

## Past distribution of *Monachus monachus* in Bulgaria – subfossil and historical records (Carnivora: Phocidae)

Минало разпространение на средиземноморския тюлен монах  
(*Monachus monachus*) в България – субфосилни и исторически сведения  
(Carnivora: Phocidae)

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**Abstract.** The paper summarizes numerous scattered data on the former distribution of the Mediterranean monk seal (*Monachus monachus*) along the western Black Sea coast and the lower Danube bank in Bulgaria. Data on 25 sites of historical (last two centuries), two sites of subfossil, and one site of fossil records are presented (23 from the Black Sea coast, two from the Danube). Four stuffed skins, two skulls and two subfossil limb bones are kept in three Bulgarian museum collections. The latest record of the monk seal in Bulgaria was documented on 8 December 1996.

**Key words.** Black Sea, coastal habitats, sea mammals, endangered mammals, monk seal, Cape Kaliakra, Cape Maslen Nos, museum collections.

### INTRODUCTION

The Mediterranean monk seal, *Monachus monachus* (Hermann, 1779), is an endangered species (KARAMANLIDIS & DENDRINOS 2017). It is regarded extinct in Bulgaria (SPASSOV & AVRAMOV 2011), although the first protection measures in the country were accepted already in 1890 (ZERNOV 1911, BŘČKOV 1976). Four nature reserves, aimed mainly at the protection of the monk seal, have been established along the Bulgarian Black Sea coast: Ropotamo (1940), Kaliakra (1941), Kamčiâ (1951), and Baltata (1978). Unfortunately, the conservation measures were insufficient to save the species in Bulgaria (DUGUY & MARCHESSEAU 1992). At present the whole Black Sea is excluded from the species range (STEWART 2014). Recent genetic studies (mitochondrial DNA) suggest substantial differentiation between the Atlantic and East-Mediterranean subpopulations, however, to date they have not been split taxonomically (KARAMANLIDIS et al. 2016).

Notwithstanding it is presumed that we have a relatively complete notion of the former distribution of the species in Bulgaria, the numerous scattered data (often published in less accessible and poorly known sources in the past), as well as many unpublished records, argued us to present all data gathered in the present publication.

## RECORDS

### Black Sea Coast

#### Dobrič Region

1. **Durankulak.** One of the last records of the monk seal in Bulgaria: “In the winter 1996 we found a body of a mature male monk seal on the Durankulak beach.” (PEŠEV et al. 2005).
2. **Cape Šabla.** Several inds. inhabited the rocky coast in the early 1950s (KOLAROV 1956). The light-housekeeper of Cape Šabla reported on observations of seals in 1982–1983 (SPASSOV unpubl. data). In the 1990s two bones were collected during underwater archaeological excavations (N. SPASSOV pers. comm.; see below). A large seal was observed near Cape Šabla in 1994 (SPASSOV & AVRAMOV 2011).
3. **Tûlenova Cave (northern).** A cave ca. 500 m north of Tûlenovo was inhabited by four inds. in 1962 (MIČEV 1971). In the late 1970s the cave was inhabited by two families of seals (POPOV 1980). In summer 1979, two seals were observed near the cave (POPOV 1982).
4. **Tûlenova Cave (southern).** A cave 900 m SE of Tûlenovo near Cape Šabla. A former breeding site of the monk seal (POPOV & KANDŹIEVA 1984).
5. **Tûlenovo.** One ind. recorded in February 1898 by MUMDŹIEV (1898); seals observed near Tûlenovo (CVETKOV & BOEV 1966). In late May 1968, 4–5 inds. were observed on the rocks (D. DEMERDŹIEV, unpubl. data). An observation of a “big seal” between Tûlenovo and Kamen Brâg in 1994 (SPASSOV 2007, SPASSOV & AVRAMOV 2011).
6. **Tûlenova Cave (near Rusalka).** A cave ca. 1250 m SW of the Rusalka Resort; 200 m from Enikulak (T. MIČEV, pers. comm.). Until the late 1970s adult seals with puppies were observed in the region (POPOV & KANDŹIEVA 1984). The Tûlenova Cave was one of the most important breeding sites for the seals until the late 1960s (MIČEV 1971). Until 1962 at least four inds. lived in the Tûlenova Cave (MIČEV 1969). On 19 October 1967, 19–21 November 1967 and 30 April 1967 several sightings of seals were registered in the cave (MIČEV 1969). 4–5 inds. survived in the early 1970s (VELEV 1978). In the summer of 1978, 2 inds. were observed (POPOV 1980).
7. **Cape Kaliakra.** Former locality of the species occurrence (ČILINGIROV 1920, BUREŠ 1922, PASPALEV 1932, PAPAŹOV 1934, CVETKOV & BOEV 1966, MIČEV 1968, ANONYMOUS 1977). There are numerous reports of monk seals from Kaliakra available, here arranged chronologically. In the early 1900s, up to 140 inds. inhabited this site and over 100 inds. lived in the region until 1914 (MIČEV 1980). Direct observations documented 128 inds. in the region at that time (CALINESCU 1931, MIČEV 1970). Only one ind. was seen in 1924 (LEPŠI 1925); 30–40 inds. left at Kaliakra in 1928, and about 30 inds. still lived in the Kaliakra region in 1941 (MIČEV 1970). Some Romanian authors (cited by MIČEV 1971) stated that in 1936 (at the time of the Romanian rule of the region) this site was inhabited by between 30 and 128 seals. Some 30 inds. still inhabited the rocks of Kaliakra in 1934 (CVETKOV & RAJKOV 1974). CVETKOV (1972) reported on an observation of ca. 80 inds. on the rocks of Cape Kaliakra on 7 September 1940, while HRISTOV (1963)

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Fig. 1. *Monachus monachus*, ♀ juv., 5 January 1934, near the town of Byala (Varna Region). Collection of the NMNHS: skull, dorsal view (a); mandibula dex., lateral view (b); mandibula sin. prox., medial view (c). *Monachus monachus*, juv. ♂, 15 May 1922, near the town of Tsarevo (Burgas Region). Collection of the NMNHS: skull, right lateral view (d); skull, dorsal view (e); skull, ventral view (f); mandibula, left lateral view (g); mandibula, dorsal view (h). Photo by Z. BOEV.

Фиг. 1. *Monachus monachus*, ♀ juv., 5. 1. 1934, край гр. Бяла (Варненска област). Колекция на НПМ-БАН: череп, дорзален изглед (a); mandibula dex., страничен изглед (b); mandibula sin. prox., медиален изглед (c). *Monachus monachus*, juv. ♂, 15. 5. 1922, край гр. Царево (Бургаска област). Колекция на НПМ-БАН: череп, десен страничен изглед (d); череп, дорзален изглед (e); череп, вентрален изглед (f); mandibula, ляв страничен изглед (g); mandibula, дорзален изглед (h). Снимка З. БОЕВ.



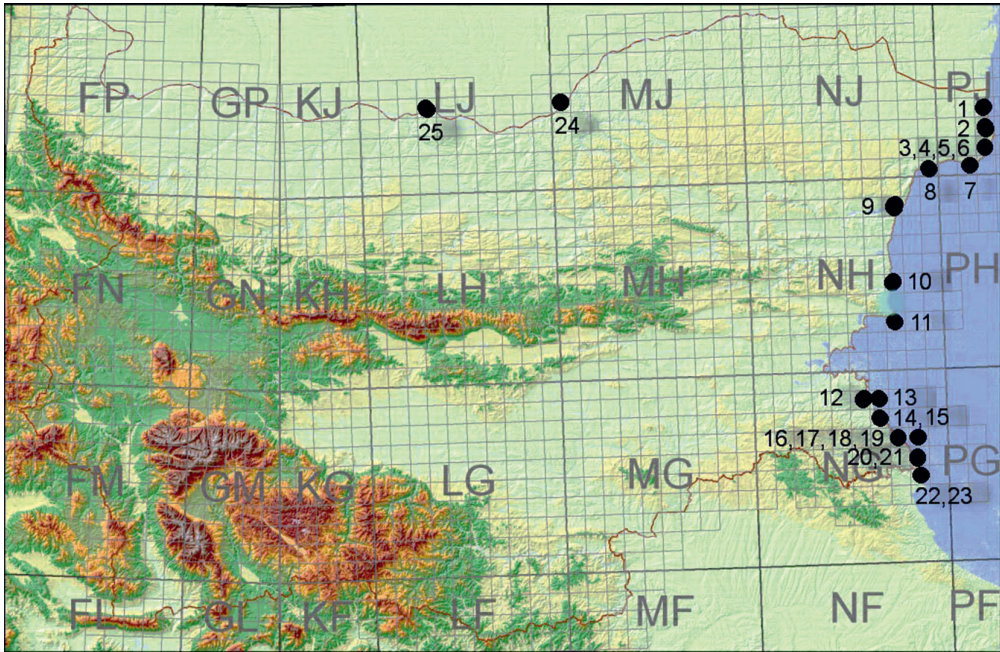


Fig. 2. Former (1892–1996) distribution of the Mediterranean monk seal in Bulgaria. Numbers correspond to the list of localities in the text: Durankulak (1), Cape Šabla (2), Tûlenova Cave (3), Tûlenova Cave (4), Tûlenovo (5), Tûlenova Cave (6), Cape Kaliakra (7), Balčik (8), Varna (9), Bâla (10), Cape Emine (11), Sozopol (12), Sveti Ivan Island (13), Cape Maslen Nos (14), Cape Svati Stefan (15), Zmijski Island (16), Ropotamo river mouth (17), Primorsko (18), Stomoplo (19), Sinemorec (20), Carevo-Sinemorec (21), Sinemorec-Rezovo (22), Silistar (23), Stâlpište (24), Nikopol (25).

Фиг. 2. Минало (1892–1996) разпространение на тюлена монах в България. Номерацията отговаря на находищата в текстат: Дуранкулак (1), Нос Шабла (2), Тюленова пещера (3), Тюленова пещера (4), Тюленово (5), Тюленова пещера (6), Нос Калиакра (7), Балчик (8), Бяла (10), Нос Емине (11), Созопол (12), Остров Свети Иван (13), Нос Маслен (14), Нос Калиакра (15), Остров Змийски (16), Устие на река Ропотамо (17), Приморско (18), Стомопло (19), Синеморец (20), Царево-Синеморец (21), Синеморец-Резово (22), Силистар (23), Стълпище (24), Никопол (25).

wrote that only 20–30 inds. lived in the region of Kaliakra in 1940–1941. In the early 1950s, only several inds. regularly inhabited the area (KLEINENBERG 1956, KOLAROV 1956) and during the 1950s, a family with puppies was observed lying on the rocks and fishing in the sea (MELNIŠKI 1957). Up to 10 inds. were reported from Cape Kaliakra in the early 1960s (CVETKOV 1964). In 1965–1967, only 1–2 inds. remained at the site and were observed mainly in October (MIČEV 1969) and only one ind. was registered in 1966 (T. MIČEV, unpubl. data). On the other hand, 7–8 inds. survived near Kaliakra in the late 1960s (MIČEV 1970, DINKOV 1981) and up to three inds. in 1973 (CVETKOV & RAJKOV 1974, ANONYMOUS 1977, GEORGIEV 1977). At the end of the 1970s, the monk seal was still permanently observed there (MIČEV 1980, SPASSOV & AVRAMOV 2011), although only two inds. inhabited the site in 1979 (LEFTEROVA & ČERNIKOV 2014, T. MIČEV, unpubl. data). PEŠEV et al. (2005) reported on a dead adult female found at Kaliakra in 1986 and



Fig. 3. *Monachus monachus*, NMNHS RME 76, ♀ juv., 5 January 1934, near the town of Bâla (Varna Region). Photo by Z. БОЕВ.

Фиг. 3. *Monachus monachus*, NMNHS RME 76, ♀ juv., 5. 1. 1934, край гр. Бяла (Варненска област). Снимка З. БОЕВ.



Fig. 4. *Monachus monachus*, NMNHS RME 78, ad, 3 June 1912, near Sozopol (Burgas Region). Photo by Z. БОЕВ.

Фиг. 4. *Monachus monachus*, NMNHS RME 78, ad, 3. 6. 1912, край гр. Созопол (Бургаска област). Снимка З. БОЕВ.

SPASSOV (2007) on single inds. observed at Kaliakra still in 1990–1992. PEŠEV et al. (2005) also mentioned: “By eyewitness report in the region of cap Kaliakra a female with a puppy has been observed in 2000 ...”; however, they regarded such an observation as unreliable.

8. **Balčik**. Single inds. were observed in the vicinity of Balčik in 1990–1992 (SPASSOV 2007); “a corpse washed ashore near Balčik” was found on 20 July 1994 (SPASSOV 2007, SPASSOV & AVRAMOV 2011).

#### *Varna Region*

9. **Varna**. In spring 1928, one ind. was caught by fishermen near Varna (DRENSKI 1930). It was released to the sea after the payment of a compensation fee of 5000 levs by Tsar BORIS III. However, the same ind. was caught near Varna again after several days (DRENSKI 1930). One ind. was observed on the sea shore near Varna in 1954 (KOLAROV 1956).

10. **Bála**. A juvenile female was collected near the town of Bála on 5 January 1934 (see below; Fig. 1a–c).

#### *Burgas Region*

11. **Cape Emine**. Former site of the species occurrence (PASPALOV 1932, PAPAŽOV 1934); the last evidence in the region is a capture of an adult female to a fish trap south of Cape Emine by soldiers in 1919.

12. **Sozopol**. An adult ind. was caught in the vicinity of Sozopol in the summer 1892 (HRISTOVIČ 1968). A 1-meter long ind. was caught in a fish trap near the town of Sozopol in 1902 (ANONYMOUS 1902, PASPALEV 1932). In 1903, another ind. was caught, entangled in the same pound net “Milos” (ANONYMOUS 1909). The fishermen of Sozopol hunted one ind. in November 1908. Its skin was sent for preparation to the zoological collections of the Sofia University (ANONYMOUS 1908). Two years later, in August 1910, another ind. was killed by fishermen in the Sozopol port. The skin of this animal was also sent to the zoological collections of the Sofia University (MIČEV 1971). One ind. was observed by numerous local people in the Port of Sozopol in 1970 (MIČEV 1971). In March 1970, a seal was fed with fish by fishermen of the trawler ships in the Sozopol Port (RAJKOV 1973). LEFTEROVA & ČERNIKOV (2014) reported on an observation of one ind. near Sozopol in 1975.

13. **Sveti Ivan Island** (near Sozopol). Site of the species observations in the 1960s (CVETKOV & BOEV 1966) as well as in the autumn 1994 (SPASSOV 2007, SPASSOV & AVRAMOV 2011).

14. **Cape Maslen Nos**. A former site of the species occurrence, where several families lived (BUREŠ 1922, ANONYMOUS 1927, PASPALEV 1932, PAPAŽOV 1934, MIČEV 1968). In the early 20th century, a dozen of seals inhabited the area where they were kept by soldiers (data by Ivan BUREŠ, after MIČEV 1980). Tsar’s Ferdinand I Natural History Museum (today National Museum of Natural History, Bulgarian Academy of Sciences) in Sofia holds an adult specimen of the monk seal, 2.4 m long, collected at Maslen Nos, and a skull of another specimen, killed near Carevo in March 1922 (BUREŠ 1922; see below). A family of three inds. was observed on the rocks in the spring 1922 and two inds. in the spring 1930 (DRENSKI 1930). According to HRISTOV (1963), eight inds. lived in the region of Maslen Nos in 1940–1941. A “small colony” of several inds. inhabited the rocky coast of Maslen Nos in the early 1950s (KOLAROV, 1956) and an adult was observed in the sea at the Cape on 23 July 1957 (V. BEŠKOV, pers. comm.). CVETKOV (1964) reported on an observation of some ten inds. at Cape Maslen Nos in the early 1960s and RAJKOV (1965) on a shooting of an adult by a fisherman at a fish trap in the mouth of the Ropotamo river in the same period. Four to six inds. were observed between Sozopol and Rezovo in 1963 (RAJKOV 1973) and eight inds. in the mid 1960s (MIČEV 1971). One adult was shot at the Cape by a fisherman from Sozopol in 1965 – this seal rested on the northern beach of Primorsko a month ago and played with a German tourist (N. BOEV, unpubl. data). On 4 May 1967, a carcass of a juvenile with body length of ca. 70–80 cm was washed up on the beach near the mouth of the Ropotamo river (RAJKOV 1973). Local fishermen observed “very large” and “very small” seals at the Cape between April and June 1967 (RAJKOV 1973) and an enormously large ind. was seen on the rocks on 14 July 1967 (A. DENKOV, unpubl. data). Another ind. was observed on the rocky coast at Karaultaš, some 2 km north of Maslen Nos on 17/18 September 1967 (V. BESHKOV, pers. comm). In July 1969, one ind. was seen swimming near the rocky coast under Cape Kaliakra (Z. HUBENOV,

unpubl. data). Only two seals were observed in the region in 1970 (MIČEV 1971) and up to 12 inds. were estimated by N. RAJKOV in the area in the 1970s (GEORGIEV 1977). In 1974, one ind. was killed by fishermen in a fish trap situated south of Cape Maslen Nos (SPIRIDONOV 1977). Only 1–2 pairs survived in the area in the late 1970s (MIČEV 1980).

15. **Cape Sveti Stefan.** In the spring 1924, a swimming adult was observed approaching the cape (DRENSKI 1930).

16. **Zmijski Island** (near the Ropotamo river mouth). A new fish trap on the island was visited by a seal in 1964, it was observed four times by RAJKOV (1973). This author cites numerous observations by local people who always observed only few inds. at the site – a pair, a group of four inds., young inds., and single inds. on the beach. The seals probably bred at the site in the 1980s and early 1990s (SPASSOV & AVRAMOV 2011). In 1986–1991, seals were repeatedly observed between Cape Maslen Nos and the Zmijski Island; in 1987, four inds. were seen laying on the beach; two inds. were observed there in 1993 (SPASSOV 2007).

17. **Ropotamo river mouth.** In 1962–1963, one ind. regularly visited a fish trap. The next year a second ind. appeared (RAJKOV 1973). In the late 1980s and early 1990s, seals were observed occasionally (POPOV 1998).

18. **Primorsko.** An adult killed at Kûpriâ near Primorsko on 30 December 1908; total body length of 2.32 m (ANONYMOUS 1909).

19. **Stomoplo.** One ind. was observed swimming in the Stomoplo Cove in June 1953 (HRISTOV 1963).

20. **Sinemorec.** One ind. regularly visited the coast near the fishermen hut in the vicinity of Sinemorec in 1970, and one ind. was shot at the same place a year later (RAJKOV 1973). One ind. was observed there in 1995 (SPASSOV & AVRAMOV 2011). A very big seal (? male) was seen in the sea close to a fish trap at Sinemorec in the spring 1995 (last observation of the monk seal along the southern Black Sea coast of Bulgaria (SPASSOV 2007).

21. **Carevo-Sinemorec.** A former site of the species occurrence (BUREŠ 1922, PAPAŽOV 1934). A juvenile skull was collected near Carevo on 15 June 1922 (see below; Fig. 1d–h). Caves at the site were inhabited by at least one pair in the 1970s (SPIRIDONOV & SPASSOV 1998). In the early 1980s, several inds. were observed in the sea and on the beach south of Carevo (SPASSOV 2007). In the late 1980s and early 1990s, seals were seen occasionally (POPOV 1998), but the site is considered as a probable breeding locality of



Fig. 5. *Monachus monachus*, RNHMP 128/1981, juv., 9 November 1981, site unknown. Photo by Z. BOEV.  
Фиг. 5. *Monachus monachus*, RNHMP 128/1981, juv., 9. 11. 1981, неизвестно находище. Снимка З. БОЕВ.

the species between the 1980s and early 1990s (SPASSOV & AVRAMOV 2011). A pair was seen there in 1987; a carcass of a juvenile ind. was found on the shore and a single adult was observed on the beach in 1991 (SPASSOV 2007).

22. **Sinemorec-Rezovo**. A large adult male was shot in the region south of the Veleka river mouth around the year 1945 (RAJKOV 1965). A fish trap situated near the frontier post at Rezovo was regularly visited by seals in the 1960s and the chiefs of the frontier post ordered to shoot all of them, however, it is not known how many were killed (IVANOV & KAMBUROV 2015). In the summer 1963, an adult more than 2 metres long was observed on the beach south of Sinemorec (RAJKOV 1965). The rocky coast of the region was the least affected by anthropogenic influence, it was presumed that 3–4 pairs of seals still survived there until the late 1970s, but a special survey failed to confirm this assumption in 1979 (MIČEV 1980). In the late 1970s, the monk seals were still permanently present in the region of Rezovo (SPASSOV & AVRAMOV 2011). Several inds. were observed in the abrasive caves at Kastrič near Rezovo (MIČEV 1985). In the sea near the caves situated 1–3 km north of Rezovo, an adult was observed in 1987 (SPASSOV 2007).

23. **Silistar**. One ind. was observed in the Silistar Reserve in 1993 and a dead ind. was found on the coast in 1994 (SPASSOV 2007, SPASSOV & AVRAMOV 2011). Another ind. was seen on the beach in the Reserve on 8 December 1996 (B. GEORGIEV, pers. comm.).

## D a n u b e R i v e r

### *Ruse Region*

24. **Stalpiše**. One ind. was observed on the rocks of the Danube bank near Stalpiše for several days in 1938–1940 (KOLAROV 1956, CVETKOV & BOEV 1966). This locality lies ca. 516 km upstream from the Black Sea coast (Fig. 2).

### *Pleven Region*

25. **Nikopol**. An adult was caught by the local fishermen in the Danube near Nikopol in 1938–1940 (KOLAROV 1956).

## F o s s i l a n d s u b f o s s i l r e c o r d s

1. **Urdoviza** (Burgas Region). A mandible with three teeth, and an ulna of one or two adult individuals were excavated in the 1990s from the sea bottom of the sunken Early-Bronze Age settlement near Kiten (RIBAROV 1994). These finds were deposited in the Port of Burgas in 1998 for the intended Museum of Port Burgas and were lost (G. RIBAROV, pers. comm.).

2. **Cape Šabla** (Dobrič Region). Two limb bones perhaps of the Bronze Age (see below).

3. **Nesebăr** (Old Turkish Cemetery locality) (Burgas Region). Middle Sarmatian (Late Miocene): Phocidae gen. sp. Some bone finds were collected (NIKOLOV 1977, BOEV 2018); however, the whereabouts of these finds are currently unknown.

## M e d i t e r r a n e a n m o n k s e a l s i n B u l g a r i a n c o l l e c t i o n s

The available data cover three museum collections which hold four specimens (complete mounted skins), two skulls and two limb bones of *Monachus monachus* from Bulgaria. The preserved items are as follows:

*National Museum of Natural History, Bulgarian Academy of Sciences, Sofia* (NMNHS):

1. NMNHS 1042, RME 76, *Monachus monachus*, ♀ juv, 5 January 1934, near Bâla (Varna Region); partly damaged skull (1042) (missing occipital part) and partly damaged mandibula (the right mandibular ramus broken; right distal mandibular ramus lacking), coll. Georgi PASPALOV (Fig. 1a–c); mounted skin (RME 76) is on display in the mammal exhibition hall of the NMNHS (Fig. 3);



2. NMNHS 1043, *Monachus monachus*, ♂ juv, 15 May 1922, near Carevo (Burgas Region), partly damaged skull (left maxilla missing) and complete mandibula, coll. Ivan BUREŠ;
3. NMNHS RME 78, *Monachus monachus*, sex indet., ad, 3 June 1912, near Sozopol [Maslen Nos] (BUREŠ 1922) (Fig. 1d–h); mounted skin is on display in the mammal exhibition hall of the NMNHS (Fig. 4);
4. NMNHS unnumbered, *Monachus monachus*, two limb bones of the postcranial skeleton collected near Cape Šabla from the submerged prehistoric (?Bronze Age) settlement in the 1990s, collected during the undersea archaeological excavations lead by Asen SALKIN (Historical Museum, Kavarna) (N. SPASSOV, pers. comm.).

*Regional Natural History Museum, Plovdiv (RNHMP)*

5. RNHMP 128/1981, *Monachus monachus*, sex indet., juv, 9 November 1981, locality of origin unknown, obtained from a menagerie, coll. Metodi PAVLOV (from Plovdiv) (Fig. 5).

*Aquarium Varna*

6. Aquarium Varna, unnumbered, *Monachus monachus*, ♂ ad, before 1957, Cape Kavarna, collector unlisted (Figs. 6, 7).

### Chronology of the monk seal distribution in Bulgaria

The whole period of documented observations of the Mediterranean monk seal in Bulgaria could be divided into five periods according to the intensity of anthropogenic impact on the seal habitats and frequency of the species records:

1. **before 1920**: five localities – Cape Kaliakra, Cape Emine, Sozopol, Cape Maslen Nos, Primorsko.
2. **1921–1950**: nine localities – Black Sea: Cape Kaliakra, Varna, Bâla, Cape Emine, Cape Sveti Stefan, Cape Maslen Nos, Carevo; Danube: Nikopol, Stalpiše.
3. **1951–1970**: ten localities – Cape Šabla, Tûlenovo, Cape Kaliakra, Varna, Sozopol, Sveti Ivan Island, Ropotamo river mouth, Zmijski Island, Cape Maslen Nos, Rezovo-Sinemorec.
4. **1971–1990**: four localities – Cape Kaliakra, Cape Maslen Nos, Sinemorec, Rezovo.
5. **after 1991**: ten localities – Durankulak, Šabla, Tûlenovo, Balčik, Sveti Ivan Island, Cape Maslen Nos, Zmijski Island, Malak Silistar, Sinemorec, Carevo-Rezovo coast.



Figs. 6, 7. *Monachus monachus*, Aquarium Varna, ♂ ad., before 1957, Cape Kaliakra. Photos by R. КАМБУРОВА.

Фиг. 6, 7. *Monachus monachus*, Аквариума във Варна, ♂ ad., преди 1957, Нос Калиакра. Снимки Р. КАМБУРОВА.

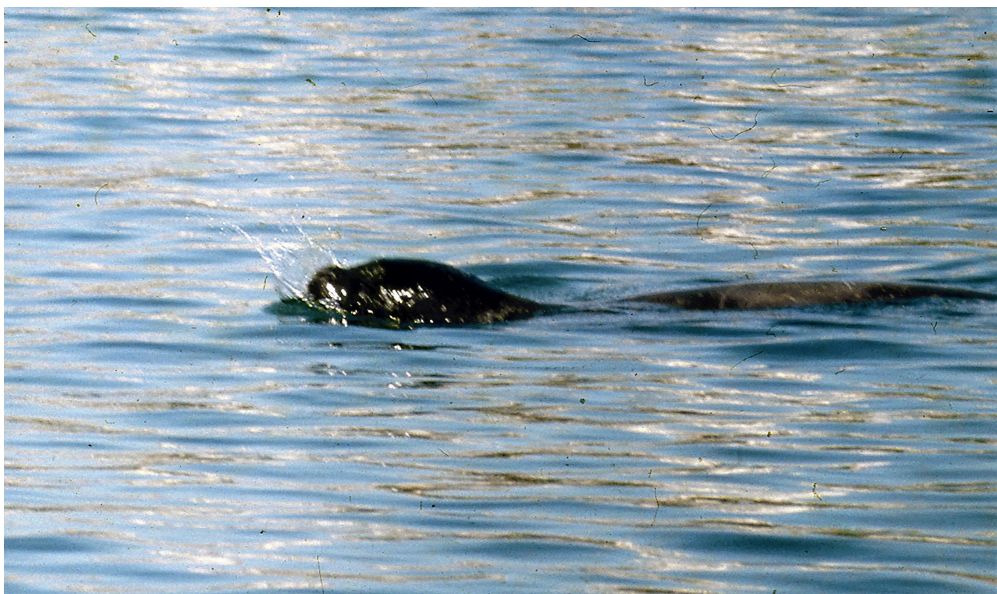


Fig. 8. One of the very few photographs of the Black Sea monk seal from Bulgaria. Sozopol region, 1972, unpublished so far. Photo by N. РАЈКОВ.

Фиг. 8. Една от няколко фотографии на черноморския тюлен от България. Край Созопол, 1972, досега непубликувана. Снимка Н. РАЙКОВ.

## CONCLUSIONS

The first documented records of the Mediterranean monk seal (*Monachus monachus*) in Bulgaria date back to 1875 (HRISTOV 1963) and 1892 (HRISTOVIČ 1968), the last one comes from the end of 1996. Thus, the period of documented occurrence in the country lasts 121 years and the maximum number of observed seals was 140 individuals. In Bulgaria, the monk seal is known from at least 25 localities (23 on the Black Sea coast and two on the Danube bank) from five regions – Pleven, Ruse, Dobrič, Varna, and Burgas (Fig. 2). Two of the localities represent offshore islands – Sveti Ivan Island and Zmijski Island, where no coastal caves are known.

No fossil record of the Mediterranean monk seal is known from Bulgaria. The subfossils (Holocene) of this species were found at two sites (Cape Šabla and Urdoviza), both representing prehistoric submerged settlements. One fossil (Late Miocene) record of a seal (*Phocidae* gen. sp.) is available.

Only three museum collections hold specimens of *Monachus monachus* (four mounted skins and two skulls with mandibles in total). Only several photographs of live seals are known from Bulgaria (Fig. 8). The most numerous populations of the monk seal were located in three regions: (1) Tûlenovo-Kaliakra, (2) Sozopol-Maslen Nos, and (3) Carevo-Rezovo.

The observations of seals scattered along the Bulgarian coast cover all seasons of the year – from 5 January to 8 December. Juvenile seals (puppies) were recorded at least four (up to seven) times, two of them were registered as carcasses.

It can be concluded that there were two main reasons for the disappearance of the species from Bulgaria: (1) its direct persecution by fishermen (and others, e.g., border guards or soldiers), and (2) disturbance due to increased tourist erosion of the rocky shores and drastic habitat destruction. Both these factors result from the low nature conservation culture of the local people and local authorities. This species could not be restored along the Black Sea coast of Bulgaria due to the loss of its former habitats.

## РЕЗЮМЕ

Статията обобщава множеството разпръснати данни за миналото разпространение на тюлена монах по Западното Черноморие и долното поречие на река Дунав в България. Представени са данни от 25 находища по исторически сведения (от последните две столетия), две по субфосилни и един от фосилни находки (23 на брега на Черно море, две на река Дунав). Четири цели препарирани кожи, две черепа и две субфосилни кости от крайниците се съхраняват в три български музейни сбирки. Последно наблюдение на вида в България – 8 декември 1996.

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