harmonious landscape causes emotional satisfaction and indicates a comfortable visual environment. Among the aesthetic characteristics, in addition to the texture of the surface of the hillsides, it is necessary to classify the seasonal color change. The small-tiered structure of the hills is emphasized in different colors depending on the season: in early spring, they are brownish-green in color of the soil and vegetation covering the sides of the canals; after water is supplied, the sky is reflected in the mirror surface of the terraces and they look blue or white depending on the weather; a few weeks after rice is planted, the terraces become emerald green, and in the autumn before harvesting, they are straw yellow. Seasonal color changes are also a factor in attracting tourists in different periods of the year.

The demand for this landscape by tourists is evidenced by the fact that currently the annual increase in tourism income in the autonomous region exceeds 70%. Rapid economic growth and related changes require the development of a developed tourism infrastructure and draw the population into its services.

The evolution of cultural landscapes is observed in various parts of the globe. In some cases, this process goes through an intermediate stage of spontaneous (not controlled by a person) development, and attracts the attention of

society, acquiring new aesthetic qualities. An example of this is the thickets of two invasive species — gorse (*Genista tinctoria* L.) and lupine (*Lupinus polyphyllus* Lindl.), which are unusual in their beauty and scale in the landscapes of the South Island of New Zealand, which give a particularly strong visual effect, influencing the aesthetics of local landscapes during flowering (Kurlovich, Stoddard and Earnshaw, 2008). For 150 years of British rule, which officially ended only in 1986, a huge number of introducers fell

into the natural communities of New Zealand. Lupine began to be used in the 18th-19th centuries by English colonists as an additional feed plant for sheep. Being quite drought-resistant by nature, in New Zealand this species of lupine, having naturalized, occupied mainly coastal areas in floodplains and lakeshores, sometimes completely displacing the local flora from these habitats (Fig. 4).



Fig. 4. *Lupinus polyphyllus* Lindl during flowering in floodplains on the South Island of New Zealand

Since the beginning of the twenty-first century, New Zealand ecologists have been trying to combat invasive species, in particular lupine, but unexpectedly they met with strong opposition in this process from local farmers and tourism workers who have significant income from tourists in the New Year period (lupine bloom on the southern island falls on November-December).

A few years ago, photography of blooming lupins in New Zealand even won the grand prize at the International Garden Photographer, the largest global landscape photography competition held under the auspices of the British Royal Botanic Gardens.

Conclusion

Thus, as in the case of the lake-canal system of the Solovetsky archipelago, rice terraces of the Longji province or lupins in the floodplains of New Zealand, their aesthetic significance has become a more significant factor in the modern historical period than the economic functions for which they were created.

The aesthetic needs of modern society make it possible to evaluate the terraced slopes in southern China flooded with water for rice planting and farm buildings in the form of canals and dams in northern Russia as works of landscape art. Perhaps this new feature of the landscape will to some extent contribute to their conservation even with a complete loss of their original value. The example of New Zealand shows that sometimes the aesthetic needs of society go against the environmental goals of the same society. This is still a rare case when the high aesthetics of the landscape at the present stage can turn into an environmental catastrophe in the near future, which emphasizes the need to test economic and post-economic landscapes for their aesthetic significance, followed by a forecast of their evolutionary development.

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