Doğu Fen Bilimleri Dergisi / Journal of Natural & Applied Sciences of East 8(2): 80-88 (2025)

Araştırma Makalesi / Research Article

The First Record of Greater Flamingo *Phoenicopterus roseus* (Pallas, 1811) from Diyarbakır Province, Türkiye

Rahmi Aktaş [1], Recep Karakaş [2*]

[1] University of Dicle, Graduate School of Natural and Applied Science, 21280 Diyarbakır, Türkiye
[2*] University of Dicle, Faculty of Science, Department of Biology, 21280 Diyarbakır, Türkiye
e-mail: rkarakas@dicle.edu.tr

DOI: 10.57244/dfbd.1809475
Geliş tarihi/Received: 05/11/2025 Kabul tarihi/Accepted:11/11/2025

Abstract

The Greater Flamingo *Phoenicopterus roseus* is firstly determined in three different locations in the same period in Diyarbakır province. During the field excursions that conducted in the region between June and October 2025 the observed individual together with available earlier records for the region have been evaluated. Between 1 June and 8 October 2025 period, a total of 99 Greater Flamingo individuals comprising both juveniles and adults were recorded at three distinct locations characterized by dam and pond habitats. These findings underscore the ecological value of freshwater systems in southeastern Anatolia and point to emerging environmental changes in the area. These observations show that flamingos make use of the region during the migration period, specifically from June until the first half of September. Although flamingos generally favour saline wetlands, their occurrence in these freshwater areas indicates they have adapted to using freshwater areas as well during migration. Recent assessments suggest that the migration routes of flamingos in Türkiye are more extensive than previously assumed and are shaped by the presence of diverse wetland ecosystems. Understanding the spatial and temporal distribution of the species is essential and important for effective conservation planning, particularly in light of ongoing threats such as habitat degradation, alterations in water management, climate-induced changes, and increasing human disturbance.

Key words: *Phoenicopterus roseus,* Greater Flamingo, Diyarbakır, Türkiye.

Büyük Flamingo *Phoenicopterus roseus* (Pallas, 1811)'un Türkiye'de Diyarbakır İlinden İlk Kaydı

Özet

Büyük Flamingo *Phoenicopterus roseus*, üç farklı lokasyonda, ilk kez aynı dönemde Diyarbakır ilinde tespit edilmiştir. Haziran-Ekim 2025 tarihleri arasında bölgede gerçekleştirilen arazi çalışmaları sırasında, gözlemlenen bireyler, bölgeye ait daha önceki kayıtlarla birlikte değerlendirilmiştir. 1 Haziran-8 Ekim 2025 tarihleri arasında, baraj ve gölet habitatlarıyla karakterize edilen üç farklı lokasyonda hem genç hem de erişkin bireylerden oluşan toplam 99 Büyük Flamingo bireyi kaydedilmiştir. Söz konusu bulgular, Güneydoğu Anadolu Bölgesindeki tatlı su sistemlerinin ekolojik değerini vurgulamakta ve bölgede ortaya çıkan çevresel değişikliklere işaret etmektedir. Gözlemler, flamingoların göç döneminde, özellikle Haziran ayından Eylül ayının ilk yarısına kadar bölgeyi kullandıklarını göstermektedir. Her ne kadar flamingolar tuzlu sulak alanları tercih etseler de bu tatlı su alanlarındaki varlıkları, göç sırasında tatlı su alanlarını da kullanmaya adapte olduklarını göstermektedir. Son değerlendirmeler, Türkiye'deki flamingoların göç yollarının daha önce tahmin edilenden daha geniş olduğunu ve çeşitli sulak alan ekosistemlerinin varlığından etkilendiğini göstermektedir. Türlerin mekânsal ve zamansal dağılımını anlamak, özellikle yaşam alanı bozulması, su yönetimindeki değişiklikler, iklim kaynaklı değişiklikler ve artan insan kaynaklı rahatsızlıklar gibi devam eden tehditler ışığında, etkili koruma planlaması için elzem ve önemlidir.

Anahtar kelimeler: *Phoenicopterus roseu*s, Büyük Flamingo, Diyarbakır, Türkiye.

[1] The field studies of this research were carried out within the scope of master's thesis of one of author Rahmi Aktaş.

Introduction

The Greater Flamingo *Phoenicopterus roseus* (Pallas, 1811) is a widely distributed Palearctic waterbird species that breeds primarily in extensive saline and brackish wetland areas. The species occupies a broad range mainly from the southern Iberian Peninsula and coastal West Africa, spanning to the Mediterranean basin, extending eastward to the Southwest Asia, and extends southward through Sub-Saharan Africa -especially through East Africa- reaching as far as South Africa (Cramp, 1998; BirdLife, 2025). European distribution of the species mainly confined to Mediterranean basin (Tucker and Heath 1994). In addition, related to its wide distribution range and together with an increasing population trend (BirdLife, 2019) in many areas, it is classified as Least Concern (LC) species globally by IUCN (IUCN, 2025).

There are different estimations available that given for the overall population size of the Greater Flamingos globally; such as 550,000 and 680,000 individuals (Wetlands International (2015) or 690,000–910,000 individuals (Salvador et al., 2024). The size of European population of the species was reported approximately about 89,900 to 125,000 individuals (BirdLife, 2018). The breeding population of the species in Türkiye is believed to consist of 9,900 to 37,500 pairs, whereas the European breeding population is estimated at 35,900 to 133,000 pairs (BirdLife, 2021) together with increasing population trend. Likewise, the wintering population across Europe is thought to number between 234,000 and 420,000 individuals, while Türkiye hosts an estimated 58,300 to 146,000 wintering individuals (BirdLife, 2021). However, based on the Mid-Winter Waterbird Counts conducted in Türkiye between 2018 and 2022 periods, the highest number of individuals was recorded in 2021 winter as 79,231 individuals (DKMP, 2022; Karataş et al. 2022).

In Türkiye, formerly, the species is revealed as a resident species, mainly distributed across Inner Anatolia and the Aegean region, with an estimated population size of 14,000 to 18,000 pairs (Kasparek and Bilgin, 1996). Despite of the existence of other breeding sites in the past, for example during the 1970s and 1980s, such as Sultan Marshes, Lake Seyfe, and the Ereğli wetlands, two principal regions have remained the most significant recently; the Gediz Delta and Lake Tuz. These two special areas stand out as critical habitats and hosting a significant portion of Türkiye's flamingo population (Balkız et al., 2007; 2015). Recent evaluations indicate that Great Flamingos mainly showing distribution in the western half of the Türkiye as a resident species while using much larger parts of the country during transition periods. Also, large gatherings of flamingos -about 1,000 individuals- observed around Lake Van, particularly between late-summer and early-autumn, are believed to originate from the breeding population at Lake Urmia in Iran (Kirwan et al., 2008). Juveniles from this Iranian population have been documented to dispersing over vast distances, reaching western and southern part of Europe, northwestern Africa, and even the Arabian Peninsula. Likewise, flamingo chicks that ringed in the Gediz Delta -Türkiye- have been recorded reaching various regions across the eastern and western Mediterranean, as well as Israel and northwestern Africa.

Türkiye hosts a significant portion of the Eastern Mediterranean population of the Great flamingos. Species mainly occupies brackish / saline wetland areas for feeding and breeding aims as colonies of up to a few thousand individuals. Even though some studies have suggested that the Mediterranean population has bred more frequently in Türkiye since the 2000s (Carboneras and Béchet, 2020), the overall trend appears to show a decrease in numbers. Despite a seemingly stable overall population, the species is classified as endangered in Türkiye, nationally (Kılıç and Eken, 2004). Great flamingo is relatively common in coastal and western regions, but its presence in the inland areas of southeastern Türkiye remains poorly known. Historical records suggest that flamingos were observed in Southeastern Anatolia, including the Diyarbakır area, as early as the 19th century (Kirwan et al., 2008). Although it has been reported that the species was rarely observed in the Southeastern Anatolia Region during migration periods, formerly, there have been no records or details from the past 20–30 years (Kirwan et al., 2008). Nevertheless, the region's warm climate, seasonal wetlands, and extensive river systems may could serve as a migration corridor or temporary habitat, even though evidence for regular breeding remains absent. In this paper, the first verified record of species from Diyarbakır have been presented, supported by direct observation and photographic documentation.

Material and Methods

Methods

During the field excursion that conducted in Devegeçidi Dam (Figure 1) between June and October 2025 the observed individual of Great flamingos together with available earlier records for the region and Diyarbakır province was evaluated. These long-necked and long-legged waterbird species, which prefer shallow wetlands especially for feeding, are very easily identifiable morphologically (Figure 2). Field observations were performed using standardized ornithological equipment, including binoculars (8×40), telescope (20-60×80) and ornithological field guides. All procedures followed established protocols for avian monitoring to ensure consistency and reliability in data collection (Bibby et al. 1998; Mullarney et al. 1999).

Figure 1. Locations of the where Greater flamingo determined in Diyarbakır province

Figure 2. Three juveniles that observed Devegeçidi Dam, Diyarbakır province

Study Area

All of the records have been obtained from man-made wetland areas that known as pond and dam. One of the sites Devegeçidi Dam where observed records were collected is designated as an Important Bird Area's -IBA's- (No. TR176), while the other two - Bozçalı and Yayık Village- exhibit the ecological features of a pond and a dam, respectively (Kılıç and Eken, 2004). The distance between Devegeçidi and Yayık village (near Batman Dam) is approximately 97 km, while the distance between Devegeçidi and Bozçalı village is about 46 km as the crow flies. All of the individuals observed in shallow freshwater areas and altitude range is about 660-748 m. In general, water depth decreases due to high summer temperatures and the use of water for irrigation purposes all of the region including mentioned location. Moreover, all of these locations are characterized by terrestrial and freshwater ecosystems.

Results

Totally 99 individuals recorded including young and adult individuals between 1 June 2025 to 8 October 2025 periods without the number for the group given in the news. The recorded individual during field excursions and other records during 2025 year has given in table (Table 1). The records were obtained from three different locations; Bozçalı Village, Yayık Village (near Batman dam) and Devegeçidi Dam areas. The first record of the species is based on a news source stating that individuals were found in Bozçalı village of Çınar district of Diyarbakır province on June 1, 2025 (News, 2025). The second record was obtained based on vocalizations detected for the first time in the Devegeçidi Dam area on 21 August 2025, without any visual confirmation of the species. During the observation on 31 August 2025, three individuals were observed on the shore of the dam lake. These individuals were observed for approximately 30 minutes while they were feeding in the shallow area. On the next observation, 07 September 2025, a total of four individuals were observed while they feeding near the pond. Three of these individuals were observed in a group, while another was feeding alone approximately 15 meters away. During this observation, it was also observed that the individual feeding alone was occasionally disturbed by the Eurasian Coot *Fulica atra.* In the observation on 15 September 2025, 30 individuals were seen in flight. These individuals were flying from the direction of north to south-west. Their flight formation does not have a "V" formation like that of geese. During the observation on 23 September 2025, no flamingo individuals were observed in the area. The other hand, during the field excursion on 8 October 2025, 25 individuals observed while they flying to the direction of north to south-west. During subsequent observations, no flamingo individuals were observed in the study area.

Table 1. All records of Greater flamingo in the region during 2025 year.

Location	GPS	Latitude	Dates	Number	Observer / Resource
Diyarbakır (Bozçalı Village)	37S 619064 / 4178709 N	670 m	01.06.2025	A group	News
Batman Dam (Yayık Village)	37S 683841 / 4235420 N	660 m	15.07.2025	37	M. YILMAZ
Devegeçidi Dam	37S 586284 / 4212582 N	748 m	31.08.2025	3	R. AKTAŞ & R. KARAKAŞ
Devegeçidi Dam	37S 586284 / 4212582 N	748 m	07.09.2025	4	R. AKTAŞ & R. KARAKAŞ
Devegeçidi Dam	37S 586284 / 4212582 N	748 m	15.09.2025	30	R. AKTAŞ & R. KARAKAŞ
Devegeçidi Dam	37S 586284 / 4212582 N	748 m	08.10.2025	25	R. AKTAŞ & R. KARAKAŞ

These records suggest that flamingos pass through Diyarbakır during migration, or possibly when wetland conditions are favourable. The current habitats including locations where the species was reported during this study that support these sightings include ponds, small wetlands, and minor dam lakes. These water bodies often experience reduced water levels and become shallower, especially during the migration period, and may be used by the species as stopover sites or feeding grounds. Furthermore, the observations show that flamingos make use of the area during the migration period, specifically from June until the first half of September. Considering that the incubation period of flamingos in Türkiye lasts from early April to mid-June, and that they reach sexual maturity at approximately 3–4 years of age (Kirwan et al., 2008; Karataş et al., 2022), with most individuals observed in the region being immature, it can be inferred that younger flamingos initiate migratory activity earlier than breeding adults. After the breeding season, the species demonstrates different distinct dispersal behaviours, and also, often returning to previously occupied habitats that phenomena known as philopatry. Although species prefers shallow and salty or alkaline wetlands mainly during breeding season, inland marshes and lakes are utilized by the species in outside of the breeding season, as reported in multiple studies (Shirihai, 1996; Kirwan et al., 2008; Salvador et al., 2024). These records from Diyarbakır indicate that species using small or large wetlands such as less depth ponds together with dams during spring migration season.

Although the species is not currently threatened, the conservation and monitoring of wetlands which serve as critical habitats as feeding and breeding areas together with stopover sites during migration are essential for its long-term survival. The importance of shallow wetlands, especially those suitable for the ecology of the species, is even more prominent, as in the example of the shallow ponds next to the Devegeçidi Dam. In addition, this study has once again shown that flamingos may use freshwater wetlands as stopover sites during the migration period.

Hence, Türkiye functions as an ecological bridge between the flamingo populations inhabiting the western Mediterranean and those of southwestern Asia. Understanding the spatial and temporal distribution of the species is essential and important for effective conservation planning, particularly in light of ongoing threats such as habitat degradation, alterations in water management, climate-induced changes, and increasing human disturbance. Due to these wetlands play for numerous bird species including flamingos -both during migration and breeding periods-, developing protective measures and raising awareness for the protection of these special areas is critical importance for preserving natural values and biodiversity. Recent assessments suggest that the migration routes of flamingos in Türkiye are more extensive than previously assumed and are shaped by the presence of diverse wetland ecosystems. Consequently, wetlands play a crucial role in maintaining the breeding, feeding, and resting cycles of these birds. Safeguarding such habitats is therefore essential for sustaining the migration of flamingos as well as other waterbird species.

Discussion

The flamingo population inhabiting the Mediterranean basin within the Western Palearctic region functions as a metapopulation, interconnected with groups in Northwest Africa and Western Asia (Balkız, 2006). This structure is presumably shaped by gene flow, driven by the dispersal of juvenile individuals across regions. This species typically inhabits shallow wetlands with fluctuating water levels, which influence their foraging behaviour and often necessitate relocation between feeding sites (Johnson and Cézilly, 2007; Delany and Scott, 2006). Movements of individuals across population boundaries serve as a key process linking different populations into a larger biological network. This movement fosters genetic exchange, counteracts isolation, and shapes the hierarchical structure typical of metapopulations (Nager et al., 1996; Balkız et al., 2015).

In Türkiye, Greater flamingos exhibit a combination of short-range movements - such as natal dispersal and post fledging wandering- and long-distance migrations that connect Anatolian colonies with sites across the Mediterranean and Africa. Ring recoveries have revealed individuals originating from breeding grounds in Türkiye reached regions as distant as the western Mediterranean, Israel, and parts of West Africa (Amat et al., 2005; Balkız et al., 2007; Boucheker et al., 2011; Balkız et al., 2015). And also observed individuals in Diyarbakır may have been originated from the breeding population at Lake Urmia in Iran due to juveniles from Iranian population have been recorded from Africa and Arabian Peninsula (Kirwan et al., 2008).

Türkiye serves as a vital migratory bridge between Europe and Africa; East and Mediterranean population of flamingos occasionally arriving both for breeding and foraging (Balkız, 2015) or use the region for transit passing purposes. Although flamingos generally favour saline environments and shallow lakes, they may temporarily utilize freshwater habitats along their migration routes. Despite having beaks that are anatomically specialized for filtering nutrients from water, flamingos are believed to adapt their feeding strategies to access various food sources in different habitats particularly in freshwater ecosystems. This behavioural flexibility enhances their ability to respond to environmental changes and plays a key role in their ecological success. In this context, the wetland ecosystems in or near Diyarbakır such as dams or ponds play a strategically important role. Observations of flamingos in this region, though infrequent, underscore its ecological significance and its capacity to support migratory bird species. Due to these wetlands play for numerous bird species including flamingos -both during migration and breeding periods-, developing protective measures and raising awareness for the protection of these special areas is critical importance for preserving natural values and biodiversity.

Although some bird distribution maps have included the Southeastern Anatolia Region and Diyarbakır Province within the species' distribution range (Furtun et al., 2021), there are no documented observation according to published scientific literature or ornithological fieldwork conducted in the area during last two-three decades (Biricik, 1996; Karakaş, 2010; 2017; Kılıç, 2013). This evaluation represents the first confirmed records of species for the region at least over the last 20-30 years. These records suggest that flamingos used the region and Diyarbakır during migration, or at least perhaps when wetland conditions are favourable (Aktaş, 2025). Also, this study indicates that both flamingos' migration range may expanding and the use of such artificial wetlands as alternative habitats during migration is important for preserving biodiversity in the region. Although no specific analysis of climatic parameters has been conducted, the occurrence of the species in Diyarbakır may be associated with global warming or ongoing ecological changes in the region. Furthermore, assessing the potential impact of climate change on the migratory behaviour and routes of this species constitutes the focus of a distinct research effort.

Conclusions

As a conclusion, it could be stated that the Greater flamingo *Phoenicopterus roseus* exhibits a well-defined distribution across Türkiye, with Lake Tuz and the Gediz Delta functioning as core breeding sites. Occasional nesting occurs in other wetlands, and numerous stopover locations are utilized during migratory movements. While recent population trends appear promising, the species remains vulnerable to a range of threats that could compromise these advances. Sustained conservation efforts will require ongoing population monitoring, the preservation of key hydrological systems, protection of essential habitats, and adaptive strategies to confront emerging challenges such as climate change and intensified competition for water resources. Due to its unique geographical position and geological history, Türkiye hosts an extraordinary array of ecosystems and wildlife components including birds. Over time, however, this natural heritage has come under increasing pressure from human activities such as urbanization, intensive farming, unsustainable forestry and fishing, and pollution. Consequently, many rare ecosystems and the species that rely on them have experienced significant declines. So, the conservation of these critical habitats and the species that rely on them should be considered a responsibility toward future generations, and the necessary measures must be taken.

Acknowledgements

We would like to thanks to Mr. Muhammed YILMAZ for sharing his observation records and drone footage with us.

References

Aktaş, R., (2025). *Unpublished information based on observations that conducted in the Devegeçidi Dam within the scope of the master's thesis*, Dicle University.

Amat, J.A., Rendón, M.A., Rendón-Martos, M., Garrido, A., Ramírez, J.M., (2005). Ranging behaviour of greater flamingos during the breeding and post-breeding periods: linking connectivity to biological processes. *Biological Conservation*, *125*(2), 183-192.

Balkız, Ö., (2006). *Dynamique de la metapopulation de flamants roses en Méditerranée: implications pour la conservation.* Sciences et techniques du Languedoc, Université Montpellier II.

Balkız, Ö., Özesmi, U., Pradel, R., Germain, C., Sıkı, M., Amat, J.A., Rendón-Martos, M., Baccetti, N., Béchet, A., (2007). Range of the Greater Flamingo, Phoenicopterus roseus, metapopulation in the Mediterranean: new insights from Turkey. *Journal of Ornithology*, *148*(3), 347-355. https://doi.org/10.1007/s10336-007-0136-2.

Balkız, Ö., Onmuş, O., Sıkı, M., Döndüren, Ö., Gül, O., Arnaud, A., Germain, C., Isfendiyaroğlu, S., Özbek, M., Çağlayan, E., Arac, N., Parmak, B., Özesmi, U., Béchet, A., (2015). Turkey as a crossroad for Greater Flamingos Phoenicopterus roseus: evidence from population trends and ring-resightings (Aves: Phoenicopteridae). *Zoology in the Middle East, 61*(3), 201-214. https://doi.org/10.1080/09397140.2015.1058452.

Bibby, C., Jones, M., Marsden, S. (1998). *Bird Surveys: Expedition Field Techniques,* Birdlife International Series.

BirdLife International. (2018). *Species factsheet:* Greater Flamingo *Phoenicopterus roseus*. Downloaded from https://datazone.birdlife.org/species/factsheet/greater-flamingo-phoenicopterus-roseus on 08/10/2025.

BirdLife International. (2019). *Phoenicopterus roseus* (amended version of 2018 assessment). *The IUCN Red List of Threatened Species* 2019: e.T22697360A155527405. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22697360A155527405.en. Accessed on 13 October 2025.

BirdLife International. (2021). *European Red List of Birds.* Luxembourg: Publications Office of the European Union.

BirdLife International. (2025). *IUCN Red List for birds.* Downloaded from https://datazone.birdlife.org on 21/10/2025

Biricik, M., (1996). Birds of Kabaklı Reservoir, Diyarbakır. *Turkish Journal of Zoology, 20*(2): 155–160.

Boucheker, A., Samraoui, B., Prodon, R., Amat, J.A., Rendón-Martos, M., Bacetti, N., Esquerre, F.V., Nissardi, S., Balkız, Ö., Germain, C., Boulkhssaim, M., Béchet, A., (2011). Connectivity between the Algerian population of Greater Flamingo Phoenicopterus roseus and those of the Mediterranean basin. *Ostrich*, *82*, 167–174. doi:10.2989/00306525.2011.607856.

Carboneras, C., Béchet, A., (2020). *Phoenicopterus roseus* Greater Flamingo. *In European Breeding Atlas 2. Distribution, Abundance and Change* (V. Keller, S. Herrando, P. Voříšek, M. Franch, M. Kipson, P. Milanesi, D. Martí, M. Anton, A. Klvaňová, M. V. Kalyakin, H. G. Bauer, and R. P. B. Foppen, Editors), European Bird Census Coiuncil & Lynx Edicions, Barcelona, Spain. pp. 177.

Cramp, S., (1998). *The Complete Birds of the Western Palearctic*, on CD-ROM.- Oxford University Press, Oxford.

Delany, S., Scott, D., (2006). *Waterbird population estimates.* Wetlands International, Wageningen, The Netherlands.

DKMP (2022). *Kış Ortası Su Kuşu Sayımları: 2022. Yayınlanmamış rapor,* T.C. Tarım ve Orman Bakanlığı, Doğa Koruma ve Milli Parklar Genel Müdürlüğü, Ankara, 40 s.

Furtun, Ö.L., Erciyas Yavuz, K., Karataş, A., (2021). *Trakus Türkiye'nin Kuşları.* Türkiye İş Bankası Kültür Yayınları, 2021, İstanbul.

IUCN, (2025). *The IUCN Red List of Threatened Species* 2018: https://www.iucnredlist.org/species/22697360/155527405 Accessed on 10 Oct 2025.

Johnson, A., & Cézilly, F. (2007). *The Greater Flamingo*. T & AD Poyser.

Karakaş, R., (2010). Bird diversity in Bismil Plain IBA's with new records for South-eastern Anatolia, Turkey. *European Journal of Wildlife Research,* 56, 471–480. DOI:10.1007/s10344-009-0336-6.

Karakaş, R., (2017). Ornithological importance of artificial ponds: a case study at Kabaklı Pond, south-eastern Anatolia, Turkey. *Paddy and Water Environment, 15,* 919–930. DOI:10.1007/s10333-017-0602-2.

Karataş, A., Yavuz, N., İsfendiyaroğlu, S., Bulut, Ş., (2022). Flamingolar (Phoenicopteriformes) ve Türkiye'deki Flamingo Türleri. *Doğanın Sesi*, *5*(10), 4-16.

Kasparek, M., Bilgin, C.C., (1996). *Kuşlar (Aves).* In: A. Kence and CC. Bilgin (Eds) Türkiye Omurgalılar Tür Listesi [*List of Turkish Vertebrates*]. TÜBİTAK, Ankara, p. 27-87.

Kılıç, D.T., Eken, G., (2004). *Türkiye'nin Önemli Kuş Alanları – 2004 Güncellemesi.* [*Turkey's Important Bird Areas – 2004 Update.*] Doğa Derneği-BirdLife International, Ankara, Turkey.

Kılıç, A., (2013). *Diyarbakır - Devegeçidi Barajı Kuşları [Birds of Diyarbakır-Devegeçidi Dam]*. In: Haspolat, Y.K. (ed): Diyarbakır Yerüstü Kaynakları 2 *[Above-ground Resources of Diyarbakır -2]*: Wildlife and Rural Education and Ecotourism, Dicle University Publications, Diyarbakır. pp 5-15.

Kirwan, G.M., Boyla, K., Castell, P., Demirci, B., Özen, M., Welch, H., Marlow, T., (2008). *The Birds of Turkey.* Christopher Helm, London, UK.

Mullarney, K., Svensson, L., Grant, P.J., Zetterström, D., (1999). *Collins Bird Guide.* Harper Collins, London, UK.

Nager, R.G., Johnson, A.R., Boy, V., Rendon-Martos, M., Calderon, J., Cézilly, F., (1996). Temporal and spatial variation in dispersal in the greater flamingo (*Phoenicopterus ruber roseus)*. *Oecologia*, *107*(2), 204-211.

News 2025. https://www.diyarbakir.net/diyarbakirda-yillar-sonra-flamingo-surprizi Accessed 01.10.2025.

Salvador, A., Rendón, M.Á., Amat, J.A., Rendón-Martos, M.. (2024). Greater Flamingo (*Phoenicopterus roseus*), version 3.0. *In: Birds of the World* (S. M. Billerman and B. K. Keeney, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.grefla3.03.

Shirihai, H., (1996). *The Birds of Israel: A Complete Avifauna and Bird Atlas of Israel.* Academic Press, London, UK.

Tucker, G.M., Heath, M.F., (1994). *Birds in Europe: their conservation status*. BirdLife International, Cambridge, U.K.

Wetlands International, (2015). *Waterbird Population Estimates.* Available at: wpe.wetlands.org. (Accessed: 17/09/2015).