

## New Data on the Breeding of White-winged Tern (*Chlidonias leucoptera*) in Bulgaria

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**Abstract:** First separate breeding colony of White-winged Tern (*Chlidonias leucoptera* TEMMINCK, 1815) in Bulgaria was discovered in Chairya marsh, in the northeastern parts of the country. Until present separate nesting pairs of this species were found on rare occasions in large colonies of Whiskered Tern (*Chlidonias hybrida*). We estimated that in the colony nested about 55-60 pairs of White-winged Tern. The colony was found in the deepest part of the marsh where the water vegetation was dense, consisting mainly of *Rorripa amphibia*. The average dimensions of the nests were as follows: average maximal outer diameter: 17.3 cm (15.0-19.0 cm) (n=13); average minimal outer diameter: 16.2 cm (13.5-18.0 cm) (n=13); average inner diameter: 11.2 cm (10.0-12.0 cm); average height of the nest: 4.65 cm (3.0-6.0 cm), (n=10). The average distance between two nests was 31.6 m (n=15), varying between 3 and 93 m. The average clutch size calculated in the third decade of May was 2.65 eggs/per nest (n=23). The average dimensions of White-winged Tern eggs were as follows (n=27): length: 34.99 mm (31.5-37.2 mm); width: 25.53 mm (23.8-27.2 mm). In six out of 16 found nests on 5 June 2010 we encountered hatchlings. Most of the hatchlings already jumped from the nests and swam very well. We determined that the incubation in the colony had started around 12-16 May 2010.

Most probably the extremely high water level in Chairya marsh during spring and summer of 2010 was the key factor for the creation of this new White-winged Tern colony.

**Key words:** White-winged Tern, breeding, Chairya marsh, colony

### Introduction

White-winged Tern (*Chlidonias leucoptera* TEMMINCK, 1815) is considered to be a very rare and irregular breeding species in Bulgaria with recently estimated breeding number of 0-5 pairs (KUTSAROV 2007). Until the beginning of XXI century the species was presented only as regular spring and fall migrant and no breeding was proved (PATEFF 1950, NANKINOV *et al.* 1997, KOSTADINOVA (COMP.) 1997) although there were old data about breeding of separate pairs in Bulgaria, along Danube (RADAKOFF 1879, REISER 1894). NANKINOV *et al.* (2004) marked the White-winged Tern as probably

breeding species with still unclear breeding status in Bulgaria. Breeding of the species was finally proved on 27 June 2000 when 2 nests with eggs were discovered in Srebarna Nature Reserve, on Danube, in the colony of Whiskered Tern (*Chlidonias hybrida*) (KUTSAROV 2007). Afterwards 2 other cases of breeding of the species were registered in large colonies of Whiskered Tern (KUTSAROV 2007, S. CHESHMEDZHIEV, E. TODOROV – pers. comm.). Nevertheless no any data on the breeding biology of the species in Bulgaria was published after those findings.

During the spring of 2010 we discovered the first separate breeding colony of White-winged Tern in Bulgaria, numbering 55-60 breeding pairs. The colony was found in Chairya marsh, in Dobrudzha, NE-Bulgaria. In the present work we present information about this new colony and some concrete data on the breeding biology of the species.

## Material and Methods

Data on breeding biology of the species was gathered during two visits to the colony, on 23 May 2010 and 5 June 2010. We described a total of 17 occupied nests of White-winged Tern, most of them on egg stage. All found nests, eggs and part of the hatchlings were measured.

In both visits to the colony we made just one transect along its territory, not aiming to find all the nests. We estimated the approximate total number of the breeding pairs in the colony after counting all the adults attacking us together immediately after our arrival in the vicinity. It was impossible to count directly the nests because of the very dense water vegetation.

## Results

On 23 May 2010 during our ornithological survey in Dobrudzha, NE-Bulgaria we found a colony of White-winged Tern (*Chlidonias leucoptera*) nesting in a flooded depression named Chairya marsh, near the village of General Kolevo, Dobrich district. Chairya has a character of temporarily flooded meadow with some deeper areas that support water vegetation typical for some marshes or wet meadows (*Juncus*, *Carex*, etc.). It is used as pasture during summer and autumn when the water levels fall down.

The colony was situated in the central parts of the marshland, having the following coordinates (central point of the colony): N 43°38'40.6; E 27°57'37.7. The colony was found in the deepest part of the marsh, with a depth of 60-70 cm. The water vegetation there was dense, consisting mainly of the species *Rorripa amphibia* (Fig. 1). The birds were incubating their eggs. During this first visit we found a total of 23 occupied nests of White-winged Tern with eggs in each of them and one nest of Whiskered

Tern (*Chlidonias hybrida*) with just one egg.

The nests were built from green leaves of water plants – mainly *Juncus*, *Carex* and others (Fig. 2). Almost all of the nests were connected to the stems of *Rorripa* plants. Most of them were situated in those areas with lower density of the water vegetation, where small patches of open water occurred. The average distance between two nests on our route was 31.6 m (n=15), varying between 3 and 93 m.

The nests were measured during our second visit to Chairya, on 5 June 2010. The average dimensions were as follows: average maximal outer diameter: 17.3 cm (15.0-19.0 cm) (n=13); average minimal outer diameter: 16.2 cm (13.5-18.0 cm) (n=13); average inner diameter: 11.2 cm (10.0-12.0 cm); height of the nest: 4.65 cm (3.0-6.0 cm) (n=10).

In 17 out of 23 found nests on 23 May 2010 there were 3 eggs, in four nests – 2, and in two nests – just one egg. The average clutch size was 2.65 eggs/per nest. It should be taken in account that in this early stage some of the clutches were not completed. The eggs of the White-winged Tern were grayish-brown coloured with many blackish or dark-brown spots. They were much darker than the egg of the Whiskered Tern.

During our second visit, on 5 June 2010, we found a total of 16 nests of White-winged Tern and measured a total of 27 eggs from them. Also one nest of Whiskered Tern with one egg (dimensions: 38.9 mm x 30.0 mm) was found. The average dimensions of the eggs of the White-winged Tern were as follows (n=27): length: 34.99 mm. (31.5-37.2 mm) width: 25.53 mm (23.8-27.2 mm). The average clutch size from the sample gathered on 5 June.2010 was 2.3 eggs/per nest (n=10) (only for the nests without any hatchlings).

In six of the nests found on 5 June 2010 we encountered hatchlings (Fig. 3). In two of them we found two hatchlings in each. In the other four nests there were both hatchlings and eggs. Eggshells of the eggs in those cases were already broken locally by the bills of the hatchlings inside. The measurements of two of the hatchlings from two different nests were as follows:

First hatchling: wing length: 13.0 mm; tarsometatarsus – 13.8 mm; bill (to feathers): 10.0 mm.

Second hatchling: wing length: 14.0 mm; tarsometatarsus – 15.0 mm; bill (to feathers): 10.8 mm.

Most of the hatchlings have already jumped from the nests and swam very well. Only few of them still did not move and they obviously were hatched very soon.

Adults showed collective aggressive behaviour against us. After our arrival in the close vicinity (<100 m) to the colony they flew up from their nests and gathered in a flock. Afterwards they started attacking us quite aggressively; vocalizing all the time we spent in the colony. Nevertheless some of the birds still were bringing food to their hatchlings at not more than 30 m from us.

According to the number of adults we estimated that in the colony nested about 55-60 pairs of White-winged Terns and 3 pairs of Whiskered Terns.

As the most probable food resource of the colony we could point the numerous tadpoles and frogs in the marsh. Additionally, part of the birds obviously were feeding on insects outside the marsh. There was no fish in the marsh.

## Discussion

Until present the White-winged Tern has been reported to nest in Bulgaria on very rare occasions only

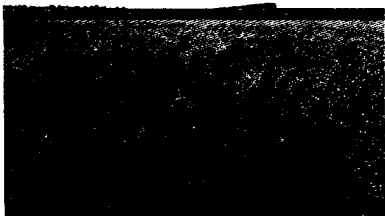


Fig. 1. Breeding habitat of White-winged Tern (*Chlidonias leucoptera*) at Chairya, a flooded meadow with *Rorripa amphibia*, date 23.05.2010. Photo: Peter Shurulinkov.



Fig. 2. Nest of White-winged Tern (*Chlidonias leucoptera*) with three eggs situated in a breeding colony in Chairya marsh, 23.05.2010. Photo: Peter Shurulinkov.

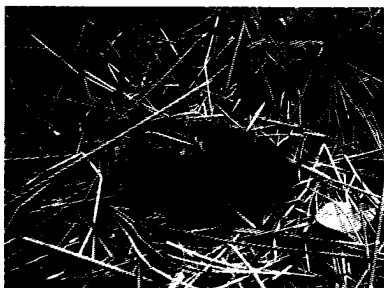


Fig. 3. Nest of White-winged Tern (*Chlidonias leucoptera*) with two nestlings situated in a breeding colony in Chairya marsh, 05.06.2010. Photo: Peter Shurulinkov.

along Danube river course and in all cases in few pairs mixed among the large colonies of Whiskered Tern (RADAKOFF 1879, REISER 1894, BOETICHER 1927, NANKINOV *et al.* 1997, KUTSAROV 2007). The species has bred in Srebarna nature reserve in 50s of XX century (NANKINOV *et al.* 1997), 60s (E. UNZDHIAN – pers. comm.) and again on 27 June 2000 when 2 nests with eggs were discovered there (KUTSAROV 2007). Also it was found to nest in Kalimok fishponds – in 2005, in two colonies of Whiskered Tern – two pairs in each of them (KUTSAROV 2007). Another concrete former locality of breeding White-winged Tern was Svishtov marsh where it was found on 8 June 1890 (REISER 1894). Afterwards this marsh was completely dried. Fourth place on Danube where the species has bred are Persina island marshes – 6 pairs were registered in a colony of Whiskered Tern in Pischina marsh in 2009 (S. CHESHMEDZHIEV, E. TODOROV – pers. comm.). In 2010 any breeding pairs of White-winged Tern were observed there nor in Srebarna reserve (own observations).

The colony found by us was formed quite far from the closest breeding areas of the White-winged Tern. The closest nesting localities lie at more than 150 km to the North-East from Chairya – in Danube Delta, in Romania and Ukraine (HAGEMEJER, BLAIR 1997). The species nests also in Moldova, in Prut river basin (NATIONAL REVIEWS, Moldova UNDP/GEF, 1998). In Turkey the White-winged Tern is a breeding species with supposed breeding population

of 40-120 pairs (BIRDLIFE INTERNATIONAL 2004) but observed by us to nest in much higher number in the easternmost parts of the country (SHURULINKOV *et al.* 2008). In Serbia the species nests only in Vovvodina district with population of 0-10 pairs (PUZOVIC *et al.* 2003). In Hungary White-winged Tern breeds mostly in eastern parts of the country – at Hortobagy and Kuskunsag with highly varying numbers-between 50 and 350 pairs (MAGYAR *et al.* 1998) or 50 and 2000 pairs (BIRDLIFE INTERNATIONAL 2004).

In our opinion the colony of White-winged Tern in Chairya marsh is newly formed in 2010. The species has not been found as a breeding bird at Chairya important bird area during the investigations conducted recently (KOSTADINOVA, GRAMATIKOV (eds) 2007). According to the local people from General Kolevo village the water level of the marsh in 2010 is highest for the last 50 years. This situation was a consequence of a long period of strong rainfalls during the early spring of 2010. Most probably the high water level was the key factor for the creation of the new White-winged Tern colony.

In Chairya it is the first separate breeding colony of that species in Bulgaria and presents first breeding of the species in Bulgaria out of Danube river basin.

The creation of this new colony of White-winged Tern could not be related to any reported signs of expansion of the species as it shows highly fluctuating but in long-term view stable breeding number and even declines were recorded in neigh-

boring to Bulgaria countries like Romania and Turkey (BIRDLIFE INTERNATIONAL 2004).

As the incubation of the species lasts 18-22 days (ZUBAKIN 1988) and first juveniles hatched in the period 3-5 June we could determine that the incubation in the colony has started around 12-16 May. The earliest eggs of White-winged Tern in Russia are

laid around 18-19 May (Moscow district) (ZUBAKIN 1988). In Poland colonies are formed from the early May (BARGIEL, BANBURA 2003). Size of the eggs of White-winged Tern from Bulgaria does not differ significantly from the size of the eggs recorded from different parts of Russia and Poland (ZUBAKIN 1988, BARGIEL, BANBURA 2003).

## References

- BARGIEL R., J. BANBURA 2003. Last Eggs in White-winged Tern Clutches Are Not Smallest; Are Marsh Terns Different from Other Larids? – *Waterbirds*, 26 (4):457-461.
- BIRDLIFE INTERNATIONAL 2004. Birds in Europe: population estimates, trends and conservation status. Cambridge, UK: BirdLife International. (BirdLife Conservation Series No. 12), 373 p.
- BOETTCHER, H. 1927. Kurzer Überblick über die Wasser- und Sumpfvögel Bulgariens. – *Verh. orn. Ges. Bayern*, 17: 535-449.
- HAGEMADER E., M. BLAIR (Eds.) 1997. The EBCC Atlas of European Breeding Birds: Their Distribution and Abundance. London. T&A D Poyser, 903 p.
- KOSTADINOVA I. (Comp.) 1997. Important bird areas in Bulgaria. BSPB Conservation Series. Sofia. Book 1. BSPB, 176 p. (In Bulgarian).
- KOSTADINOVA I., M. GRAMATKOV (Eds.) 2007. Important bird areas in Bulgaria and NATURA 2000. BSPB Conservation Series. Book 11.
- KUTSAROV Y. 2007. White winged Tern (*Chlidonias leucoptera*) – In: Iankov P. (Ed.): Atlas of breeding birds in Bulgaria. Bulgarian Society for the Protection of Birds. Conservation Series. Book 10, 296-297.
- MAGYAR G., T. HADARICS, Z. WALCZYK, A. SCHMIDT, T. NAGY, A. BANKOVICS 1998. Nomenclator avium Hungariae. Magyarorszag madarainak nevjegyzeke. Madartani Intezet – MME – Winte Fair, Budapest-Szeged, 202 p.
- NANKINOV D., A. DUTSIOV, B. NIKOLOV, G. STEFYANOV, G. GRADEV, D. GEORGIEV, D. POPOV, D. DOMUSCHIEV, D. KIROV, E. TILOVA, I. NIKOLOV, I. IVANOV, K. DICHEV, K. POPOV, N. KARAVANOV, N. TODOROV, P. SHURULINKOV, R. STANCHEV, R. ALEKSOV, R. TZONEV, S. IVANOV, S. MARIN, S. STAIKOV, S. NIKOLOV, S. DALAKCHEVA, S. IVANOV, and H. NIKOLOV 2004. Breeding totals of the ornithofauna in Bulgaria. Green Balkans, Plovdiv, 32 p.
- NANKINOV D., S. SIMEONOV, T. MICHEV, B. IVANOV 1997. Fauna of Bulgaria. 26. Aves – Part 2, Sofia, BAS, Pensoft, 427 p.
- NATIONAL REVIEWS, MOLDOVA UNDP/GEF 1998. 1-184.
- PATEV, P. 1950. The birds in Bulgaria. Sofia. BAS, 364 p. (In Bulgarian).
- PIZUVIC S., D. SIMIC, D. SAVELJIC, J. GERGELJ, M. TUCAKOV, N. STJESIC, I. HULJA, I. HAM, O. VIZI, M. SCIBAN, M. RUIK, M. VULCANOVIC, T. JOVANOVIC 2003. Birds of Serbia and Montenegro-breeding population estimates and trends, 1990-2002.
- RADAKOFF W. 1879. Ornithologische Bemerkungen über bessarabien, Moldau, Walachei, Bulgaien und ost-Rumelien. *Bull. Soc. Des nature, Moscou*, 13: 150-178.
- REISER O. 1894. Materialien zu einer *Ornis bulcanica*. II. Bulgarien. Wien. In Comission bei Carl Gerold's Sohn, 204 p.
- SHURULINKOV P., G. DASKALOVA, I. HRISTOV, M. ILIEVA, R. PANKOVA, J. DAY 2008. Contribution to the knowledge on the breeding ornithofauna of Eastern Turkey. *Acta zoologica bulgarica*, 60 (2):125-133.
- ZUBAKIN V.A. 1987. White winged Tern (*Chlidonias leucoptera*) In: Birds of USSR. Moscow. Lari. Nauka, 268-277.

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## Нови данни върху гнезденето на белокрылата рибарка (*Chlidonias leucoptera*) в България

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### (Резюме)

Първата отделна гнездова колония на белокрыла рибарка (*Chlidonias leucoptera* TEMMINCK, 1815) в България е намерена в блатото Чаиря, в североизточната част на страната. Досега отделни двойки от този вид са намирани в много редки случаи сред големи колонии на белобузи рибарки (*Chlidonias hybrida*). По наша оценка в колонията гнездят 55-60 двойки белокрыли рибарки. Тя е разположена в най-дълбоката част на блатото, където водната растителност е съставена главно от съобщество на *Rorripa amphibia*. Средните размери на гнездата са както следва: среден максимален външен диаметър (дължина): 17,3 cm (15,0-19,0 cm) (n=13); среден минимален външен диаметър (ширина): 16,2 cm (13,5- 18,0 cm) (n=13); среден вътрешен диаметър: 11,2 cm (10,0-12,0 cm), височина на гнездото: 4,65 cm (n=10). Средното разстояние между две съседни гнезда е 31,6 m (n=15), вариращо между 3 и 93 m. Средният размер на мътилото, изчислен през третата десетдневка на май, е 2,65 яйца на гнездо (n=23). Средните размери на яйцата на белокрылите рибарки са както следва (n=27): дължина: 34,99 mm (31,5-37,2 mm); ширина: 25,53 mm (23,8-27,2 mm). В 6 от общо 16 намерени гнезда на 5.06.2010 г. са установени излюпени малки. Повечето от тях вече скачаха от гнездата и плуваха много добре. Считаме, че първите яйца в колонията са снесени в периода 12-16 май 2010 г.

Много вероятно важно обстоятелство за формирането на тази нова колония на белокрыла рибарка в България е извънредно високото ниво на водата в блатото Чаиря през пролетта и лятото на 2010 г.