ACTA SCIENTIARUM POLONORUM *Acta Sci. Pol., Zootechnica 11 (1) 2012, 3–24*

OSTEOMETRIC TRAITS OF THE SELECTED SKELETON ELEMENTS OF DOMESTIC CAT (*FELIS SILVESTRIS F. CATUS*) FROM ARCHAEOLOGICAL SITES WOLIN–TOWN AND SZCZECIN–VEGETABLE MARKET

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Abstract. Detailed osteometry of selected cat bones was evaluated as well as the values of correlation coefficients describing the morphology of individual cat skeleton elements were compared in order to verify the hypothesis on the possible occurrence of larger cats in early mediaeval Szczecin than in contemporary Wolin. The research material consisted of domestic cat bone remains being housed in the bone collections of the Museum of the Department of Animal Anatomy, Western Pomeranian University of Technology in Szczecin, coming from archaeological sites situated at the place of early mediaeval urban centres in Wolin and Szczecin. Based on the degree of diaphyseal-epiphyseal fusion of the long bones, the age of cats was determined and 3 age groups were separated, i.e. juvenile, subadult and adult. The traits of cat bones from archaeological site Szczecin–Vegetable Market showed significantly higher values ($P \leq 0.01$; $P \leq 0.05$) when compared to those from archaeological site Wolin–Town. The bone material examined complements our knowledge on the characteristic of this species in Western Pomerania as well as expands that on cats of the Early Middle Ages.

Keywords: archeaozoology, domestic cat, long bones, mandible, osteometry

INTRODUCTION

The cat, as an animal being domesticated humans fairly late by humans [Clutton-Brock 1999; Lasota-Moskalewska 2005], was not known in Europe at all until the 4th century A.D. [Hilzheimer 1910, after Kubasiewicz 1959, p. 35]. On the other hand, low phenotypic plasticity of the cat, being expressed in its morphological stability and incomplete dependence on humans, consisting for instance in its ability to chase prey independently, which makes its way of life resemble that of wild ancestors, or its reproduction escaping human interference, is a well known and repeatedly mentioned fact [Krysiak 1957].

Among osteological materials being found in Western Pomerania and lodged in the bone collections of the Department of Animal Anatomy of the Western Pomeranian Uni-

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versity of Technology in Szczecin, there are also cat bone remains. Their number is small in relation to total number of identified mammal bone remains from Wolin and Szczecin as it varies from 0.60 to 0.70%, respectively [Kubasiewicz and Gawlikowski 1967]. The osteometric studies carried out on several larger fragments of the skulls of these animals have allowed the bone remains of cats from Wolin to be included among remnants of domestic cat. They came from the places where dead cats had been completely buried or such as rubbish dumps and do not have any cut-marks caused by sharp tools, which indicates that they are not kitchen or handicraft debris [Kubasiewicz 1959]. The second group of cat bones comes from the site located at the foot of the Castle of Pomeranian Dukes in Szczecin (between the Castle Hill and the Odra River), from the area of so called Vegetable Market. This archaeological site is situated within the area of a former suburbium at the foot of the castle [Cnotliwy et al. 1983; Dworaczyk et al. 2003]. It was explored for 10 years and delivered a comparative material from the castle itself and neighbouring urban buildings [Kubasiewicz and Gawlikowski 1967]; there are not such bones among it which would indicate the use of cat bone remains as a raw material for handicraft, which confirms their origin as the remnants of animals that died at different age.

The size difference between cats from Wolin and Szczecin indicated earlier [Kubasiewicz and Gawlikowski 1967] was a motive for the research consisting in the detailed osteometry of selected cat bones and comparison of the values of correlation coefficients describing the morphology of individual cat skeleton elements. The undertaken research aimed at verification of the hypothesis on the possible occurrence of larger cats in early mediaeval Szczecin than in contemporary Wolin.

MATERIAL AND METHODS

The research material consisted of the bone remains of domestic cats being housed in the bone collections of the Museum of the Department of Animal Anatomy, Western Pomeranian University of Technology in Szczecin, coming from archaeological sites situated at the place of early mediaeval urban centres in Wolin and Szczecin. They are part of very numerous animal bone materials isolated from among the bone fragments being of no use for further osteometric analyses, showing marks of purposeful or accidental human activity, animal tooth marks, or the ones on which anatomopathological lesions have been found or those being damaged to a different extent through staying in the ground before excavation. The following cat bones were used in the analysis: mandibles (n = 50), scapulae (n = 14), humeri (n = 28), radii (n = 18), ulnae (n = 11), femora (n = 21) and tibiae (n = 20). Based on the degree of diaphyseal-epiphyseal fusion of the long bones [Habermehl 1975], the age of cats was determined and 3 age groups were distinguished: young animals (juvenile, to the 6th month of life), mature animals (subadult, from the 6th to the 11.5 month of life), and full grown animals (adult, more than the 11.5 month of life). Measurements of the aforesaid bones were made with an electronic calliper (Orion 31170 150), accurate to 0.01 mm, using "A guide to the measurement of animal bones from archaeological sites" [Driesch 1976] as a current standard being recommended by International Council for Archaeozoology.

Measurements of the mandible and teeth

Total length:

Infradentale – Gonion caudale; *Infradentale – Incisura angularis*; Aboral border of the canine alveolus – *Processus coracoideus*; Aboral border of the canine alveolus – *Incisura angularis*; Length of the cheek-tooth row $P_3 – M_1$; Length of M_1; Breadth of M_1; Length of the carnassial alveolus (M_1)

Height of the mandible:

Basal point of the angular process – *Coronion*; Height of the mandible behind M_1; Height of the mandible in front of P_3

Measurements of the *scapula*:
Ld – Greatest dorsal length,
HS – Height along the spine,
DHA – Diagonal height,
GLP – Greatest length of the *processus articularis,*
SCL – Smallest length of the collum scapulae,
LG – Length of the glenoid cavity,
BG – Breadth of the glenoid cavity.

Measurements of the *humerus*:
GL – Greatest length,
GLC – Greatest length from the caput humeri (humeral head),
Bp – Greatest breadth of the proximal end,
Bd – Greatest breadth of the distal end,
SD – Smallest breadth of the *diaphysis.*

Measurements of the *radius*:
GL – Greatest length,
Bp – Greatest breadth of the proximal end,
SD – Smallest breadth of the *diaphysis*,
Bd – Greatest breadth of the distal end.

Measurements of the *ulna*:
GL – Greatest length,
DPA – Depth cross the *processus anconaeus*,
SDO – Smallest depth of the *olecranon*,
BPC – Greatest breadth cross the coronoid process.

Measurements of the *femur*:
GL – Greatest length,
GLC – Greatest length from the caput femoris (femoral head),
Bp – Greatest breadth of the proximal end,
BTr – Greatest breadth of the region of the *trochanter tertius*,

DC – Greatest depth of the caput femoris,
SD – Smallest breadth of the *diaphysis*,
Bd – Greatest breadth of the distal end.

Measurements of the *tibia*:
GL – Greatest length,
Bp – Greatest breadth of the proximal end,
SD – Smallest breadth of the *diaphysis,*
Bd – Greatest depth of the distal end.

In addition, values of the surface area of vertical projections of proximal and distal epiphyses of the long bones of the pelvic limb were estimated. For this purpose, photographic images of the aforesaid bone parts were taken with a Canon camera, which were then transferred to MultiScan software to make measurements. Furthermore, the diaphyseal axis and the lines perpendicular to it, the course of which overlaps that of epiphyseal lines [Henneberg 1974], were drawn. Values of the following traits were estimated: surface area of the projection of proximal epiphysis (Pp); surface area of the projection of distal epiphysis (Pd); total surface area of projection (Pc); and surface area of the projection of diaphysis (Pt). Using the values of obtained measurements, the following bone indices were calculated:
– total massiveness index (WMO) = (total surface area of the projection / greatest length) x 100;
– epiphyseal-diaphyseal index y (WNT) = (surface area of the projection of the proximal and distal epiphyses / surface area of the projection of the diaphysis) x 100;
– proximal epiphyseal index (WNB) = (surface area of the projection of the proximal epiphysis / total surface area of the projection) x 100
– distal epiphyseal index (WND) = (surface area of the projection of the distal epiphysis / total surface area of the projection) x 100.

All empirical data obtained were processed statistically by means of Statistica® v.9 PL software package. The following parameters were calculated for each trait: arithmetic mean value and standard deviation, and minimum and maximum values of the trait were determined. The results obtained are presented in Tables 2 to 12. Since the values of traits of the mandible and other skeleton elements dis not show normal distribution, differences between mean values were evaluated with a non-parametric Mann-Whitney's U test, whereas correlations between selected traits were estimated using the Spearman's rank correlation coefficient. The source of variation for carried out analyses was archaeological site and morphological age of particular bone remains.

RESULTS AND DISCUSSION

Table 1 presents the chronological and contextual data for all cat bones excavated in two archaeological sites of Western Pomerania, i.e. in Wolin–Town and Szczecin–Vegetable

Market. The most numerous cat bone remains with exactly determined chronology are the ones coming from the first half and the third quarter of the 10th century (approx. 30%), and then those coming from the second half of the 9th century and the first half of the 13th century (approx. 12%). For approximately 33% of cat bone remains (n = 54), a precise chronology could not be determined (9th–14th century). Among the cat bone remains examined, mandibles constitute the largest number in the analysed sample, which were mostly excavated in several Wolin–Town excavation sites (78%), with chronology being very precisely determined for more than 53% of them. Only a few fragments of cat skulls from Wolin survived [Kubasiewicz 1959], being thus of no use for the goal being set in the present research, which would allow, like in case of dog skulls [Baranowski 2010], approximate determination of morphological traits more closely.

The osteometric analysis of most mandible traits (Table 2) did not show any significant statistical difference between specimens. Only significantly larger mean breadth of M_1 ($P \leq 0.05$) was observed in the mandible excavated in Wolin–Town when compared to the value of that trait describing the specimens from Szczecin–Vegetable Market.

As far as the analysed mandibles came from the cats being determined as subadult individuals, the whole material representing scapulae belonged to full grown, adult animals (Table 3). The statistical analysis performed on osteometric traits describing that bone showed that seven of the eight examined traits of the cat scapulae from Szczecin–Vegetable Market were statistically significantly larger ($P \leq 0.01$; $P \leq 0.05$) when compared to those excavated in Wolin–Town. One scapula from the latter calls special attention, with the weight being 7.24 g and thus exceeding 2.5-times the average weight of the scapulae found in Szczecin. Such extremely large specimens of other cat skeleton parts had been found during exploration of archaeological sites in other areas of Western Pomerania [Kubasiewicz and Gawlikowski 1963].

Table 4 presents the results of osteometric analysis of the bones of free thoracic limb of the cats from both sites. No differences were found in the weight of the humerus but its greatest length, greatest length from the caput humeri and greatest breadth of the proximal end excavated in Szczecin–Vegetable Market were significantly larger ($P \leq 0.01$) when compared to those in the subadult age group from Wolin–Town. A too small number of well-preserved radii and ulnae from both sites made objective analysis of differences impossible but attention should be paid to significantly smallest breadth of the diaphysis of the radius and the ulna in fully grown specimens from Szczecin–Vegetable Market when compared to those from Wolin. A shortage in the representative number of the ulnae did not allow objective statistical analysis of the osteometric results for this bone.

Statistical analysis of the values of metric traits of the bones of free pelvic limb of the domestic cats from both sites (Table 5) showed significantly larger mean weight of the femora ($P \leq 0.01$) from Szczecin–Vegetable Market and larger greatest length and greatest length from the caput femoris when compared to the specimens in the adult age group from Wolin–Town, as well as larger mean weight of the tibia, greatest length, greatest breadth of the proximal end and greatest breadth of the distal end in the subadult age group. The above relationship is confirmed by measurements of the surface area of the projection of the proximal epiphysis (Pp) and the distal epiphysis (Pd) as well as the total surface area

of the projection (Pc) and the surface area of the projection of the diaphysis (Pt) of the femur and the tibia of the specimens included in the subadult and adult age groups (Table 6). Each of these traits for the bones of both types from excavation sites in Szczecin shows statistically significantly higher values ($P \leq 0.01$; $P \leq 0.05$) when compared to those from Wolin–Town.

The mandible consists of two separate modules which are the body, being a nest for teeth of the lower arch, and the ramus. In order to estimate the strength of association of the essential descriptive parts, the values of Spearman's rank correlation coefficient were calculated for selected traits of that bone of domestic cats from archaeological sites Wolin–Town and Szczecin–Vegetable Market (Table 7). It is apparent from the analysis of values of that coefficient that both regions of the mandible of cats from Wolin–Town seem to be more highly integrated when compared to the specimens from Szczecin–Vegetable Market. On the other hand, direction of the correlation of traits of the *mandibula*, *humerus* (Table 9) and *tibia* (Table 11) is always positive, as opposed to the correlation of elements of the post-cranial elements: *scapula* (Table 8), *radius* (Table 10) and *femur* (Table 12), where some of the examined traits show no association or low strength of association and negative values.

Domestic cat belongs to the most popular and best known species among many animal species being associated with humans for about 3 thousand years. However, its non-domesticated form, the European wildcat, occurs naturally, being morphologically very close to domestic cats. This causes that genetic difference between these two forms is indistinct, while their distinction is largely based on behavioural analyses [Pierpaoli et al. 2003, Yamaguchi et al. 2004]. Not numerous bone remains of cats, as is the case with the results mentioned earlier and referring to the materials under discussion, have been reported by other author who observe not more than 1% of specimens among archaeozoological bone remains of these animals [O'Connor 2007]. Also sexual dimorphism of the cranial and post-cranial skeleton is irrelevant to comparative studies, as opposed to the skeleton of European wildcats [Kratochwil 1976]. Considerable difficulties in finding out what a form has been encountered in the bone collections may be affected by the fact of almost imperceptible skeletal differences between European wildcats and domestic cats [Daniels et al. 2001]. The results being obtained through comparative studies are additionally obscured by their ability to produce hybrids, being the effect of mating between the two forms.

Table 1. Chronology and contextual data referring to the skeletons of domestic cats from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market [Kowalska and Dworaczyk 2011]

Tabela 1. Chronologia i dane kontekstowe elementów szkieletów kotów domowych ze stanowisk archeologicznych Wolin–Miasto (WM) i Rynku Warzywnego w Szczecin (SRW) [Kowalska i Dworaczyk 2011]

No. Nr	Chronology Chronologia	*Mandibula*		Age Wiek	*Scapula*		*Humerus*		*Radius*		*Ulna*		*Femur*		*Tibia*	
		WM	SRW		WM	SRW	WM	SRW	WM	SRW	WM	SRW	WM	SRW	WM	SRW
1	2nd half of the 9th century to 903 ± 8 II połowa IX w. do 903 ± 8	1	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	2	–	–	–	–	–	–	–	2
				A	–	–	1	–	–	–	–	–	1	–	1	1
2	From 903±8 to the half of the 10th century Od 903 ± 8 do połowy X w.	–	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	1	–	–	–	–	–	–	–	–	–
				A	–	–	–	–	–	–	–	–	–	–	–	–
3	1st half of the 10th century I połowa X w.	–	2	J	–	–	–		–	–	–		–	2	–	
				S	–	–	–	5	–	–	–	2	–	2	–	4
				A	–	4	–	–	–	3	–	1	–	3	–	–
4	3rd quarter of the 10th century III ćwiartka X w.	2	–	J	–	–	–	–	1	–	–	–	4	–	–	–
				S	–	–	3	–	–	–	–	–	1	–	3	–
				A	4	–	–	–	–	–	–	–	–	–	2	–
5	4th quarter of the 10th century and 1st half of the 11th century IV ćwiartka X w. i I połowa XI w.	2	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	–	–	–	–	–	–	–	–	–
				A	–	–	–	–	–	–	–	–	1	–	–	–
6	1st half of the 11th century I połowa XI w.	–	4	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	1	–	–	–	–	–	–	–	–
				A	–	1	–	–	–	–	–	–	–	–	–	–

cont. Table 1 – cd. tab. 1

7	Late 1st half of the 11th century (after 1043) to the end of the 11th century Schyłek I połowy XI w. (po 1043 r.) do końca XI w.	3	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	–	–	–	–	–	–	–	1	–
				A	1	–	–	–	–	–	–	–	–	–	–	–
8	2nd half of the 11th century II połowa XI w.	–	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	1	–	–	–	–	–	–	–	–
				A	–	–	–	–	–	–	–	–	–	–	–	–
9	End of the 11th century to 1st half of the 12th century Koniec XI w. do I połowy XII w.	2	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	1	–	–	–	–	–	–	–	–	–
				A	–	–	1	–	–	–	1	–	1	–		–
10	1st half of the 12th century to 1173 I połowa XII w. do 1173 r.	2	1	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	–	–	–	–	–	–	–	–	–
				A	2	–	1	–	1	–	–	–	–	–	–	–
11	1173–1184 r.	1	–	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	1	–	–	–	–	–	–	–	–	–
				A	1	–	–	–	–	–	–	–	–	–	1	–
12	1st half of the 13th century I połowa XIII w.	5	4	J	–	–	–	–	–	–	–	–	–	–	–	–
				S	–	–	–	1	–	–	–	–	–	–	–	–
				A	–	–	1	–	–	–	–	–	–	–	–	–
13	2nd half of the 13th century II połowa XIII w.	3	–	J	–	–	–	–	–	–	–	–	1	–	–	–
				S	–	–	–	–	–	–	–	–	–	–	–	–
				A	–	–	–	–	–	–	1	–	1	–	1	–
14	9th–14th century IX–XIV w.	18	–	J	–	–	–	–	–	–	3	–	–	–	–	–
				S	–	–	8	–	6	–	1	–	–	–	1	–
				A	1	–	–	–	7	–	2	–	4	–	3	–
Total – Razem		39	11		9	5	18	10	15	3	8	3	14	7	13	7

Explanations: (J – juvenil, S – subadult, A – adult) – Objaśnienia: (J – młody, S – dojrzały, A – dorosły).

Table 2. Morphological traits of the mandible of domestic cat from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 2. Cechy morfologiczne żuchwy kota domowego ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	WM						SRW					
	subadult					*adult*	*subadult*					*adult*
	n	x	sd	min	max		n	x	sd	min	max	
Weight of mandible, g Masa żuchwy, g	36	2.33	0.59	1.15	3.64		11	2.04	0.45	1.49	2.90	
Greatest lenght of mandible (*Infradentale – Gonion caudale*) Największa długość żuchwy (*Infradentale – Gonion caudale*)	27	52.85	2.97	48.15	58.51		9	52.08	3.10	46.12	56.11	
Length from Infradentale – *insula angularis caudalis* Długość od *Infradentale – insula angularis caudalis*	28	50.67	2.74	46.54	55.93		9	49.98	3.00	43.94	53.78	
Lenght: aboral border of the canine alveous – condyle process Długość: odustna granica zębodołu kła – wyrostek dziobasty	28	46.21	2.69	42.21	51.94		10	45.52	2.60	40.31	49.28	
Lenght: aboral border of the canine alveous – *insula angularis caudalis* Długość: odustna granica zębodołu kła – *insula angularis caudalis*	29	44.12	2.57	40.34	49.02		10	43.34	2.61	37.79	47.31	no bone remains
Lenght of the cheektooth row P_3–M_1 Długość szeregu zębów P_3–M_1	39	18.05	0.91	16.33	20.21	no bone remains	11	17.65	1.02	15.19	19.36	brak szczątków
Lenght of M1 Długość zęba M_1	29	7.00	0.55	6.13	8.09	brak szczątków	11	6.66	0.47	6.27	7.42	

cont. Table 2 – cd. tab. 2

Breadth of M1 Szerokość zęba M_1	32	3.27[a]	0.21	2.91	3.69		11	3.07[a]	0.22	2.76	3.38
Lenght of the carnassial alveous Długość zębodołu zęba M_1	39	6.98	0.50	5.61	8.14		11	6.71	0.47	5.87	7.45
Height of the vertical ramus: basal point of the angular process – *Coronion* Wysokość gałęzi żuchwy od podstawy wyrostka kątowego do *Coronion*	22	21.60	1.36	19.33	24.04		9	21.55	1.56	18.44	24.15
Height of the mandible behind M_1 Wysokość żuchwy za M_1	37	9.34	0.84	7.99	11.24		11	8.96	0.89	8.08	11.04
Height of the mandible in front of P_3 Wysokość żuchwy przed P_3	39	8.81	0.83	7.57	10.72		11	8.61	0.85	7.61	10.58

Explanations: mean values in rows with the same letters differ significantly: a, b... at P≤0.05 and A, B…at P≤0.01.
Objaśnienia: średnie w wierszach oznaczone tymi samymi literami różnią się istotnie: a, b... – P≤0,05; A, B… – P≤0,01.

Table 3. Morphological traits of the scapula of domestic cat from archaeological sites of domestic cat from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 3. Cechy morfologiczne łopatki kota domowego ze stanowisk archeologicznych Wolina-Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	WM						SRW					
	subadult	*adult*					*subadult*	*adult*				
		n	x	sd	min.	max		n	x	sd	min.	max
Weight of scapula, g Masa łopatki, g		9	2.47[a]	1.81	1.57	7.24		5	2.95[a]	0.51	2.59	3.80
LD	no bone remains	2	36.01	2.84	34.00	38.02	no bone remains	2	38.27	–	37.75	38.79
HS		7	58.63[a]	4.25	50.66	62.68		3	70.20[a]	2.49	68.60	73.14
DHA	brak szczątków	7	60.11[a]	1.54	57.99	62.18	brak szczątków	3	70.28[a]	1.61	67.78	70.95
GLP		9	11.27[A]	0.66	10.12	12.17		5	13.45[A]	0.91	12.72	15.04
SLC		9	10.17[A]	0.56	9.20	10.76		5	12.02[A]	0.63	11.27	12.81
LG		9	10.14[A]	0.63	9.42	11.24		5	12.09[A]	0.74	11.33	13.29
BG		9	7.46[a]	0.31	6.95	7.90		5	9.14[A]	0.76	8.39	10.21

Explanations: mean values in rows with the same letters differ significantly: a, b... at P≤0.05 and A, B…at P≤0.01.

Objaśnienia: średnie w wierszach oznaczone tymi samymi literami różnią się istotnie: a, b... – P≤0,05; A, B… – P≤0,01.

Table 4. Morphological traits of the humerus, radius and ulna of domestic cat from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 4. Cechy morfologiczne kości ramiennej, promieniowej i łokciowej kota domowego ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	WM										SRW									
	subadult					*adult*					*subadult*					*adult*				
	n	x	sd	min.	max	n	x	sd	min.	max	n	x	sd	min.	max	n	x	sd	min.	max
Humerus																				
Weight of *humerus*, g Masa kości ramiennej, g	14	3.77	0.90	1.46	5.30	4	4.60	1.23	3.65	6.34	10	4.70	1.15	3.13	6.41					
GL	9	82.43^{A}	5.76	76.61	91.97	4	88.71	7.33	80.77	97.12	5	93.49^{A}	3.66	89.07	98.28	no bone remains brak szczątków				
GLC	10	81.37^{A}	4.98	75.52	90.16	4	86.71	6.53	79.70	93.87	6	91.16^{A}	3.06	87.74	94.98					
BP	4	17.09^{a}	0.97	16.22	18.32	4	17.10	1.53	16.10	19.38	6	18.85^{a}	0.79	17.74	19.61					
SD	14	5.52	0.52	4.84	6.52	4	5.49	0.48	5.04	5.92	9	5.67	0.48	5.08	6.33					
BD	14	15.53	1.04	14.06	16.91	4	15.27	0.92	14.49	16.54	9	16.03	0.87	15.11	17.41					
Radius																				
Weight of *radius*, g Masa kości promieniowej, g	6	1.43^{A}	0.11	1.29	1.54	8	2.23^{A}	0.57	1.53	3.28						3	2.16	0.47	1.83	2.70
GL	6	73.53^{A}	2.09	70.26	76.10	8	86.34^{A}	6.71	76.78	96.32		no bone remains brak szczątków				2	91.13	3.60	88.58	93.68
BP	6	9.10^{A}	0.25	8.81	9.49	8	7.21^{A}	1.06	5.24	8.91						2	7.22	–	6.98	7.46
SD	6	4.00^{A}	0.15	3.80	4.23	8	4.62^{Aa}	0.42	4.14	5.28						3	3.25^{a}	0.13	3.18	3.40
BD	6	6.84^{A}	0.47	6.46	7.63	8	11.67^{A}	0.98	10.34	13.26						3	12.00	0.75	11.40	12.47

cont. Table 4 – cd. tab. 4

Ulna															
Weight of *ulna,* g Masa kości łokciowej, g	1	2.28	–	–	–	4	3.42	0.97	2.21	4.56	3	3.50	0.22	3.23	3.62	
GL	1	93.72	–	–	–	4	105.18	9.90	91.07	114.05	2	109.07	–	108.55	109.59	no bone remains brak szczątków
DPA	1	9.33	–	–	–	4	10.46	0.79	9.93	11.64	3	10.43	0.26	10.14	10.63	
SDO	1	9.19	–	–	–	4	9.56	1.03	8.54	11.00	3	9.70	0.05	9.66	9.75	
BPC	1	8.45	–	–	–	4	8.71	0.76	7.97	9.56	3	8.83	0.61	8.33	9.51	

Explanations: mean values in rows with the same letters differ significantly: a, b... at P≤0.05 and A at P≤0.01.
Objaśnienia: średnie w wierszach oznaczone tymi samymi literami różnią się istotnie: a, b... – P≤0,05; A – P≤0,01.

Table 5. Morphological traits of the femur and tibia of domestic cat from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 5. Cechy morfologiczne kości udowej i piszczelowej kota domowego ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	WM										SRW									
	subault					*adult*					*subadult*					*adult*				
	n	x	sd	min.	max	n	x	sd	min.	max	n	x	sd	min.	max	n	x	sd	min.	max
									Femur											
Weight of *femur,* g Masa kości udowej, g	4	3.32^{A}	0.48	2.63	3.71	9	4.40^{AB}	0.34	3.80	5.00	3	5.11	0.80	4.49	6.01	4	5.08^{B}	0.40	4.49	5.36
GL	–	–	–	–	–	8	93.88^{A}	1.53	92.33	96.84	2	103.08	4.24	100.08	106.07	4	101.51^{A}	0.78	100.62	102.52
GLC	–	–	–	–	–	8	94.04^{a}	1.77	92.65	97.72	2	102.68	–	100.54	104.82	3	102.13^{a}	0.75	101.26	102.57
BP	–	–	–	–	–	9	15.76	0.92	15.05	18.04	3	16.82	0.88	15.81	17.34	4	16.33	0.45	15.96	16.93
BTr	3	11.12^{A}	0.89	10.10	11.74	9	14.40^{A}	0.71	13.89	16.15	3	15.69	0.98	14.87	16.78	4	14.71	0.59	14.24	15.50
DC	1	7.53				8	7.84	0.41	7.45	8.53	2	8.58	–	8.15	9.00	3	8.36	0.52	7.97	8.85
SD	4	6.33	0.62	5.43	6.83	8	6.11	0.26	5.77	6.50	2	6.51	–	6.02	6.99	4	6.19	0.53	5.63	6.91
Bd	1	15.59	–	–	–	8	16.97	0.68	16.18	18.17	2	18.35	–	17.24	19.46	3	18.02	0.21	17.78	18.17
									Tibia											
Weight of *tibia,* g Masa kości piszczelowej, g	5	3.93^{a}	1.22	3.16	6.07	10	4.69	0.91	3.50	6.64	7	5.36^{a}	0.86	4.27	6.63					
GL	5	94.84^{aA}	5.27	90.47	103.90	9	102.19^{a}	3.39	99.01	108.65	7	109.68^{A}	2.79	105.69	113.82					
Bp	5	14.46^{AB}	0.75	13.49	15.35	10	17.52^{A}	0.80	16.60	19.24	7	17.54^{B}	0.79	1.39	18.55					
SD	5	5.64	0.53	5.10	6.31	9	5.29	0.38	4.88	6.19	7	5.74	0.48	5.09	6.59					
Bd	5	11.01^{a}	1.61	1.61	13.49	9	12.43	0.86	11.52	14.38	7	13.22^{a}	0.63	12.47	14.22					

no bone remains
brak szczątków

Explanations: mean values in rows with the same letters differ significantly: a, b... at P≤0.05 and A, B…at P≤0.01.

Objaśnienia: średnie w wierszach oznaczone tymi samymi literami różnią się istotnie: a, b... – P≤0,05; A, B… – P≤0,01.

Table 6. Values of the indices of the femur and tibia of domestic cats from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 6. Wartości indeksów kości udowej i piszczelowej kota domowego ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	WM										SRW									
	subault					*adult*					*subadult*					*adult*				
	n	x	sd	min.	max	n	x	sd	min.	max	n	x	sd	min.	max	n	x	sd	min.	max
										Femur										
Pp						8	124.99[a]	10.31	113.04	139.78	2	141.73	–	127.45	156.01	3	155.61[a]	13.62	140.11	165.67
Pd						8	128.65	6.25	118.04	136.90	2	142.40	–	119.09	165.70	3	139.09	8.96	128.75	144.46
Pc						8	774.01[A]	45.31	696.60	839.11	2	908.40	–	812.06	1004.71	3	871.95[A]	49.66	826.21	924.77
Pt						8	519.43[a]	29.22	488.77	566.72	2	569.72	–	525.20	614.22	3	549.27[a]	31.93	524.81	585.39
WMO						8	88.13	4.89	75.48	90.92	2	88.64	–	81.46	95.83	3	85.75	3.77	82.04	89.58
WNT						8	48.95	3.25	44.85	53.33	2	49.66	–	46.94	52.43	3	53.74	4.70	50.01	59.02
WNP						8	16.14	0.65	15.35	17.33	2	15.61	–	15.53	15.57	3	17.84	1.16	16.95	19.16
WND						8	16.67	1.25	15.18	18.60	2	15.58	–	14.66	16.54	3	15.95	0.61	15.58	16.66
										Tibia										
Pp	5	136.43[Aa]	29.82	110.36	185.68	9	176.39[a]	22.45	147.40	215.00	7	194.66[A]	16.51	170.66	208.80					
Pd	5	68.70[A]	12.34	56.02	84.26	9	76.81	9.36	68.06	99.66	7	87.27[A]	6.04	76.66	94.24					
Pc	5	626.88[ab]	78.07	532.93	741.34	9	729.02[b]	60.94	664.69	856.83	7	762.89[a]	74.28	693.60	899.69					
Pt	5	439.35[a]	48.12	389.70	510.52	9	504.18	56.32	434.52	628.71	7	557.92[a]	55.65	488.54	630.30					
WMO	5	66.25[a]	4.20	59.85	69.52	9	72.31[a]	4.06	66.98	79.47	7	71.03	5.07	66.83	80.96					
WNT	5	32.16[a]	3.41	27.42	35.93	9	28.05	2.87	22.27	32.22	7	25.31[a]	2.50	22.21	28.66					
WNP	5	21.59[ab]	2.02	19.80	25.05	9	24.15[b]	1.71	22.18	27.56	7	25.58[a]	1.71	23.21	27.92					
WND	5	10.91	0.82	9.67	11.72	9	10.53	0.70	9.14	11.63	7	11.48	0.79	10.27	12.41					

bone remains insufficient for calculation of the bone indices / szczątki niewystarczające do obliczenia wskaźników

no bone remains / brak szczątków

Explanations: Pp – surface area of the projection of the proximal epiphysis; Pd – surface area of the projection of the distal epiphysis; Pc – total surface area of the projection; Pt – surface area of the projection of the diaphysis; WMO – total massiveness index; WNT – epiphyseal-diaphyseal index; WNP – proximal epiphysis index; WND – distal epiphysis index; mean values in rows with the same letters differ significantly: a, b... at $P \leq 0.05$ and A at $P \leq 0.01$.

Objaśnienia: Pp – pole powierzchni rzutu nasady bliższej; Pd – pole powierzchni rzutu nasady dalszej; Pc – pole powierzchni całkowitej rzutu; Pt – pole powierzchni rzutu trzonu; WMO – wskaźnik masywności ogólnej; WNT – wskaźnik nasadowo-trzonowy; WNP – wskaźnik nasady proksymalnej; WND – wskaźnik nasady dalszej; średnie w wierszach oznaczone tymi samymi literami różnią się istotnie: a, b... – przy $P \leq 0,05$; A – przy $P \leq 0,01$.

Table 7. Values of the Spearman's rank correlation coefficients for selected traits of the mandible of domestic cats (*subadult*) from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 7. Wartości współczynników korelacji Spermana dla wybranych cech żuchwy kota domowego (*subadult*) ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	Greatest lenght of mandible Długość największa żuchwy				Lenght of the cheektooth row P_3–M_1 Długość szeregu zębów P_3–M_1				Lenght of M_1 Długość zęba M_1				Height of the vertical ramus: basal point of the angular process – *Coronion* Wysokość gałęzi żuchwy od podstawy wyrostka kątowego do *Coronion*			
	WM		SRW		WM		SRW		WM		SRW		WM		SRW	
	n	r	n	r	n	r	n	r	n	r	n	r	n	r	n	r
Weight of mandible – Masa żuchwy	27	0.85**	9	0.62	39	0.40**	11	0.24	29	0.29	11	0.14	22	0.79**	9	0.23
Height of the vertical ramus: basal point of the angular process – *Coronion* Wysokość gałęzi żuchwy od podstawy wyrostka kątowego do *Coronion*	21	0.83**	9	0.78*	22	0.07	9	0.78*	17	0.17	6	0.75	–	–	–	–
Height of the mandible in front of P_3 Wysokość żuchwy przed P_3	27	0.82**	9	0.95**	39	0.50**	11	0.37	29	0.44*	11	0.50	22	0.66**	9	0.60
Height of the mandible behind M_1 Wysokość żuchwy za M_1	27	0.81**	9	0.86**	37	0.47**	11	0.26	26	0.51**	11	0.34	22	0.58**	9	0.53
Breadth of M_1 – Szerokość zęba M_1	22	0.34	6	0.78	32	0.62**	11	0.62*	29	0.71**	11	0.51	18	0.38	6	0.81*
Greatest lenght of mandible Długość największa żuchwy	–	–	–	–	27	0.46**	9	0.57	21	0.35	6	0.89*	21	0.83**	9	0.78*

Explanations: values of the Spearman's rank correlation coefficients marked with asterisk (*) differ significantly at P≤0.05, whereas those with double asterisk (**) at P≤0.01.

Objaśnienia: wartości współczynników korelacji Spermana oznaczone: (*) istotne P≤0,05; (**) P≤0,01.

Table 8. Values of the Spearman's rank correlation coefficients for selected traits of the scapula of domestic cats (adult) from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 8. Wartości współczynników korelacji Spermana dla wybranych cech łopatki kota domowego (*adult)* ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego Szczecinie (SRW)

Trait Cecha	DHA				HS				LG				BG			
	WM		SRW		WM		SRW		WM		SRW		WM		SRW	
	n	r	n	r	n	r	n	r	n	r	n	r	n	r	n	r
Weight of *scapula* Masa łopatki	7	0.53	–	–	7	0.57	–	–	9	–76*	5	–0.15	9	–0.25	5	0.15
LD	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SCL	7	0.21	–	–	7	–0.28	–	–	9	0.43	5	0.80	9	0.44	5	0.90*
GLP	7	0.28	–	–	7	0.25	–	–	9	0.22	5	0.90*	9	0.61	5	1.00
BG	7	0.17	–	–	7	0.21	–	–	9	0.37	5	0.90*	–	–	–	–

Explanations: see Table 7 and Material and Methods – Objaśnienia: jak w tab. 7 i podrozdziale Materiał i metody.

Table 9. Values of the Spearman's rank correlation coefficients for selected traits of the humerus of domestic cats (adult) from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 9. Wartości współczynników korelacji Spermana dla cech kości ramiennej kota domowego (*adult*) ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	GL				GLC				Bp				Weight of humerus Masa kości ramiennej			
	WM		SRW		WM		SRW		WM		SRW		WM		SRW	
	n	r	n	r	n	r	n	r	n	r	n	r	n	r	n	r
Weight of *humerus* Masa kości ramiennej	9	0.30	5	0.90*	10	0.44	6	1.00	–	–	6	0.88*	–	–	–	–
Bp	–	–	5	0.90*	–	–	6	0.88*	–	–	–	–	–	–	6	0.88*
SD	9	0.43	5	0.91*	10	0.23	6	1.00	–	–	6	0.86*	14	0.08	9	0.80**
Bd	9	0.40	5	1.00	10	0.07	5	1.00	–	–	6	0.94*	14	0.55*	9	0.55

Explanations: see Table 7 and Material and Methods – Objaśnienia: jak w tab. 7 i podrozdziale Materiał i metody.

Table 10. Values of the Spearman's rank correlation coefficients for selected traits of the radius of domestic cats (subadult and adult) from archaeological site Wolin–Town (WM) (no data for Szczecin–Vegetable Market: n<5)

Tabela 10. Wartości współczynników korelacji Srermana dla cech kości promieniowej kotów *subadutt i adult* z Wolina–Miasta (WM) (dla Rynku Warzywnego w Szczecinie brak danych: n<5)

Trait Cecha	GL				Bp				SD				Weight of *radius* Masa kości promieniowej			
	subadult		*adult*		*subadult*		*adult*		*subadult*		*adult*		*subadult*		*adult*	
	n	r	n	r	n	r	n	r	n	r	n	r	n	r	n	r
Weight of *radius* Masa kości promieniowej	6	0.71	8	0.95**	6	–0.37	8	0.78*	6	–0.17	8	0.65	–	–	–	–
Bp	6	–0.48	8	0.71*	–		–	–	6	–0.41	8	0.26	–	–	–	–
SD	6	–0.28	8	0.59	6	–0.40	8	0.26	–	–	–	–	–	–	–	–
Bd	5	0.50	8	0.88	5	–0.20	8	0.78*	5	0.30	8	0.73*	5	0.60	8	0.93**

Explanations: see Table 7 and Material and Methods – Objaśnienia: jak w tab. 7 i podrozdziale Materiał i metody.

Table 11. Values of the Spearman's rank correlation coefficients for selected traits of the tibia of domestic cats (subadult) from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 11. Wartości współczynników korelacji Spermana dla cech kości piszczelowej kotów (*subadutt*) ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	GL				Bp				SD				Bd			
	WM		SRW		WM		SRW		WM		SRW		WM		SRW	
	n	r	n	r	n	r	n	r	n	r	n	r	n	r	n	r
Weight of *tibia* Masa kości piszczelowej	5	1.00	7	0.85*	5	0.90*	7	0.89**	5	0.90*	7	0.71	5	0.80	7	0.82*
Bp	5	0.90*	7	0.96**	–	–	–	–	5	0.70	7	0.67	–	–	–	–
SD	5	0.90	7	0.71	5	0.70	7	0.67	–	–	–	–	–	–	–	–
Bd	5	0.80	7	0.78*	5	0.90*	7	0.75	5	0.60	7	0.67	–	–	–	–

Explanations: see Table 7 and Material and Methods – Objaśnienia: jak w tab. 7 i podrozdziale Materiał i metody.

Table 12. Values of the Spearman's rank correlation coefficients for selected traits of the femur of domestic cats (adult) from archaeological sites Wolin–Town (WM) and Szczecin–Vegetable Market (SRW)

Tabela 12. Wartości współczynników korelacji Spermana dla cech kości udowej kotów (*adult*) ze stanowisk archeologicznych Wolina–Miasta (WM) i Rynku Warzywnego w Szczecinie (SRW)

Trait Cecha	GL		GLC		BP		SD		BTr		DC		BD	
	WM	SRW	WM	SRW	WM	SRW	WM	SRW	WM	SRW	WM	SRW	WM	SRW
Weight of *femur* Masa kości udowej	0.52	0.83	0.58	1.00	–0.53	0.85	0.11	0.42	–0.40	0.86	0.16	0.31	–0.02	1.00
BP	–0.18	0.41	–0.28	0.87	–	–	–0.84*	–0.12	0.87*	0.46	0.21	0.77	–0.46	0.80
SD	0.22	0.85	0.29	0.38	–	–	–	–	–0.76*	0.87	–0.02	–0.73	0.68	0.50
BTr	–0.10	1.00	–0.09	0.84	–	–	–	–	–	–	0.08	–0.21	–0.24	0.90
DC	0.82*	–0.26	0.68	0.36	–	–	–	–	–	–	–	–	0.13	0.23
BD	0.17	0.88	0.31	0.99	–	–	–	–	–	–	–	–	–	–

Explanations: see Table 7 and Material and Methods – Objaśnienia: jak w tab. 7 i podrozdziale Materiał i metody.

CONCLUSIONS

The carried out research points to larger morphological integration in the cats from Wolin–Town but a possibility that bone remains of European wildcats or those belonging to their offspring with domestic cats have been found among the ones being excavated in Szczecin–Vegetable Market can not be excluded either. The collected material covers several centuries which causes that a change in body size of the intra-population character could have happened during so long time. The causes could be also seen in the migration from rural areas or in the bone remains of European wildcats being hunted for their valuable and much more bigger fur skin than in domestic cats.

Although it is difficult to imagine that domestic cats from around Szczecin in the Early Middle Ages differed from those from around Wolin, the details of their morphology obtained based on the bone collections amassed from these regions of Pomerania could supplement the observations made on materials from other archaeological sites. The bone material examined complements our knowledge on the characteristic of this species in Western Pomerania as well as expands that on cats of the Early Middle Ages.

REFERENCES

Baranowski P., 2010. Morphometric analysis of early medieval dog skulls from Pomerania allowing for forehead position index and dorsal notch of the foramen magnum. EJPAU, Biology 4 (13).

Cnotliwy E., Leciejewicz L., Łosiński W. (Eds.), 1983. Szczecin we wczesnym średniowieczu. Wzgórze zamkowe [Szczecin in the Early Middle Ages. Castle Hill]. Wydaw. Zakład Narodowy im. Ossolińskich. Wrocław [in Polish].

Clutton-Brock J., 1999. A Natural History of Domesticated Mammals, (2nd edn). Cambridge University Press, Cambridge.

Daniels M.J., Beaumont M.A., Johnson P.J., Balharry D., Macdonald D.W., Barratt E., 2001. Ecology and genetics of wild-living cats in the north-east of Scotland and the implications for the conservation of the wildcat. J. Appl. Ecol. 38, 146–161.

Driesch A. von den, 1976. A guide to the measurement of animal bones from Archeological sites. Peabody Museum Bulletin 1. Peabody Museum of Archaeology and Ethnology Harvard University.

Dworaczyk M., Kowalska A.B., Rulewicz M., 2003. Szczecin we wczesnym średniowieczu. Wschodnia część suburbiu [Szczecin in the Early Middle Ages. Eastern part of the suburbium]. Wydaw. FOKA, 9–449 [in Polish].

Habermehl K., 1975. Die Alterbestimmung bei Haus-und Labortieren. Verlag Paul Parey, Berlin–Hamburg.

Henneberg M., 1974. Próba znalezienia metody badania i interpretacji asymetrii kości długich kończyn [An attempt to find a method for studying and interpreting the asymmetry of long limb bones]. Prz. Antropol. 40 (1), 113–126 [in Polish].

Kowalska A.B., Dworaczyk M., 2011. Szczecin wczesnośredniowieczny. Nadodrzańskie centrum [Early mediaeval Szczecin. A centre on the Odra River]. Wydaw. TRIO [in Polish].

Kratochvil Z., 1976. Sex dimorphism of the domestic cat (*Felis lybica f. catus* L.) on the skull and on the mandible. Acta Vet. Brno 45, 159–167.

Krysiak K., 1957. Wartości poznawcze badań zoologicznych dla archeologii [Cognitive values of biological studies for archaeology]. Archeologia Pol. 1, 103–115 [in Polish].

Kubasiewicz M., 1959. Szczątki zwierząt wczesnośredniowiecznych z Wolina [Early mediaeval animal bone remains from Wolin]. Szczecińskie Towarzystwo Naukowe. Wydział Nauk Przyrodniczyczo-Rolniczych 2, 5–151. PWN [in Polish].

Kubasiewicz M., Gawlikowski J., 1963. Szczątki zwierzęce z Wolina–Miasta (stanowisko wykopaliskowe nr 5). Cz. 1 [Animal bone remains from Wolin–Town (excavation site No. 5). Part 1]. Mater. Zachodniopom. 9, 341–350 [in Polish].

Kubasiewicz M., Gawlikowski J., 1967. Zwierzęcy materiał kostny z wczesnośredniowiecznego Rynku Warzywnego w Szczecinie. Cz. I [Animal bone materials from early mediaeval Vegetable Market in Szczecin. Part 1]. Mater. Zachodniopom. 13, 337–368 [in Polish].

Lasota-Moskalewska A., 2005. Zwierzęta udomowione w dziejach ludzkości [Domesticated animals in human history]. Wydaw. UW [in Polish].

O'Connor T.P., 2007. Wild or Domestic? Biometric Variation in the Cat (*Felis silvestris* Schreber). Int. J. Osteoarchaeol. 17, 581–595.

Pierpaoli M., Biró Z.S., Herrmann M., Hupe K., Fernandes M., Ragni B., Szemethy L., Randi E., 2003. Genetic distinction of wildcat (*Felis silvestris*) populations in Europe and hybridization with domestic cats in Hungary. Mol. Ecol. 12, 2585–2598.

Yamaguchi N., Driscoll C., Kitchener A.C., Ward J.M., Macdonald D.W., 2004. Craniological differentiation between European wildcats (*Felis silvestris silvestris*), African wildcats (*F. s. lybica*) and Asian wildcats (*F. s. ornate*): implications for their evolution and conservation. Biol. J. Linnaean Soc. 83, 47–63.

CECHY OSTEOMETRYCZNE WYBRANYCH ELEMENTÓW SZKIELETU KOTA DOMOWEGO (*FELIS SILVESTRIS F. CATUS*) ZE STANOWISK ARCHEOLOGICZNYCH: WOLIN–MIASTO I RYNEK WARZYWNY W SZCZECINIE

Streszczenie. Oceniano szczegółową osteometrię wybranych kości oraz porównano wartości współczynników korelacji charakteryzujących morfologię poszczególnych elementów szkieletu w celu zweryfikowania hipotezy o możliwości występowania na terenie średniowiecznego Szczecina kotów większych niż we współczesnym temu okresowi Wolinie. Materiałem do badań były szczątki kostne kotów domowych znajdujące się w zbiorach Muzeum Zakładu Anatomii Zwierząt ZUT w Szczecinie, pochodzące ze stanowisk archeologicznych usytuowanych w miejscu wczesnośredniowiecznych ośrodków miejskich w Wolinie i Szczecinie. Na podstawie stopnia zrośnięcia trzonu kości długich z ich nasadami określono wiek kotów i dokonano podziału na trzy grupy: *juvenil, subadult i adult*. Cechy kości ze stanowiska archeologicznego Rynek Warzywny w Szczecinie wykazały wartości istotnie wyższe ($P \leq 0,01$; $P \leq 0,05$) w porównaniu ze stanowiskiem z Wolina–Miasta. Opracowany materiał kostny uzupełnia wiedzę o sylwetce badanego gatunku na Pomorzu Zachodnim, a także poszerza wiedzę o kotach wczesnego średniowiecza.

Słowa kluczowe: archeozoologia, kości długie, kot domowy, żuchwa, osteometria

Accepted for print – Zaakceptowano do druku: 20.02.2012