An Assessment of Burdur Lake Ramsar Site (Türkiye)

¹Hasan ÖZÇELİK* and ²Esra ŞENGÜN

Author's Affiliation

¹S. Demirel Univ., Faculty of Engineering and Nature, Dept.of Biology, Isparta-Türkiye ²S. Demirel Univ., Institute of Science, Department of Biology, Isparta-Türkiye

*Corresponding Author: ¹Hasan ÖZÇELİK

S. Demirel Univ., Faculty of Engineering and Nature,
Department of Biology, Isparta-Türkiye
E-mail: hasanozcelik@sdu.edu.tr;
https://orcid.org/0000-0002-0207-0921

Keywords:

Burdur Lake, Ramsar Site, Pollution, Wildlife Protection Area, Wildlife Development Area

Received on 11.01.2025 Revised on 08.03.2025 Accepted on 18.05.2025

Abstract

Burdur Lake and its surroundings, one of the 14 Ramsar sites in Türkiye, need urgent protection measures and rehabilitation. This study covers the field observations we have made on the area since 2013. The article was prepared to draw attention to Burdur Lake, which has been drying up in recent years, and to create environmental awareness among the local people. Flora and fauna are rich in its terrestrial ecosystem. Due to these important features, Burdur Lake was included in the Ramsar sites with 25,096.00 ha on 13.07.1994. In recent years, around 25 agricultural dams have been built on the streams feeding this lake, completely ending the natural water input. The construction of these dams was after the 2010s. In 2012, the natural feeding of the lake completely stopped. With the dams built, the lake's water resources spread over a wide area, evaporation, absorption and the precipitation gradually decreased, and the lake is in danger of drying up. There is no other source of nutrition for the lake other than the waste and polluted water of the Organized Industrial Zone and Burdur city center, which are shown as purified. Recently, Burdur province has become famous for its marble and stone guarries and the unrehabilitated quarries have become a threat to the diversity and life of living beings. In addition to deterioration of topography around Yarışlı Lake, which is located in close proximity to Lake Burdur, the physical and chemical properties of the water have changed a lot due to the marble quarries. When satellite images are examined; it is seen as a wrong opinion that the major earthquakes that occurred in Burdur province (magnitude 9 in 1914; magnitude 7 in 1963 and magnitude 8 on May 12, 1971) were effective in the loss of water in the lake. The drying up of Lake Burdur will not only cause a natural lake loss, but will also cause significant problems in underground waters and other water resources. It is recommended that the institutions responsible for its management be gathered under the presidency of a single executive institution and that cooperation with scientific circles be established.

How to cite this article: ÖZÇELİK H. and ŞENGÜN E. (2025). An Assessment of Burdur Lake Ramsar Site (Türkiye). *Bulletin of Pure and Applied Sciences-Botany*, 44B (1), 1-14.

INTRODUCTION

Burdur Lake is located at the coordinates of 37045' N, 30012' E, and currently spreads over a total area of 125.8 km²(12,580 ha). According to July (2018) measurements, the lake's water level is 840.50 m, its depth is 59.53 m, and its volume is 3,881,354,681m³. Burdur Lake sub-basin has a total surface area of approximately 1671,025 km², including the 131 km², area of Burdur Lake. Figure 1.

Burdur Lake was designated and established as 'Water Birds Wildlife Protection Area' (38,125 ha) in accordance with the Land Hunting Law in 1993 and this protection status was changed to 'Burdur Lake Wildlife Development Area' (26,229 ha) in 2006; half of the lake (12,600 ha) was included in the Ramsar Convention list in 1994 and the whole lake (24,800 ha) in 1998 and was declared as 'I. Degree Natural Protected Area' by the Ministry of Culture. Its borders were subject to the Regulation on the Protection of Wetlands in 2006 and updated in 2012. The buffer zone area allocated to protect the lake is 502.80 km² (50,280.39 ha).

Burdur lake is one of the deepest lakes in Türkiye. It has been continuously losing water since 1986. While the lake level was 857.62 m in 1970, it dropped to 840.5 m in July 2018. Although the lake level partially rose due to increased precipitation between 2000-2004, the retreat accelerated since 2005. It is a natural lake with high importance in ecological balance. According to October 2018 measurements; depth of the lake is 59.53 m, the surface area is 120 km² and the volume is 3945 hm³. The length of the lake is 23.60 and the width is 8.16 km. As a result of the lake's withdrawal, there are wide plains with low slopes of up to 15 km on the northeast side and 1 km on the southwest (Gülle et al., 2018). Burdur lake was formed as a result of tectonic movements. Most of its surface area is within the borders of Burdur and partly within the borders of Isparta province. This area is a transition zone between the continental Central Anatolian and Mediterranean climates. There is a rich flora and fauna in its surroundings.

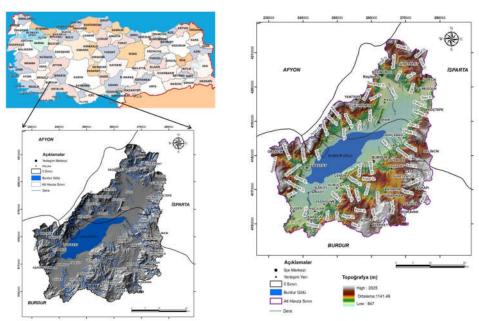


Figure 1: Location map and topography of the study area and its general location

Until recently, there were small stream sources feeding the lake. The lake level was mostly affected by seasonal rainfall and annual rainfall rates. The amount of salinity and arsenic in the water increased with the change in the lake level (Yiğitbaşıoğlu et al., 2010). The area is among the important plant areas of Türkiye (Özhatay et al., 2005) and important nature areas (Eken et al., 2006). In a study conducted by Çetin et al. (2013); 465 taxa belonging to 70 families and 275 genera were identified by evaluating 1005 plants collected from the Burdur Lake area. The endemism rate is high and 49 endemic plant taxa (endemism 10.53%) were identified. The most endemic taxa with genera, species and subspecies;

Familias: Asteraceae, Fabaceae, Lamiaceae, Rosaceae, Caryophyllaceae;

Genera: Astragalus, Verbascum, Centaurea, Salvia and Silene (Özçelik et al., 2016).

There are wetland, meadow, reed, stream, widely leafy forest, coniferous forest, mixed forest, woodland, afforestation, mountain steppe, rocky, agricultural and residential habitats in the Burdur Lake sub-basin. The lake surroundings are rich in fauna. Due to the high salt and arsenic in the lake, the biodiversity in the lake is poor. Burdur Lake environs is generally called a bird paradise. It is one of the important habitats of water birds (Özçelik et al., 2016). It is home to about 100 bird species, especially water birds and 70 % of the endangered White-headed Duck. Pseudophoxinus burduricus is a small fish species living in the lake and is endemic to Burdur Lake. It is an important habitat for the duck species called the White-headed Duck (Oxyura leucocephala), which is in danger of extinction in the world. Due to these important features, the area was included in the Ramsar areas with 25,096.00 ha on 13.07.1994 (Anonymous, 2024).

Ramsar areas constitute a unique natural habitat with their unique ecosystems, habitats and biodiversity. The Convention on Wetlands (Ramsar), which aims to protect these areas, entered into force on 13 November 1994 and covers 14 Ramsar areas of 184,487 ha (Anonymous, 2025). Burdur Lake is located in

center of the Göller Yöresi. This area is a geographical area where one of the 8 gene centers in the world is located (Özçelik et al., 2016).

Although the ministries support scientific and applied project studies on the area, there are bureaucratic contradictions in practice. For this reason, the lake is gradually drying up. This study was prepared to draw attention to Burdur Lake, which has recently been drying up, to provide information to the authorities and to create environmental awareness.

MATERIAL AND METHODS

Various observations have been made by us on Burdur Lake and its surroundings since 2013. These studies were generally carried out within the scope of projects supported by the Ministry of Agriculture and Forestry. Reports of the projects were submitted to the ministry through relevant companies (AnaDoku and Ançeo Ltd. Şti.) and accepted by the 6th Regional Directorate of Nature Conservation and National Parks. The findings in this article were compiled from these reports, compared with literature data and interpreted.

Many observations were made on the area 2013-2024, local people interviewed and opinions were obtained, and many photographs were taken from the area during these observations; notes were taken. The reasons for the withdrawal of water and the narrowing of the lake bed were analyzed and interpreted in the light of the statements of elderly local residents, satellite photos and scientific literature. The collected plants were dried and labeled according to the rules, then named and taken under protection in the GUL Herbarium (SDU. Department of Biology). The plants collected from the area by Cetin et al. (2013) and turned into herbarium material are also preserved in the GUL Herbarium. Plants suggested in the suggestions section for creating an artificial marsh area are the natural flora elements of the region and the protected area. These plants were collected and named by us and placed in the GUL Herbarium. However, since the registration number of these plants is stated in other works (Özçelik et al., 2014; 2016), they are not stated in this article.

FINDINGS AND DISCUSSION

There are important environmental factors that have recently threatened the living habitats in Burdur Lake and its surroundings (Figure 1). As a result of these factors, the lake and its surroundings have reached their current state. These factors are listed below:

There are significant losses in water reserve and level of Burdur Lake. While the lake level was at an altitude of 857,5 m (the side of the Pınarevleri site in Senir town facing the lake) when the lake was full, it has decreased to 840.5 m today. This situation has also shown itself in the surface area, and its surface area and volume have shrunk significantly.

Lake Burdur reached its maximum water level (857.5 m) in 1970 and during this period, the surface area was 215.7 km² and its volume was 6,826,433,255 m³. In July 2018, current water level was 840.5 m(from sea level) and the lake surface area was 125.8 km² and its volume was 3,881,354,681 m³. In the intervening 48-year period, there has been a decrease of 17 m in the water level, 90 km² in the lake's surface area and 2,945,078,574 m³ in its volume. In other words,

compared to the highest water level, today the surface area has decreased by 41.7% and its volume has decreased by 43.1% (Gülle et al., 2018).

According to Korkuteli meteorological station measurements; average monthly precipitation for years 1970-2017 is 30.4 mm³. Accordingly, the least precipitation is 10 mm and below in July, August and September, and the most precipitation is 48.97 mm³ and 47.32 mm³ in January and December. Dry between 1971-1973 years; rainy between 1974-1988; dry again between 1989-1993; stable between 1994-2000; rainy between 2000-2004; after a 9-year dry period from 2004, rainy until 2015, and a dry period again after 2015. According to the last measured long-term monthly precipitation data, the average monthly precipitation is 34.6 mm³. Accordingly, the minimum precipitation was measured in August with 9.4 mm³, and the maximum precipitation was measured in December with 51.7 mm³. It was determined that quite high precipitation values were measured in January (49.6 mm³) and April (47.7 mm³). In July (15.3 mm³) and September (16.5 mm³), precipitation values were recorded at quite low levels. Due to drought, the monthly average evaporation value is 166.8 mm³, and evaporation occurs above average in June, July and August (Gülle et al., 2018). Figure 2.

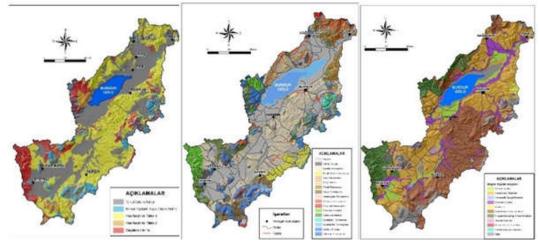


Figure 2: Hydrogeology and hydrology maps of Burdur Lake basin (Gülle et al., 2018).

The most important reason for the retreat of the lake is the dams built on the streams coming to the lake. The water collected in these dams is generally used for agricultural irrigation. It was determined in the field studies carried out in the basin that there is no surface flow reaching the

lake specially after 2012, This situation is an indication that the streams whose flow rate decreases due to the collection of water in dams for irrigation purposes dry up and do not reach the lake at all (Anonymous, 2012). Figure 3.

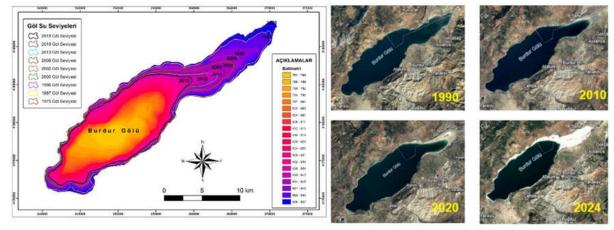


Figure 3: Change in the surface area of Burdur Lake over the years (from Google Earth; Gülle et al., 2018).

The fact that the central district and its surroundings consist of filling areas called 'alluvium' and that the main rock is made of water permeable rocks such as conglomerate and limestone is also an important factor in the distribution of water to other areas. We need information about the flow direction and reserves of underground water.

Since Burdur Lake is connected to other underground water resources from the bottom, the drying up of this lake or the withdrawal of its water from year to year will also negatively affect other water resources in the Göller Yöresi (Lakes Region). The most important of these are Acıgöl, Eğirdir Lake, Beyşehir Lake, Çorakgöl,

Salda Lake, Akşehir Lake and dams. The narrowing of the bed of Eğirdir Lake, which is the largest freshwater lake in Türkiye, smell of algae coming from the drinking water, fish washing up on the shore, Çorakgöl (Yeşilova) drying up, 'Eber Lake' turning into a swamp; Akşehir Lake and even Beyşehir Lake on the verge of drying up cannot be considered separately from this issue. The decrease in water resources and the fact that Türkiye is a waterpoor country are an invitation to economic collapse, famine, poverty, etc. The findings reveal that we need to discuss the issue in the light of science and give more importance to it bureaucratically. Figure 4.



Figure 4: The main rocks of the Burdur Lake basin: conglomerate, limestone, sandstone, saltstone and sulfur beds.

Arsenic is formed from sulfur beds, salt from salt beds and clay from limestone. General geological structure of the land is conglomerate and is permeable to water. When the clay layers formed by limestone rocks dry, a thin layer forms on it. It is turned into dust by grazing animals and other factors and is blown to the environment by the wind.

The Burdur fault within the Burdur fault one extends approximately 300 km in the NE direction between Fethiye Gulf and Keçiborlu district. In most places, it is not a single structural line, but in the form of intermittent parts developed parallel to each other. It is in a zone with a width varying between 3-10 km. Many earthquakes have occurred in Burdur province. The major earthquakes magnitude 9 in 1914; magnitude 7 in 1963 and magnitude 8 on May 12, 1971. In the earthquake in 1914, a crack (fault line) parallel to the lake occurred for 40 km. It is widely believed by locals that these earthquakes, especially the 1971 earthquake, were effective in the loss of water from the lake. However, satellite photographs show that the agricultural dams built in recent years, not the earthquake, were more effective in the loss of water from the lake (Anonymous, 2012).

Fishing is done in some of the dams built on the streams flowing into the lake; the negative aspects of this practice are naturally reflected in the area. However, while the local people were happy with the practice since they made a profit in agriculture and fishing in the first years when the dams were built, they started to object and complain because the dams could not hold water in the 2020s.

The lake bed is shrinking due to the withdrawal of water; the drying lake beds are being ploughed by the surrounding field owners or villagers and converted into agricultural land. There are legal cases on the subject. The villagers generally seem happy with the drying up of the lake for now. There are animal shelters, feedlots, farms and various agricultural crops being grown in the drying areas. Figure 5.



Figure 5a: Main vegetation types in environs of Burdur Lake (hydropytic habitats: marshes and meadows).



Figure 5b: Main vegetation types in environs of Burdur Lake (aquatic habitats: meadow, steppe, macque and forests).

According to the study of Atılgan et al. (2006); animal husbandry is the main source of income in Burdur province. The amount of manure in animal husbandry enterprises is very high. Improper storage of manure damages the environment and the lake. When phosphorus secreted from manure mixes with water

resources, algae develop and this reduces the amount of oxygen in aquatic habitats and increases the mortality rate in fish populations. This negatively affects the biodiversity and water quality of the lake. For this, an ecological purification system is needed. Figure 6, 7.



Figure 6: As the water level around Burdur Lake has decreased, the area has turned into meadows and pastures, making it a suitable environment for animal husbandry. For this reason, animal producers in the area seem happy with the lake's withdrawal for now.



Figure 7: As the water in Lake Burdur recedes, swampy areas turn into steppes, thorny and poisonous plants that animals do not eat dominate the vegetation; or the area remains bare.

Livelihood of the local people depends on agriculture and animal husbandry; or industries established in relation to these. A large part of the lake is within the borders of Burdur and a part is within borders of Isparta province. Isparta side is adjacent to the lake with Keçiborlu district, and Burdur central district is adjacent to the lake with central district and villages. Most of Türkiye's oil rose gardens are also concentrated in this area. 12 of 25 rose oil factories in total are in Keçiborlu; a few of them are in Burdur villages. Their wastewater also reaches the lake without being purified. An ecological purification is also required for this wastewater.

A grape variety called 'Burdur Dimriti' (from *Vitis vinifera*) is an agricultural plant with brand value for Burdur, and its production is mostly carried out in this area. The situation is the same for vegetable and fruit production. The situation that needs to be understood here is the misconception of seeing water resources only as a water reservoir. Burdur Lake is a microclimate together with its surroundings. It is the reason

for creating a different, mild climate within main Mediterranean climate type. Agriculture and animal husbandry are weakening due to the lack of water in Burdur Lake; the local people complain that they cannot grow agricultural plants as easily as before. Drying up of this lake, which is guaranteed by international agreements, is not a situation that the local people or the state would want.

Excessive grazing and mowing are carried out in the surrounding area. This situation increases the plant species resistant to grazing and mowing; suppresses non-resistant species. The weakening of the vegetation disrupts the shelters and habitats of wild animals. Animals subject to the microclimate of Burdur Lake are harmed by the application. Figure 8.



Figure 8: As a result of overgrazing around Lake Burdur, *Cordopathyum corymbosum*, a thorny plant, has become dominant in the area; populations of *Frenkenia hirsuta* (in bottom right) have been severely damaged by field clearings.

Burdur; with its marble and mines, is perhaps the most damaged and nature-deteriorated province in Türkiye. Topography is deteriorating, climate is changing, drought is increasing, and living beings are having difficulty adapting to this change. Crumbling rock pieces and dust are blown to settlements (such as Senir town), the wind direction and intensity are changing, underground water is polluted, soil animals and waterways are changing, noise pollution scares animals, especially birds, causes migration, and disrupts the nests of snakes, ants, etc. (Özçelik et al., 2014).

Except for representatives of administrative authorities, there is almost no participation from local people and administrations in environmental protection meetings that draw attention to dangers in and around the lake. This indifference upsets nature lovers and scientific circles. Rural people seem to be happy with the silence of local administrations and gaining new agricultural lands, from fishing in dams for agricultural irrigation purposes to opening illegal wells, without considering the future.

RESULTS AND SUGGESTIONS

Burdur Lake, one of the 14 Ramsar sites in Türkiye, is currently under the threat of drying up due to various reasons (Özçelik et al., 2014; Özhatay et al., 1998-2000). These results and our recommendations against the threats are stated below:

Burdur lake is located in a closed basin (Burdur basin) and one of the deepest lakes in Türkiye. In the last 40 years, the water level of Burdur Lake has decreased vertically by 17 m and its surface area has decreased from 230 km³ to 150 km³. It has been continuously losing water since 1986. While the lake level was 857.62 m in 1970, it dropped to 840.5 m in July 2018. This trend shows that the lake is rapidly drying out and is in danger (Anonymous, 2012).

The lake is fed by rainfall, seasonal and permanent streams and groundwater. The important streams feeding the lake include Bozçay, which is currently dry and located at the southwestern end of the lake, and Ulupınar, Bayındır, Büğdüz, Kurna Çerçin, Keçiborlu (Adalar Çayı) streams towards the east. Not building new dams on important streams feeding lake is very important in maintaining water level of the lake. The dams that were built did not serve their purpose either, and most of them do not accumulate water. Waters of this lake were distributed to about 25 lake/pond areas and evaporation was increased, and with this application, the waters feeding the main source (Burdur Lake) were eliminated, and today's undesirable results have emerged.

Dams built for agricultural purposes are the most important factor in the lake's water loss and the narrowing of its bed. These dams will soon end their lives due to water insufficiency and will become idle. Dams could be built on some streams flowing into the lake, but it is scientifically impossible to build enough dams to completely drain the lake and prevent water inflow. How to correct this misconception should be the most important agenda of the governing institutions. Water of dams that do not serve their purpose, that is, do not hold water, should be transferred to Burdur Lake.

At the same time, high amounts of animal grazing activities carried out within the ecological area of the lake cause the destruction of vegetation, the deterioration of coastal landscape and water pollution (Anonymous, 2012). It is a must to carry out grazing activities at a certain distance from the lake and to apply a regime such as rotational grazing. Animal husbandry, accumulation of manure and the withdrawal of the lake and its feeding with wastewater have increased the mosquito population around the lake. Claystone dust coming out of the drying areas of the lake disturbs the surrounding settlements. In order to prevent dust formation in the withdrawn lake areas, a 15-20 cm thick layer of fertile soil should be poured into this area and these areas should be planted.

The unconscious use of barn manure and pesticides negatively affects the lake and surrounding ecosystem. The awareness of the agricultural and animal husbandry sector should be raised on this issue; excessive use of pesticides and water should be prevented; however, the producer sector should be directly supported and guided by the Provincial Directorate of Agriculture and Forestry with seeds, financial support and contracted production.

The obtained barn manure should be collected under suitable conditions and burned with biological methods, then used in agricultural areas. Biological burning is done as follows; After collecting raw barn manure in a suitable area, spraying water on it, throwing unburned powdered lime on it, covering it with a plastic material, mixing it every 10-15 days for a period of 3 months.

In its current state, the lake is rapidly progressing towards becoming a rotten area. The shape and type of plants around it are changing, turning red, and shameless weeds are increasing. In order to suppress the bad smell, local governments recommend planting *Capparis spinosa* and Lavender (*Lavandula x hybrida* or *L. angustifolia*) around the lake. Production center of *Capparis* is known as Burdur, it is a wild plant

species produced for food purposes. It has no odor value. Even if the strong smell of lavender suppresses the smell of organic pollution, will we be able to use the lavender produced in this polluted environment in the cosmetics and pharmaceutical sectors? If we cannot use it, suppressing the smell is a wasted effort. It may be important in terms of environmental regulation. Its oil can only be used in cleaning products, and the above-ground parts of the plant can be used in the purification system explained below. Figure 9.



Figure 9: The dried areas around Burdur Lake are being ploughed by the surrounding villagers and turned into fields. Official institutions apply retribution instead of punishment. This practice encourages the occupiers. In some places, construction waste is dumped to turn it into the province's garbage dump.

Instead of water-loving plants(Misir (Zea mays), Fiğ (Vicia sativa vb.), Yonca (Medicago sativa), Sorgum (Sorghum bicolor vb.), Hayvansal Pancar (Beta vulgaris var. papacea), Korunga (Onobrychis viciifolia) vb.) drought-resistant plants should be suggested to farmers and encouraged by the Ministry of Agriculture and Forestry. Corn, apple, peach, apricot, sugar beet, etc. are plants that love water very much and are produced abundantly in the area. Agriculture and animal

husbandry should be monitored carefully: Open manure storage activities in barns and pens around the lake and along the rivers should be stopped. Because the phosphorus load coming from these places triggers eutrophication in the lake. Groundwater withdrawal should be restricted. Excessive water use by rose oil factories in the basin should be controlled and prevented. Wild irrigation should be completely banned in agriculture.

Excess wastewater and overgrazing have damaged the floristic structure around the lake. In order to protect the area, some cosmopolitan exotics (Skunk Tree/ Ailanthus altissima, Blue Cypress/ Cupressus arizonica, Acacia/ Robinia pseudoacacia) that consume a lot of water were planted, and this practice did more harm than good because it evaporated the water in the soil.

Due to the decrease in the lake level, the relative humidity decreases and the microclimate effect of the lake decreases. Accordingly, a decrease in agricultural productivity is observed. The grape variety called 'Burdur dimriti', which is a brand, is damaged by these changes and its production decreases (Anonymous, 2012). As a result of the withdrawal of water in the fields in Kılıç village, collapses occur in the fields. These collapses may turn into sinkholes in the coming years. There should be no further intervention in the water regime of the basin.

Fossil beds located very close to the relevant area are also affected by the area degradation (Yıldırım et al., 2005).

Problems of Burdur Lake are important not only for ecology but also for regional tourism. The loss of aesthetic value, bad odor problems and environmental pollution cause the area to lose value in tourism. For this reason, there is a need for landscaping around the lake.

In the last 5 years, the risk of forest fires has increased in June, July and August, as evaporation and drought have increased and the relative humidity of the air has decreased.

We cannot increase amount of rainfall. However, we can use the existing reserve economically. We can purify and evaluate wastewater. For this:

In park and garden irrigation, purified water should be used instead of clean water. Rainwater collection systems should be brought to cities and villages.

The retaliatory fines applied to the land occupation areas around the lake are far from being deterrent. From time to time, due to the

intervention of political authorities, the implementation of these fines becomes difficult. Therefore, political authorities should not act in a way that encourages citizens who occupy treasury land and damage the natural structure.

Industrial and domestic wastewater is purified and discharged into the lake, but a yellowish and foamy zone is formed in the area where the wastewater joins the lake. Life is quite weak here. It indicates the inadequacy of the purification. Burdur Lake is in serious danger, especially due to the waste from factories, mines and marble quarries around it, as well as the domestic wastewater of the central district of Burdur being discharged into the lake. More importance should be given to the purification process. On the shores of Burdur and Yarışlı Lake, the following halophytes are also found: Suaeda cucullata (endemic), Atriplex tatarica, Frankenia hirsuta, Chenopodium murale, Lemna minor, Puccinellia distans, Petrosimonia brachiata, Aeluropus litoralis, Halimione portulacoides, Halocnemum strobilaceum, Salsola spp., Suaeda spp. are characteristic taxa of the soda halophyte habitat. Diaspores of these plants will also come from the lake surroundings (Yurdakulol et al., 1996; Özçelik et al., 2016). Wild fruit trees such as Elaeagnus angustifolia, Hippophae rhamnoides, Pyrus spp., Sorbus spp., Crataegus spp., Phyracantha coccinea, Berberis spp., etc. will be planted in the empty areas on the lake shore, which will also be used by the public. For landscaping purposes, Vinca minor, Lavandula spp. and Capparis spinosa should be planted predominantly. Capparis spinosa and Lavandula spp. should be planted in sloping areas (Gül and Özçelik, 2016; Özçelik and Koca, 2011). From here, a vertically stepped reservoir should be built and purified water should be collected and given to natural grass, pastures and marshes. From there, excess water should be filtered from the soil and delivered to the lake. The area should be fenced and closed to animals and humans and animal entrances.

There can be no water circulation in a closed basin. If there is no water circulation, organic waste accumulation and pollution in the lake are inevitable. Empty dreams such as draining the Kocapınar water between Keçiborlu and Dinar to Lake Burdur and saving the lake from drying up can also be evaluated as unserious solutions. Despite the warnings of the scientific community, the fact that the implementing institutions do not sufficiently focus on the issue is seen as the most important obstacle that makes the solution of the problem difficult.

Due to the inadequacy of the measures taken, the pollution and ecosystem deterioration in the lake are increasing year by year. There is a board within the Burdur Governorship to protect and manage the Burdur Lake Ramsar site. It receives members from several institutions. According to the report of this board reflected in the press; the reason for the drying of the lake is excessive evaporation. Evaporation will be prevented by covering the lake with a tarpaulin. Our scientific suggestion against this unserious suggestion is as follows; The 6th Regional Directorate of Nature Conservation and National Parks should be the sole responsible for the area, and opinions should be obtained from other institutions and universities in the region, especially those conducting research in the area. Other official institutions can only make suggestions to the responsible institution.

Acknowledgements

This study was carried out within the scope of 3 projects:

The project titled "Biodiversity Inventory Monitoring Work of Terrestrial and Inland Water Ecosystems of Burdur Province" commissioned by the Ministry of Forestry and Water Affairs of the Republic of Türkiye. We would like to thank the General Directorate of Nature Conservation and National Parks for financially supporting the study; the contractor firm AnaDOKU (Anatolian Nature and Culture Protection Cooperative);

The contractor firm Ekoiz Environment and Social Planning Research Education and Consultancy Trade Ltd. Co. of the "Biodiversity Inventory Monitoring Work of Terrestrial and Inland Water Ecosystems of Ispartar Province" commissioned by the Ministry of Forestry and Water Affairs of the Republic of Türkiye and especially the project manager Prof. Dr. Fahrettin Küçük;

Revised Management Plan of Burdur Lake Wetland Project. We would like to thank the contractor firm Ançeo (Anadolu Ormancılık, Haritacılık, İnş. Tic.ve San. Ltd. Şti.) and the project work teams, especially the project manager Prof. Dr. İskender Gülle;

We would also like to thank the SDÜ Rectorate, which gave the necessary permission for our work and facilitated the legal procedures; the 6th Regional Directorate of Nature Conservation and National Parks.

REFERENCES

Anonymous. (2012). TR. BAKA (Western Mediterranean Development Agency) report: problems, solutions, management and economic potential of Burdur lake, Isparta.

Anonymous, 2024.

https://ekotaban.tarimorman.gov.tr/alan/2889

Anonymous, 2025.

https://www.ramsar.org/country-profile/turkiye

- Atılgan, A., Erkan, M., Saltuk, B. & Alagöz, T. (2006). Environmental pollution caused by manure in livestock farms in the mediterranean region. *Ekoloji*, 15(58): 1-7
- Çetin, A., Erdoğan, N. & Genç, H. (2013). Flora of the Burdur lake surroundings (Türkiye). Biological Diversity and Conservation, 6(2), 55-76.
- Eken, G., Bozdağ, M., İsfendiyaroğlu, S., Kılıç, D.T. & Lise, Y. (2006). Natural areas of Türkiye I., II., Mas Matbaacılık A.Ş., Ankara.
- Gül, A. & Özçelik, H. (2016). Determination of some ground cover plants growing naturally in lakes region of Türkiye. SDU Journal of Science (E-Journal), 11(2), 13-44.
- Gülle, İ., Özçelik, H., Bellioğlu, G. et al. (2018).

 Burdur lake wetland revised management plan project. TR. Ministry of Agriculture and Forestry, Nature Conservation and National Parks 6th Regional Directorate, by Angeo (Anadolu

- Ormancılık, Haritacılık, İnş. Tic.ve San. Ltd. Şti.), Ankara.
- Özçelik, H., Çinbilgel, İ., Koca, A. & Muca, B. (2014). Mermer ocaklarının Burdur florası üzerine etkileri. *Ulusal Mermer Ve Taş Ocakları Onarım Teknikleri Sempozyumu*, 18-20 Eylül 2014, Bildiriler Kitabı: 191-204.
- Özçelik, H., Çinbilgel, İ., Muca, B., Koca, A., Tavuç, İ. & Bebekli, Ö. (2014). Burdur ili karasal ve iç su ekosistem çeşitliliği: koruma ve izleme çalışmaları. *SDU Journal of Science* (E-Journal), 9 (2), 12-43.
- Özçelik, H., Çinbilgel, İ., Muca, B., Tavuç, İ., Koca, A. & Bebekli, Ö. (2016). Plant I-inventory of *Burdur* Province (Economic, Rare and Endemic Plants). *Burdur Belediyesi, Kültür Yayınları*.
- Özçelik, H., Koca, A., 2011. Caper (Capparis L. /Capparaceae) Genus and its economic importance in Türkiye. 2nd International Non-Wood Forest Products Symposium, 8-10 Sept. 2011, Isparta: 32-40.

- Özhatay, N., Byfield, A. & Atay, S. (2005). 122 Important Plant Areas of Türkiye (ÖBA). Fauna, Flora International (FFI), Doğal Hayatı Koruma Derneği (DHKD) and İst. Üniv. Eczacılık Fak. İstanbul.
- Yıldırım, M.Z., Bahadır Koca, S., Kebapçı, Ü. & Koşal Şahin, S. (2005). Fossil Mollusca species in the vicinity of Yassıgüme village (Burdur-Türkiye). 1. Burdur Symp., 16-19 Oct. 2005. Proceeding Book,(2), 838-854.
- Yiğitbaşıoğlu, H. & Uğur, A. (2010). Environmental problems arising from land use characteristics in Burdur Lake Basin. Ankara University Journal of Environmental Sciences, 2(2), 129-143.
- Yurdakulol, E., Öncel, I., Demirörs, M., Yıldız, A. & Keles, Y. (1996). Ecological and syntaxonomic investigation of salt marshes vegetation in the vicinity of Burdur and Acıgöl (Denizli/Turkey). *Ecologia Mediterranea*, 22 (1-2), 51-61.
