

# Avian Remains from the Late Neolithic Settlement of Sarnevo (Stara Zagora Region, South-Central Bulgaria)

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**Abstract:** Thirty-five bird bone remains (MNI 8) of 5 species, dated ca. 5400-5200 BC have been identified: *Cygnus* cf. *olor*, *Anser albifrons*, *Anser* sp., *Otis tarda*, *Tetrax tetrax*. The findings originate from hunted wild birds, indicating a former distribution of openland grassy and wetland habitats in the vicinities of the settlement.

**Key words:** Late Neolithic birds, Holocene avian remains, Bulgaria, Archaeozoology, game-fowl, Bustards

## Introduction

Location: The archaeological site is located in the vicinity of the Sarnevo village (UTM grid: MG08) at ca. 119 m a. s. l. (42.35 N, 25.83 E), SC Bulgaria.

Excavations: The site was uncovered during the constructing works of the Trakiya (Thrace) Highway in 2007. Conservational excavations were carried out between 2008 and 2010, guided by DR. KRUM BACHVAROV and DR. PETAR LESHTAKOV (National Archaeological Institute and Museum, Bulgarian Academy of Sciences, Sofia. The total excavated area in 2010 was ca. 10 dka (BGNES, 2009). The total amount of the collected animal remains numbers several thousand bones, bone fragments, teeth and shells.

Dating and cultural interrelationships: Late Neolithic, earliest layers dated 5400-5200 BC (BACHVAROV 2010; DIMITROV, 2011). The site was classified as “the most impressive archaeological complexes along the ... route of the Trakiya Highway” (DIMITROV, 2011). Artifacts of the Iron Age and the Roman period were also found (BGNES, 2009), but the avian material originated from the Early Neolithic deposits (MSc NADEZHDA KARASTOYANOVA, New Bulgarian University, Sofia – pers. data).

Associated fauna: Mammalia: Wild – *Bos prim-*

*igenius* (BOJANUS, 1827) – horns exceeding 1 m in length, Domestic – *Bos taurus*, *Equus caballus*, *Ovis aries*, *Capra hircus*, *Canis familiaris* (VAGALINSKA, 2009).

## Material and Methods

A total of 35 avian findings were collected. They were handed in for examination by Ms. N. KARASTOYANOVA in June 2011. All findings are kept at the Vertebrate Animals Department of the National Museum of Natural History (NMNHS) of the Bulgarian Academy of Sciences in Sofia (No NMNHS 16542-16576). They were identified through the comparative avian osteological collection of the NMNHS. All measurements (Table 1) are given in mm.

Abbreviations: AD – after death, ad. – adult, BC – before Christ, dex. – dextra, dist. – distal, MNI – minimum number of individuals, prox. – proximal, sin. – sinistra.

## Species composition

Although the Holocene bird remains from seven archaeological sites in the Eastern Upper Thracian Plane have been examined (BOEV 2004), the new data from the settlement near Sarnevo village, originating



**Fig. 1.** *Anser* sp. – diaphysal portion of a right radius, NMNHS 16563, medial view (Photo: Zlatozar Boev).

from the same region, reveal new additional information on the former distribution of some of the most hunted avian species in the Holocene (Table 1).

Mute Swan *Cygnus olor* (GMELIN, 1789). The species was among the most valuable prey for the prehistoric hunters. It was hunted until recently. After the late Middle Ages, however, it lost most of its significance as game. Its remains are relatively abundant in the archaeological records (Boev, 2009A). All these sites lie out of the recent breeding range of the species (HARRISON, 1982). At present the Mute Swan is a vulnerable species in Bulgaria. Its breeding pairs are about 25 (DERELIEV & IVANOV, 201).

Greater White-fronted Goose *Anser albifrons* (SCOPOLI, 1769). The former species' distribution was well documented in the Bulgarian archaeological records during the last 4000 years. Its finds were established in six settlements starting from the Chalcolithic to the Middle Ages: Urdoviza (Chalcolithic, 3000-2000 BC), Nicopolis-ad-Istrum (1-6 century AD), Hisarlaka (5-6 century AD), Pliska (10 century AD), Krivnya (9-10 century AD), Veliki Preslav (9-10 century AD) (BOEV, 1999). *Anser* sp. (cf. *Anser albifrons* or *Anser anser*) was found in the Early Neolithic settlement near Yabalkovo village in the same region (BOEV, 2009B). All these sites lie out of the recent breeding range of the species (HARRISON, 1982). At present the Greater White-fronted Goose is a migratory and wintering species and most of the birds originate from Western Siberia (IVANOV, 1997).

Great Bustard *Otis tarda* LINNAEUS, 1758. A re-

**Table 1.** Taxonomic list, collection numbers and measurements (mm) of the avian finds of the Late Neolithic settlement of Sarnevo (Stara Zagora Region, SC Bulgaria)

Species	Skeletal element	NMNHS collection number	Measurement	Dimension	MNI
ANSERIFORMES					
Anatidae					
<i>Cygnus cf. olor</i>	carpometacarpus dex. (os metacarpele majus)	16545	length of synostosis metacarpalis distalis	10.0	1
<i>Anser albifrons</i>	femur sin dist.	16557	width of distal epiphysis	17.5	
	humerus dex. dist.	16568	width of distal epiphysis	22.1	
<i>Anser</i> sp.	ulna dex. (diaphysal fragment)	16550	minimal width of diaphysis	7.3	1
	radius dex. (diaphysal fragment)	16563	width of diaphysis	5.0	
	femur dex.	16570	width of proximal diaphysis	14.1	
	phalanx 3 digitorum pedis III sin.	16564	total length	25.9	

## GRUIFORMES

## Otitidae

<i>Tetrax tetrax</i>	sternum (crista sterni)	16555	thickness of crista sterni at the middle of its height	6.0	1
	coracoid dex.	16556	minimal width of diaphysis	5.8	
	radius dex. dist.	16558	minimal width of diaphysis	3.2	
	ulna dex. (diaphysis)	16559	width of diaphysis at foramen nutritium	4.2	
	tarsometatarsus dex. dist.	16561	width of distal epiphysis	11.0	
<i>Otis tarda</i>	humerus dex. prox.	16542	thickness of caput humeri	13.3	5
	carpometacarpus dex. dist.	16543	length of synostosis metacarpalis distalis	10.6	
	tarsometatarsus sin. (without dist. ep.)	16544	width of proximal epiphysis	20.4	
	ulna dex. (diaphysal fragment)	16546	width of diaphysis at foramen nutritium	9.5	
	sternum (rostral fragment)	16547	minimal thickness at sulcus articularis coracoideus	6.3	
	tarsometatarsus dex. prox.	16548	width of proximal epiphysis	19.9	
	tarsometatarsus dex. prox.	16549	width of proximal epiphysis	19.9	
	femur dex. prox. (splinter)	16551	maximal width of trochanter femoris	22.1	
	radius dex. dist.	16552	width of distal epiphysis	14.2	
	tarsometatarsus dex. prox.	16553	width of proximal epiphysis	ca. 16.2	
	tarsometatarsus dex. dist.	16554	width of trochlea metatarsi iii	7.5	
	ulna dex. prox. (splinter)	16560	total length of splinter	35.3	
	sternum, pars coracoidalis dex.	16562	minimal thickness	7.7	
	carpometacarpus sin. prox.	16565	width of trochlea carpalis	10.9	
	ulna dex. prox.	16566	width of proximal epiphysis	18.6	
	tarsometatarsus sin. prox.	16567	width of proximal epiphysis	20.2	
	tarsometatarsus sin. dist.	16569	width of distal epiphysis	16.7	
	humerus sin. prox. (splinter)	16571	length of crista pectoralis	ca. 53.5	
	humerus dex. dist.	16572	thickness at the proximal end of fossa musculi brachialis	10.6	
	sternum, pars rostralis	16573	thickness at spina externa rostri	13.4	
humerus dex. dist.	16574	width of distal epiphysis	29.4		
humerus sin. (splinter)	16575	width of diaphysis at foramen nutritium	ca. 13.7		
femur dex.	16576	total length	99.8		
AVES INDET.					
Aves ordo indet.	2 diaphysal splinters (unidentifiable)				
Total		35			8

view of the subfossil record of the species has been presented by BOEV (2009A). The species were recorded in a number of sites from the same region (BOEV, 2004, 2006). Being a large game-bird, the Great Bustard always was a valuable prey for man in the prehistoric and historic times. It disappeared from the country around the 1950-s. Sarnevo is its 15<sup>th</sup> site in Bulgaria. All sites lie out of the recent breeding range of the species (HARRISON, 1982). At present the Great Bustard is a critically endangered species in Bulgaria (ZEHTINDZHIEV *et al.*, 2011)

Little Bustard *Tetrax tetrax* (LINNAEUS, 1758). A very rare species in the archaeological context in Bulgaria. It disappeared from the country around the 1950-s. Only three sites have been known up until 1999: Devetashka Cave (Middle Paleolithic, 70 000 BC), Malak Preslavets (Early Neolithic, 6000 BC), and Nicopolis-ad-Istrum (1-6 century AD) (BOEV, 1996, 1997, 1999). Later two new sites were added: Shirokovo (Early to Late Holocene; MITEV 2006) and Slatina (Early Neolithic, 6000 BC; BOEV, 2009C). All these sites lie out of the recent

breeding range of the species (HARRISON, 1982). At present the Little Bustard is an extinct species in Bulgaria (BOEV, 2011).

Except in one find, a diaphysal portion of a right radius, NMNHS 16563 of a goose (*Anser sp.*), no traces have been observed on the bone surfaces. The specimen No 16563 bears two clear parallel, sharp and shallow cut-marks, besides a third, shorter one. The first two encompass the medial fourth of the diaphysal circumference of the surface (Fig. 1).

Bustards represent 80% of the collected finds, and the Great Bustard is the most numerous species among them, composing 65.7% (Table 1). Obviously, in the Late Neolithic, this part of the Upper Thracian Plane (the valley of the Sazliyka River) offered suitable habitats for both species of European bustards, they were abundant and usually were hunted by the former inhabitants of the early settlements.

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