

Assessment of the Current Status and Sustainability of Kangal Balıklıgöl Nature Park (Sivas-Turkey)

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DOI: <https://doi.org/10.38177/ajast/2026.10104>

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Article Received: 15 November 2025

Article Accepted: 17 January 2026

Article Published: 26 January 2026

ABSTRACT

This research focuses on the current status and sustainable use of Kangal Balıklıgöl Nature Park, located within the borders of Sivas province in the northeastern part of Turkey's Central Anatolia Region. Kangal Balıklıgöl is a natural attraction of both national and international importance with its thermal springs, doctor fish, and rich biodiversity. Therefore, Kangal Balıklıgöl and the surrounding area, a total of 47.90 hectares, were declared a nature park in 2025. The declaration of Kangal Balıklıgöl as a nature park is a significant development not only for Turkey but also for the world. This decision is expected to have positive impacts for Kangal Balıklıgöl Nature Park. Furthermore, an important step has been taken towards the protection and sustainable use of Kangal Balıklıgöl Nature Park, ensuring its preservation and transfer to future generations. In this regard, it is recommended that a new action plan be developed and implemented for the protection and sustainable use of Kangal Balıklıgöl Nature Park, a significant health center both globally and in Turkey. Kangal Balıklıgöl Nature Park, with its unique natural beauty and available resources, is invaluable. Therefore, public awareness must be raised regarding the protection and sustainability of Kangal Balıklıgöl Nature Park.

**Keywords:** Awareness; Ecological Balance; Environmental Factors; Kangal Balıklıgöl; Nature Park; Nature Conservation; Sustainability; Turkey.

1. Introduction

The rapid growth of the world's population, human indifference to the environment, and rapid consumption habits threaten natural habitats. Furthermore, the extinction of living species poses a threat to the continued existence of human life on Earth. The continuity of ecosystem services depends on the healthy functioning of ecosystems. This, in turn, is linked to the preservation of biodiversity within ecosystems. Living species within an ecosystem are in complex relationships with each other and their physicochemical environment, and each element is interconnected in some way. Therefore, the destruction of any living or nonliving element within an ecosystem affects the entire system [1]. Therefore, preserving the integrity of ecosystems and maintaining their balance is of paramount importance.

Nature conservation encompasses measures and initiatives aimed at holistically preserving, protecting, and developing naturally occurring animal and plant species and the fundamental elements necessary for their survival. In today's world, where nature is degraded daily and human pressure on the natural environment is increasing, the importance of protecting natural areas is even greater. Protecting the resources existing in natural environments depends, above all, on increasing the value, interest, and respect placed on them. As a part of nature, the care that humans show for their environment and their contributions to its sustainability are crucial. In this regard, while human destruction of natural areas is increasing, a parallel increase and diversification of environmentally sensitive behaviors and nature conservation efforts are observed. A number of conservation practices are being implemented to protect natural areas and preserve the resources of the natural environment for future generations [2]. In this context, natural environments rich in rare and valuable resources are being preserved for the future.

In Turkey, four types of protected areas are defined according to the National Parks Law No. 2873. These are: national parks, nature reserves, nature parks, and nature monuments. Nature parks, the subject of this research, are

defined as natural areas with abundant vegetation and wildlife, suitable for public recreation and entertainment. Nature parks encompass both natural and cultural values and are established for the sustainable protection of both. Nature parks contribute to the conservation of nature and the maintenance of lifestyles in harmony with nature, constitute a model for sustainable land use, and are the most preferred places for activities such as recreation and tourism [3]. After the Industrial Revolution, practices aimed at destroying natural areas increased. Consequently, natural resources began to suffer similar damage. These problems continue to escalate and continue today. The values of natural areas, under the pressure of environmental problems worldwide, are constantly being degraded, destroyed, and polluted. The sustainability of natural areas is crucial for our future generations. In response to these problems, people are increasingly alienated from their natural environment, living in crowded environments that cause both mental and physical fatigue, leading to increasingly stressful and challenging lives. Over time, they have developed a need for relaxation, refreshment, and entertainment. In response to these needs, people are now choosing natural areas, environments rich in biodiversity and cultural heritage, rather than the environments they live in, for touristic and recreational activities, preferring to relax, even if only briefly, in these environments, escaping stress. Today, options that can meet these demands exist both in the world and in Turkey. Nature reserves, national parks, and nature parks are among the most prominent of these natural areas. The importance of nature parks has been increasing in recent times, as people's desires and needs have rapidly changed [4].

### 1.1. Study Objectives

This study aims to identify and summarize the following specific objectives regarding the current status of Kangal Balıklıgöl Nature Park, located in Sivas province of Turkey, an important health center for Turkey and the world.

The specific objectives are:

(i) to evaluate the current status of Kangal Balıklıgöl Nature Park, (ii) to reveal its potential, (iii) to evaluate the main problems in its development, (iv) to evaluate what needs to be done for its sustainability, and (v) to offer possible suggestions for its future direction.

## 2. Materials and Method

In this research, Kangal Balıklıgöl Nature Park was selected as the research area. Kangal Balıklıgöl Nature Park is located in the Kangal district of Sivas province, Turkey, 98 kilometers from the Sivas city center. Kangal Balıklıgöl Nature Park is 12 kilometers from the Kangal town center. Kangal Balıklıgöl Nature Park is located in the Kavak Stream valley in the northeast of Kangal. At an altitude of approximately 1,540 meters, the water of Kangal Balıklıgöl Nature Park flows from north to south. Instead of a single source, the water of Kangal Balıklıgöl Nature Park spreads over a wide area among sandstones and forms leaks along the stream banks [5]. Kangal Balıklıgöl Nature Park is an important health tourism center, renowned for its natural thermal springs and doctor fish. These thermal waters, with a temperature of  $35\pm 0.5$  °C, are used in the treatment of various skin conditions, especially psoriasis, due to their physicochemical properties and the fish species they contain. The species *Cyprinion macrostomus* and *Garra rufa*, which live in these thermal waters, target diseased tissues on the skin's surface, remove softened scales, and help smooth the skin. These toothless fish, members of the *Cyprinidae* family, consume dead skin cells as food while also creating a gentle massage effect on the skin. For the treatment to be

effective, it is recommended to soak in the thermal water for up to eight hours a day for 21 days and to drink a few glasses of this healing water on an empty stomach in the morning [6].

The areas to be designated as nature parks in Turkey must have the following five criteria [7]; (i) They must have outstanding natural physio-geographic structure, vegetation and wildlife characteristics, scenic beauty and recreation potential at national or regional level, (ii) They must be large enough to ensure resource and landscape integrity, (iii) They must have a diverse and rich potential, especially in terms of open-air recreation, (iv) They must contain interesting examples of local customs and traditions, traditional land use patterns and cultural landscapes, (v) They must be the property of the Republic of Turkey.

This research evaluated the importance, current status, and sustainable use of the Kangal Balıklıgöl Nature Park, located within the borders of the Kangal District of Sivas Province, as designated by the Presidential Decree of the Republic of Turkey. The research first examined previous studies on the subject. Then, the date of Kangal Balıklıgöl's designation as a nature park, its size, and other relevant information were collected and evaluated.

### 3. Results and Discussion

Following an investigation of the status of Kangal Balıklıgöl, located within the borders of Kangal district of Sivas province, the President of Turkey has declared it a nature park under decision number 100074. This decision was made pursuant to Article 3 of Law No. 2873 on National Parks. The decision was signed on July 13, 2025, and entered into force upon its publication in the Official Gazette on July 14, 2025. Kangal Balıklıgöl Nature Park covers a total area of 47.90 hectares (Table 1). Kangal Balıklıgöl is designated as a nature park under ED50, UTM6, and MLM39 [8]. Kangal Balıklıgöl, declared a new nature park, is of great importance to the world and Turkey for its natural beauty and biodiversity.

**Table 1.** Some technical features of Kangal Balıklıgöl Nature Park

S.No.	Property	Value
1	Province	Sivas
2	District	Kangal
3	Announcement Date	14.07.2025
4	Regional Directorate	15th Malatya Regional Directorate
5	Universal Transver Merkator	UTM6
6	European Datum	ED50
7	Mid-Level Meridian	MLM39
8	Area Size	47.90 hectare

According to 2025 data, there are a total of 274 nature parks in Turkey [9]. Among these, Kangal Balıklıgöl Nature Park ranks 273rd. Kangal Balıklıgöl Nature Park is located within the borders of Sivas province in Turkey's Central Anatolia Region (Figure 1). With its *Cyprinion macrostomus* and *Garra rufa* fish living within, Kangal Balıklıgöl Nature Park is the world's only natural treatment center for psoriasis. Not only patients but also healthy people visit Kangal Balıklıgöl Nature Park [5]. Kangal Balıklıgöl Nature Park has gained a reputation for treating

dermatological and rheumatic diseases. In addition, Kangal Balıklıgöl Nature Park also treats neurological disorders, orthopedic problems, gynecological diseases, kidney stones, and psychosomatic disorders. The water of Kangal Balıklıgöl Nature Park, which maintains a year-round temperature of  $35\pm 0.5^{\circ}\text{C}$  and is known to be beneficial for various ailments and whiten laundry due to its chemical composition. On the other hand, the opinion that the fish living in the waters of Kangal Balıklıgöl Nature Park are very good for skin diseases has gained great importance because they feed on the skin and wounds of people who enter there [10].

The water temperature in Kangal Balıklıgöl Nature Park, which is close to the body temperature of a warm-blooded animal, gives polyochre fish active mobility, causing them to require more food. Due to the lack of nutrients in the water environment, the fish living there are unable to meet their nutritional needs, which delays their development and growth, causing them to become aggressive and predatory. Consequently, the fish gravitate towards the diseased skin plates on the bodies of people entering the lake, which are softened by the water and easily removed. This results in the removal of the scabs from the human body, and the high levels of selenium in the water help heal the diseased skin [11]. In 1966, the area, formerly a reedy area, was opened with four pools and a two-story, 16-room hotel. The Kangal Balıklıgöl thermal spring is owned by the Sivas Special Provincial Administration and has been leased to a private company under a build-operate-transfer model since the 1980s. The Kangal Balıklıgöl thermal spring has begun to attract the attention of local and foreign tourists since the 1980s. The thermal spring has a bed capacity of 270 and features a total of six pools. The Kangal Balıklıgöl thermal spring was registered as a “Health Facility” by the Ministry of Health of the Republic of Turkey in 2003 [5]. This situation poses a disadvantage for Kangal Balıklıgöl Nature Park, which has continued to attract the attention of local and foreign tourists since the 1980s, in terms of preserving its natural ecological structure.



**Figure 1.** Kangal Balıklıgöl Nature Park

Of the foreign health tourists visiting Kangal Balıklıgöl, a balneotherapy center specifically designed for the treatment of psoriasis, 56 percent came from Germany, 28.5 percent from Russia, 13 percent from Kazakhstan, and 2.6 percent from the United States. Forty-three percent of these tourists were foreign citizens of Turkish origin. The minimum length of stay is one day and the maximum is forty-four days, with an average overnight stay of 11.49 days. It has been found that the number of visitors to the facility is higher in the summer months than in other months [12]. Kangal Balıklıgöl thermal springs, known worldwide as the only natural solution for psoriasis and

where patients leave feeling healed, were closed by teams from the Sivas Provincial Special Administration on January 31, 2025, due to a lack of a building permit. There is no information yet on whether the thermal spring facilities will provide health services again and how the process will work after Kangal Balıklıgöl was declared the “Kangal Balıklıgöl Nature Park” by the Presidential Decree on 14.07.2025.

The vegetation of Kangal Balıklıgöl Nature Park consists of Scots pine, black pine, willow, poplar, rosehip and various herbaceous species. In terms of fauna, Kangal Balıklıgöl Nature Park hosts bird species such as golden eagles, red-legged falcons, mallards, grey herons, hoopoe, and kingfishers, as well as mammals such as red foxes, wild boars, and rock martens. In addition, reptiles such as the Austrian snake (*Coronella austriaca*), the Sivas lizard (*Lacerta media*), and amphibians such as the lowland frog (*Pelophylax ridibundus*) live in Kangal Balıklıgöl Nature Park [6]. For these reasons, it is crucial that Kangal Balıklıgöl Nature Park be preserved for future generations.

Sustainability is a concept with biological, ecological, economic, and social dimensions. Sustainability has a meaning and content that considers not only today's society and its needs, but also future society and its needs. In this sense, sustainable economic development defines the continuous reproduction of natural resources necessary for economic production and the avoidance of harming natural balances as much as possible during the production process [13]. The water of Kangal Balıklıgöl Nature Park, which does not show any seasonal changes in terms of temperature and ionic composition, is very slightly yellow and clear, has a dissolved oxygen level of  $4.41 \pm 0.30$ , and a pH value between 7.20 and 7.25. The water of Kangal Balıklıgöl Nature Park contains many elements. The most important of these elements is selenium. There is approximately one gram of selenium in each liter of Kangal Balıklıgöl Nature Park water [5, 10, 14]. Climate change caused by global warming is causing increased precipitation variability, which is negatively impacting water resources. Climate change, which has become increasingly prevalent recently, must be combated, and urgent measures must be taken [15]. Consequently, the uncertainties caused by global warming will cause serious hardships and problems for society. Therefore, it is crucial to conduct studies to propose solutions to the uncertainties and problems caused by global warming in Kangal Balıklıgöl Nature Park. Kangal Balıklıgöl Nature Park is an indispensable water resource for Turkey and the world, especially for health tourism. Therefore, the current hydrological conditions of Kangal Balıklıgöl Nature Park should be estimated for various sustainable uses. To determine the causes of changes in the water levels, data on climate parameters such as temperature, precipitation, and evaporation should be investigated together with physicochemical and biological parameters.

#### 4. Conclusion

The waters and biological characteristics of Kangal Balıklıgöl are of significant importance both world and in Turkey. Therefore, Kangal Balıklıgöl was declared the "Kangal Balıklıgöl Nature Park" by Presidential Decree No. 10074 dated July 13, 2025. To this end, the 47.90 hectares of land within Kangal Balıklıgöl Nature Park must be protected and passed on to future generations. Consequently, the protection and sustainable use of Kangal Balıklıgöl Nature Park, a significant asset for both the world and Turkey, must be ensured. A new action plan must be prepared and implemented to ensure the preservation of Kangal Balıklıgöl Nature Park for future generations and to implement the necessary measures.

## **Declarations**

### **Source of Funding**

This research work did not receive any grant from funding agencies in the public or not-for-profit sectors.

### **Competing Interests Statement**

Author has declared no competing interests.

### **Consent for publication**

The author declares that he/she consented to the publication of this study.

### **Authors' contributions**

Author's independent contribution.

### **Institutional Review Board Statement**

Not applicable for this study.

### **Informed Consent**

Not applicable for this study.

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