

Past distribution of *Camelus bactrianus* and *Camelus dromedarius* in Bulgaria: subfossil record (Artiodactyla: Camelidae)

Минало разпространение на камили (*Camelus*) в България:
субфосилни данни (Artiodactyla: Camelidae)

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Abstract. Subfossil record of the Bactrian and dromedary camels in Bulgaria includes 11 localities dated from the Antiquity to the Middle Ages (1st–12th century AD). Over 68 osteological finds (MNI=16) of both species/domestic forms are known from the present territory of the country. The majority of them were identified as the Bactrian camel. Nove is the richest locality, containing ca. 82 percent of all bone finds. In 2018 the latest find (a complete mandibula) was excavated in the centre of Sofia City, dated 3rd–4th century.

Kew words. Camels, dromedary, Bactrian, domestic mammals, archaeozoology, Bulgaria.

INTRODUCTION

History of the camels, both the dromedary camel (*Camelus dromedarius* Linnaeus, 1758) and Bactrian camel (*Camelus bactrianus* Linnaeus, 1758) in Europe is very intriguing and well documented in numerous historical monuments – written sources, ancient images, sculptures, etc. – from Bulgaria, Serbia, Greece, Slovenia, Hungary, Austria, Italy. Here we do not discuss the origin and utilization of camels in the Antiquity and Middle Ages, nor the ways and time of their appearance in the Balkans and Europe.

The presented paper aims only to present a summary of the archaeozoological evidence originating from the territory of Bulgaria and the former distribution of both species/domestic forms. Mainly, we present two new sites from Mesembria (Nesebăr; 2013) and Serdica (Sofia; 2018).

MATERIAL AND METHODS

We examined scattered published data from numerous archaeozoological studies and tried to extract and format the information they contain concerning the taxonomic identification, skeletal element (osteological unit), part of the bone, age of individual, number and age of the finds, and minimum number of individuals (MNI). In some cases, a part of these data were not available. Here each particular find is numbered for future reference on camel archaeozoological records in Bulgaria.

Abbreviations: BAS – Bulgarian Academy of Sciences; MNI – minimum number of individuals; NAIM – National Archaeological Institute and Museum; NMNHS – National Museum of Natural History, Sofia. For the camels we use the names proposed by GENTRY et al. (2004).

RECORDS

Camel bone/teeth remains have been so far recorded in 11 archaeological sites in Bulgaria (Fig. 1). They cover a period of ca. 1200 years between the first and twelfth century AD. In the following list, after the site name, the province (oblast) name is given in brackets.

Nikopolis-ad-Istrum (Veliko Tarnovo), 1

- (1) *Camelus* sp.: metatarsus dist.; Roman town, Late Roman period, 250–450 AD (BEECH 1997, 2007).
- (2) *Camelus* sp.: metatarsus prox.; Byzantine town, Early Byzantine period, 450–600 AD (BEECH 1997, 2007).

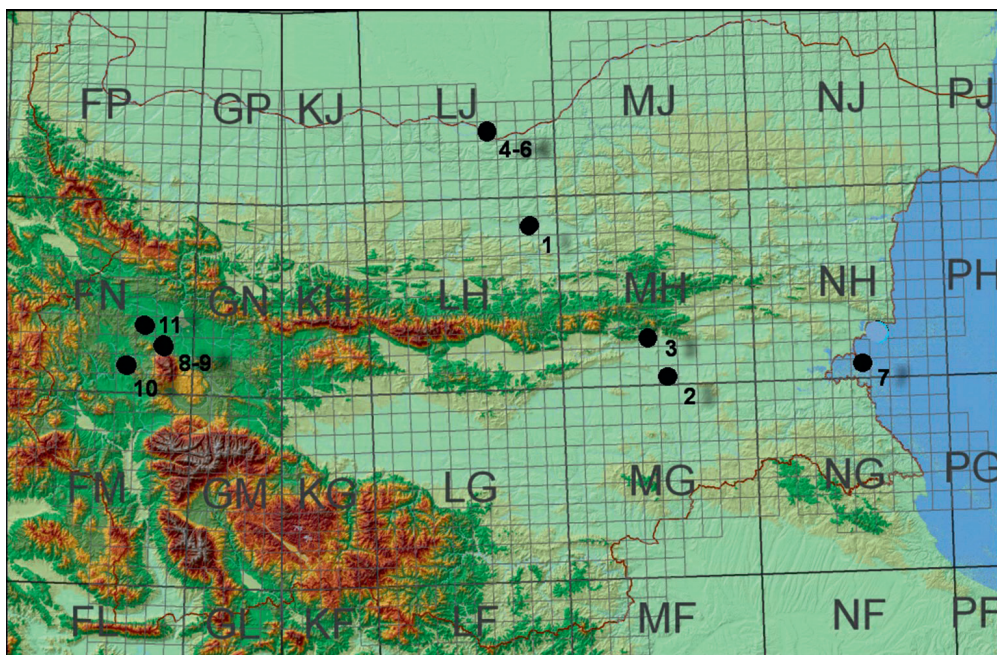


Fig. 1. Former (1st–12th century AD) distribution of the camels in Bulgaria. The numbers in map correspond to the numbers in the list of localities (Records): 1 – Nikopolis ad Istrum, 2 – Kabile, 3 – Tuida, 4–6 – Nove, 7 – Anhialo, 8, 9 – Serdika, 10 – Bela voda, 11 – Herakovo.

Фиг. 1. Минало (1–12 в. н. е.) разпространение на камилите в България. Номерацията отговаря на находищата в текста (Records): 1 – Никополис ад Иструм, 2 – Кабиле, 3 – Туида, 4–6 – Нове, 7 – Анхиало, 8, 9 – Сердика, 10 – Бела вода, 11 – Хераково.

BEECH (2007: 182) noted: “The proximal metatarsal facet was quite distinctive [compared with *C. dromedarius*] and the distal metatarsal shaft fragment had the characteristic wide splayed articulation typical of camelids”. MNI=2 (BEECH 2007).

RIBAROV (1993) mentioned records of some camel bones made by the archaeozoologist Dr. Lazar NINOV (Archaeological Institute, Bulgarian Academy of Sciences) at Nikopolis-ad-Istrum; their whereabouts are unknown (? Veliko Tarnovo Museum).

Kabile (Âmbol), 2

(3) *Camelus dromedarius*: mandibula dex. ad.; Roman Military Camp, 2nd–3rd century AD (RIBAROV 1993).

(4) *Camelus dromedarius*: mandibula sin. ad.; Roman Military Camp, 2nd–3rd century AD (RIBAROV 1993).

MNI=2 (RIBAROV 1993). This author listed these camel finds as of *C. dromedarius* in the text and as “Camel (*Camelus* sp.)” in a figure caption (RIBAROV 1993: 409). RIBAROV (1990) specified that one of these mandibulas had three preserved teeth.

Whereabouts: NMNHS, BAS.

Tuida (Sliven), 3

(5) *Camelus* sp.: metatarsus sin. ad.; Medieval castle, Sliven, 9th–12th century AD (RIBAROV 1993).

(6) *Camelus* sp.: metacarpus sin. ad.; Medieval castle, Sliven, 9th–12th century AD (RIBAROV 1993).

MNI=2 (RIBAROV 1993).

Whereabouts: Sliven Museum.

Nove (Veliko Tarnovo), 4–6

The camel remains in Nove originate from three sites: Western Gate, Forum, and Headquarters buildings.

Nove, Western Gate

(7) *Camelus bactrianus*: atlas (1st vertebra) ad.; Roman town, Western Gate, 1st–7th century AD (SCHRAMM 1975).

(8) *Camelus bactrianus*: femur dex. prox. ad.; Roman town, Western Gate; 1st–7th century AD (SCHRAMM 1975).

(9) *Camelus bactrianus*: maxilla ad.; Roman town, Western Gate, 1st–7th century AD (SCHRAMM 1975).

(10–26) *Camelus bactrianus*: other 17 bone finds without anatomical descriptions and additional information; Roman town, Western Gate; 1st–7th century AD (SCHRAMM 1975). MNI=1.

Nove, Forum

(27) *Camelus* sp.: metacarpus sin. dist.; Roman town, Forum (SCHRAMM 1987).

(28) *Camelus* sp.: femur (diaphyseal fragment); Roman town, Forum (SCHRAMM 1987).

(29) *Camelus bactrianus*: femur dist.; Roman town, Forum (SCHRAMM 1979).

(30–54) *Camelus bactrianus*: other 25 bone/teeth finds without anatomical descriptions and additional information; Roman town, Forum (SCHRAMM 1979). MNI=2.

TOMCZYK (2016: 7) complemented the scanty information for some of the 26 remains found in the Forum: “two fragments of skull bones, two fragments of thoracic vertebrae, five fragments of lumbar vertebrae, five fragments of the sacral bone, four fragments of ribs, two fragments of femori.”

Nove, Headquarters buildings

(55) *Camelus bactrianus*: phalanx I dig. ped.; Roman town, Headquarters buildings, 4th century AD (GRĘZAK & PIATKOWSKA-MALECKA 2001, TOMCZYK 2016). MNI=1.

In addition CHRZANOWSKA & MOLENDĄ (1983) examined 6 bones (excavations 1977 and 1979), but the information about specific context, osteological identification, etc. was not given:

(56) *Camelus* sp.: tibia dist.; Roman town (CHRZANOWSKA & MOLENDĄ 1983).

(57) *Camelus* sp.: phalanx II dig. ped.; Roman town (CHRZANOWSKA & MOLENDĄ 1983).

(58–61) *Camelus* sp.: teeth without information regarding their type (CHRZANOWSKA & MOLENDĄ 1983). MNI=1.

According to the measurements of long bones, TOMCZYK (2016: 8) suggested that they “most likely belonged to average-sized Bactrian camels.” This author concluded that Nove along with Tanais (Don river delta, western Russia) provided the richest archaeozoological material of the camels in Europe. He listed a total of 53 osteological remains of the camel from Nove. TOMCZYK (2016: 8) reasonably doubted the identification of camel remains as the Bactrian, and suggest them to be reanalysed.

Besides the lack of relevant information on the excavated bone remains of camels in Europe, “the most comprehensive analysis has been done on the material concerning Novae ...” (TOMCZYK 2016: 9). Nove is the earliest and the largest assemblage of the *Camelus* bones.

Whereabouts: unknown; ? Poland.

Anhialo (Burgas), 7

(62) *Camelus dromedarius*: metacarpus (diaphyseal fragment) ad., pr.; Pomorie (5th century AD). Excavations in 2007 (RIBAROV, unpubl. data). MNI=1.

Whereabouts: Pomorie Museum.

Serdika (Sofiã), 8, 9

The camel remains in Serdika originate from two sites: amphitheatre of Serdika and the excavations of a building in the Ekzarh Josif Street.

Serdika, amphitheatre

(63) *Camelus* sp.: cranium; 5th–6th century AD.

(64–65) *Camelus* sp.: other finds (more than one fragment); 5th–6th century AD.

All bones originate from an adult individual. Amphitheatre of Serdika. MNI=1 (VELIČKOV 2009). The finds were identified by Dr. Lazar NINOV.

Whereabouts: NAIM, BAS.

Serdika, Ekzarh Josif Street

(66) *Camelus bactrianus*: mandibulae dex. and sin. (joined, symphyseal fragment; Fig. 2); Sofia Centre (building excavations at over 5.3 m depth; 35, Ekzarh Josif Street); Late Antiquity 3rd–4th century AD (BOEV 2019).

According to МАКХДОМИ (2013) the length of mandible in recent *Camelus bactrianus* is 40.6–43.2 cm. The measurement in the Serdika specimen is 46.0 cm (Fig. 2). On the other side, MARTINI et al. (2017: 15) mentioned as follows “The average size ... of Bactrian camel bones was higher than the average size of all dromedary bones The size differences in the cranium ... and the mandible ... were strongly significant.” This relation determines the specimen from Serdika as the Bactrian camel.

Whereabouts: NMNHS, BAS.

Bela Voda (Pernik), 10

(67) *Camelus* sp.: unspecified find(s); 3rd–4th century AD.

Although BEECH (2007) mentioned camel finds that were found in the Byzantine villa of Bela Voda, the authors of the respective research (ILIEV et al. 1992) do not provide any data on camels. The camel finds were probably collected during 15 years since the paper by the latter authors was published. MNI=1.

Whereabouts: unknown; ?Pernik Museum.



Fig. 2. Bactrian camel (*Camelus bactrianus*), left mandible, lateral view. Serdika, 3rd–4th century AD. Photo by Z. BOEV. Scale bar = 20 cm.

Фиг. 2. Двугърба камила (*Camelus bactrianus*), mandibula sinistra, страничен изглед. Сердика, 3–4 в. н. е. Снимка З. БОЕВ. Мярка = 20 см.

Herakovo (Sofiâ), 11

(68) *Camelus* sp.: maxilla dex. ad.; Holocene. Near the Zlatuša River, coll. Venko MLADENOV. The find was collected in the 1920s–1930s and identified by Prof. Nikolaj SPASSOV. MNI=1.

Whereabouts: NMNHS, BAS.

CONCLUSIONS

Camel bone remains in Bulgarian archaeological sites are scanty, scattered, and recently also partly lost and/or insufficiently documented. A part of them are still incompletely identified (only to the genus level *Camel Camelus* sp.), although it is believed that their majority should be attributed to the Bactrian camel.

Some of the camel remains were collected during joint archaeological excavations with foreign institutions (Bulgarian-Polish in Nove, Bulgarian-British in Nikopolis ad Istrum) and the bones are now kept in collections abroad. A small part of the bone material is kept at three museums of Bulgaria, in Sofia, Sliven and Pomorie.

We could recognize at least 68 bone/teeth finds (MNI=16) in the archaeozoological literature documenting 11 archaeological localities (8 sites), excavated for a period of ~70 years (1960–2018). Metapodial bones – metacarpi and metatarsi (8), along with vertebrae (8), mandibles (6), and femori (4) are the most numerous among the finds. Nove is the richest locality concerning the camel findings, containing ca. 82% of all osteological finds of camels in Bulgaria.

In the Antiquity, the domestic forms of both wild camel species (Bactrian and dromedary) were concurrently bred in Bulgaria. They coexisted but obviously the Bactrian camel was more common. In all ancient sites, the total distribution of the finds is as follows: *Camelus bactrianus*: 48 finds, MNI=4; *Camelus dromedarius*: 3 finds, MNI=3; *Camelus* sp.: 15 finds, MNI=8.

РЕЗЮМЕ

Субфосилната летопис на двугърбата и едногърбата камили в България включва 11 находища от античността до средновековието (1–12 в. н. е.). На съвременната територия на страната са намерени над 68 остеологични находки (от най-малко 16 индивида) от двата вида (домашни форми). Мнозинството от тях са определени като двугърби камили. Нове е най-богатото находище, в което са установени около 82 % от всички находки. През 2018 г. в центъра на София е изкопана най-новата находка – цяла долна челюст, датирана 2–4 в. н. е.

A c k n o w l e d g e m e n t s

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Added in proof: A complete skull and forearm bones of the Bactrian camel were found recently (20 September 2019) during a continuous excavations at the Ekzarh Josif site in Sofia. Scale bars = 20 cm.

Добавено в коректура: Цял череп и кости на предрамото на двугърба камила, намерени наскоро (20 септември 2019 г.) по време на продължаващите разкопки в находището “Екзарх Йосиф” в София. Мярка = 20 см.