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ATANASOVSKO LAKE (BLACK SEA COAST, BULGARIA) – A NEW EUROPEAN BREEDING SITE OF THE GREATER FLAMINGO *Phoenicopterus roseus*

Atanasovsko jezero (Crnomorska obala, Bugarska) – novo europsko gnjezdilište plamenca Phoenicopterus roseus

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The Greater Flamingo *Phoenicopterus roseus* is considered a Tertiary relict in the modern avifauna of Europe. On the continent, there are no records of its distribution during the Pleistocene (Tyrberg 1998). Its preglacial presence on the continent has not been established (Mlikovsky 2002), but the Croizet flamingo (*Phoenicopterus croizeti* Gervais, 1852) in the Neogene of Europe is known from the Oligocene-Miocene in France, Germany, and the Czech Republic. In the Balkans and Bulgaria, Greater Flamingo's presence is only of the Holocene age. In the last 40 years, the species has been included in the national Red Book of Bulgaria as a rare species (Boev 1985).

During the last decade, the Greater Flamingo showed significant change in its status in Bulgaria, being a typical vagrant until the first decade of the 20th century (Boev 2023). In October 2013, two juvenile birds appeared at Atanasovsko Lake (V. Mladenov, pers. comm.) and remained there until August 2014. The same year a bird monitoring scheme started at the lake, carried out by Vladimir Mladenov and Ralitsa Georgieva in the framework of an EU-funded LIFE Project 'Salt of Life' (LIFE11 NAT/BG/000362) (Georgieva & Mladenov 2017). The results of this monitoring showed an increase in the number of Greater Flamingos up to a maximum of 15 individuals with some fluctuations. By the end of 2018, it reached a new maximum of 134 birds (V. Mladenov & R. Georgieva, BSPB Bird Databank).

From June 2019 to June 2024, we carried out regular monitoring of the birds at Atanasovsko Lake within the framework of another EU-funded LIFE Project 'Lagoon of Life' (LIFE17 NAT/BG/000558). Birds were counted monthly according

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to a special methodology (IANKOV 2019), allowing coverage of the predominant part of the lake's area. Data was entered through the mobile application Smart-Birds Pro (smartbirds.org) into the BSPB Bird Databank.

Monitoring results showed that since August 2019 there has been a stable increase in the Greater Flamingo numbers, with values fluctuating between 79 and 4170 individuals (Fig. 1). During the entire period, the birds were present at the lake all year round, despite local and long-distance movements.

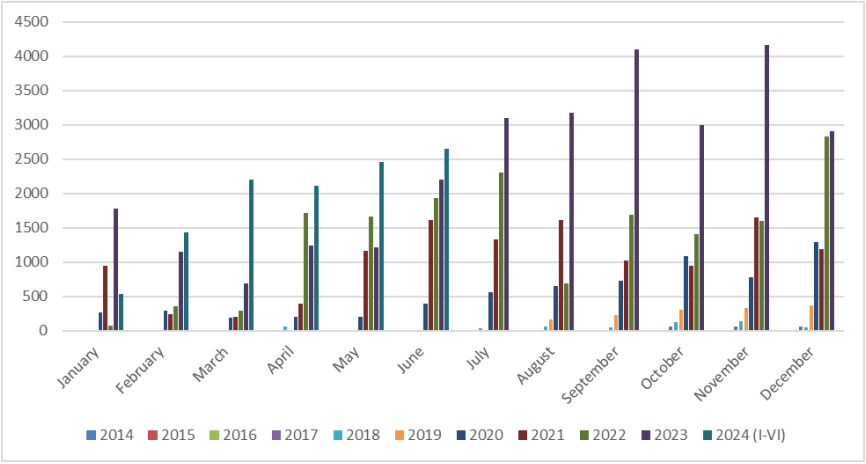

Figure 1. A monthly number of the Greater Flamingo *Phoenopterus roseus* at Atanasovsko Lake in the period 2014 – 2024.

Slika 1. *Mjesečna brojnost plamenaca Phoenopterus roseus na Atanasovskom jezeru u razdoblju 2014 – 2024.*

On the background of such development of the presence of the Greater Flamingo, it was not difficult to suppose that the species would start breeding. After numerous cases of elements of courtship displays observed occasionally after 2020, the first breeding attempt was recorded in June 2023, when several birds started to build nests in the southern part of Atanasovsko Lake. On 14 July 2023 in total 239 Greater Flamingos were observed in a breeding colony in a different place from the initial one. There were 88 nests, with 20 birds sitting on them. Due to the sensitivity of the species, no further interventions took place to clarify the stage of nesting, but the colony was active for too short period for successful breeding. It is possible that human disturbance was a serious threat as well, as the news about nesting flamingos attracted many people, some of them approaching too close to the colony. No nestlings were observed in 2023.

During the regular monthly monitoring of the birds at Atanasovsko Lake (carried out in days with optimal observation conditions) no Greater Flamingos was

observed on 16 March 2024 and on 13 April 2024 in the location where the colony was situated in 2023. On 16 May 2024, however, 12 flamingos were sitting on nests in this colony, and 2 other birds were staying next to other nests there.

On 16 June 2024, we observed in the colony two separated groups of 96 and 72 adult Greater Flamingos with 13 and 15 nests. Six flamingos were sitting on nests and 3 juvenile Greater Flamingos aged 5-7 days old were staying on other nests with their parents nearby. To avoid any disturbance, we monitored the nests only from a distance, and did not announce the news during the next two months. About 45 adult Greater Flamingos were also observed in the colony on 12 August 2024.

The described colony is situated in one of the most remoted 'evaporation pools' of the southern part of Atanasovsko Lake. The pool is bordered with about 50 cm high wooden dikes. The nests are placed on a natural narrow mud island within the pool. Since 1903 the shallow lagoon has been used as salt works, which continues until now in the southern part of the lake, producing salt in a traditional way. Usually, there is very little human presence in this area between March and September, when salt collection starts.

On 16 June 2024 in the Northern part of Atanasovsko Lake we found an abandoned colony of 72 empty nests, obviously not used (Fig. 3), as we did not note birds there during previous visits. It should be mentioned, that since 2022 the salt production in this part of Atanasovsko Lake has stopped and the water regime in the pools around the colony showed significant changes. On the other side, the location of this colony is very close to areas covered with vegetation, providing good conditions for the terrestrial predators.

Figure 2. Abandoned nests in the Northern part of Atanasovsko Lake (photo: Petar Iankov)
Slika 2. *Napuštena gnijezda na sjevernom dijelu Atanasovskog jezera (foto: Petar Iankov)*

We report the first breeding of the Greater Flamingo for Bulgaria, and the species should be added to the list of the breeding birds of the country. The Atanasovsko Lake is the sixth and the most northerly located breeding site of the species on the Balkan Peninsula (Keller *et al.* 2020). We assume that the species will sustainably increase its numbers, and the number of breeding pairs will gradually increase. It can be assumed that one of the primary reasons for the beginning of nesting of the species in the Atanasovsko Lake is the dynamics of the Mediterranean population of the species. An increase in the breeding frequency and productivity of the Greater Flamingo has been observed in the north of the Mediterranean (Béchet *et al.* 2012). The number of breeding pairs increased also in Türkye (Balkiz *et al.* 2015). Confirmation about this are the 11 ringed Greater Flamingos observed during the monitoring at Atanasovsko Lake (September to November 2020 – one bird from Spain; October 2021 – two from France and one from Italy; November 2021 – one from Türkye; July 2022 – one from Türkye, and one from Spain; February 2023 – one from Spain; September 2023 – one from Italy, one from Spain and one from Türkye). The beginning of breeding of the species in Bulgaria can also be considered as the consequence of global climate warming, which has recently been particularly expressed on the Balkan Peninsula.

It is important to plan and undertake measures to protect the breeding colony in the future years. This should be a joint task of the state authorities responsible for biodiversity conservation (Regional Inspectorate of the Ministry of Environment and Water in Burgas, Regional Governer Office in Burgas and Burgas Municipality), the operating company of the salt works ('Chernomorski Solnitsi' Ltd.), conservation NGOs working for the preservation of Atanasovsko Lake (Bulgarian Biodiversity Foundation and Bulgarian Society for the Protection of Birds), with involvement of the representatives of the local communities.

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SAŽETAK

Od 19. stoljeća plamenac je redoviti je posjetitelj močvara u Bugarskoj. U posljednjem desetljeću vrsta je cjelogodišnji stanovnik jezera Atanasovo u blizini grada Burgasa na obali Crnog mora. Godine 2023. ptice u jezeru prvi put su se počele gnijezditi, ali nisu polagale jaja. Dana 16. lipnja 2024. u jezeru su u dvije odvojene skupine od 96 i 72 odrasla plamenca s 13 i 15 gnijezda uočena 3 mlada plamenca starosti 5-7 dana. Atanasovsko jezero novo je, šesto i najsjevernije gnijezdilište ove vrste na Balkanskom poluotoku.