

The Mesolithic site in Hög in a South Scandinavian perspective – A snap shot from the early Kongemose culture

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With 2 figures

This contribution presents the bone material from a dwelling site named Hög in Scania. The site was inhabited during a very short period during the Kongemose phase. The osteological material is evaluated and compared with a few other sites in Denmark and Scania with habitation during the same cultural phase. The human exploitation of the landscape is discussed.

1. *The Hög site*

The Hög site (Hög 29: 2), situated about 11 km from Lund in Southern Sweden, accidentally came to light when an area was exploited for building purposes. The site is situated about 6 km from the present sea shore on the bank of a small river. The excavation of the dwelling site was performed in 1989 when an area of about 60 m² was investigated by a seminar group from the Archaeological institute, University of Lund. The original size of the inhabited area was estimated to around 300 m².

A cultural layer was found as well as three hearths. At most the cultural layer was 25 cm deep but the depth was varying. Four large boulders at the site are particularly interesting. There are evidence that these have been used as seats for flint workers. As can also be understood from the distribution of finds, as they lie in definite limited areas, the inhabitants have been trampling around at the site relatively little. At last, the site was flooded.

There is also other proof that the settlement was inhabited for a very short time. Only artefacts and waste products of the earliest Kongemose phase, dated to the Early Atlantic period – the Villingebæk phase – , were found. Microblades, micro burins, oblique arrow heads are typical finds of this culture. Also, early core axes form the majority among axes but two flake axes of early technique have been unearthened. Thus, all the implements talk in favour of a very short period of usage. At similar sites, however, habitation during different phases is most often documented.

2. *Hunting of mammals from Hög*

The bones show us that hunting of small and larger species was performed. Beside their presence some flint artefacts demonstrate the hunting methods used. A large number of microblades (n = 250) were unearthened; these are typical finds in this culture. The microblades have been used at projectile points by the hunters.

¹ We want to express our gratitude to our colleagues of the Zoological museum, University of Copenhagen for their help providing information on sites dated to the Kongemose culture. Kim Aaris-Sørensen has kindly confirmed that the fragments of canids belong to wolf. Further, we want to thank the colleagues in the archaeological institute at the University in Lund for fruitful discussions and help. The map was drawn by Elisabeth Rudebeck and the photograph was taken by Inger Kristensson both connected to the institute. We thank them all.

Table 1: The Hög Kongemose site. Mammals, representation of skeletal elements

Type of bone	<i>Alces alces</i>	<i>Capreolus capreolus</i>	<i>Cervus elaphus</i>	<i>Sus scrofa</i>	<i>Canis lupus f. fam.</i>	<i>Meles meles</i>	<i>Lutra lutra?</i>	<i>Castor fiber</i>
Head								
Antler	—	—	—	—	—	—	—	—
Calvarium	—	—	1	1	2	—	—	15
Mandibula	—	7	1	5	—	1	—	6
Dens	—	1	9	17	4	1	—	10
Os hyoideum	—	—	—	—	—	—	—	—
Trunk								
Vertebra	—	—	2	—	—	—	—	2
Sacrum	—	—	—	—	—	—	—	—
Costa	—	—	—	—	—	—	—	—
Sternum	—	—	—	—	—	—	—	—
Shoulder, forearm								
Clavicula	—	—	—	—	—	—	—	1
Scapula	—	2	1	—	—	—	—	—
Humerus	—	8	2	—	—	—	—	1
Radius	—	1	—	—	—	—	—	1
Ulna	—	—	3	4	—	—	—	5
Thigh, lower leg								
Os coxae	—	1	1	1	—	—	—	—
Femur	—	1	—	—	—	—	—	—
Patella	—	—	—	2	—	—	—	—
Tibia	—	—	—	4	—	—	—	1
Fibula/Os malleolare	—	1	—	—	—	—	—	2
Lower extremities								
Carpalia	—	—	1	—	—	—	—	—
Metacarpus	—	5	1	—	—	—	—	—
Talus	1	1	—	2	—	—	—	—
Calcaneus	1	2	—	1	—	—	—	—
Tarsalia	—	—	1	—	—	—	—	—
Metapodium	—	3	5	1	—	—	—	—
Metatarsus	—	5	2	—	—	—	—	—
Phalanx I	1	—	3	5	—	—	1	—
Phalanx II	—	2	—	2	—	—	—	—
Phalanx III	—	—	—	—	—	—	—	—
Os sesa- moideum	—	—	—	—	—	—	—	—
Total	3	40	32	47	6	2	1	44

Bow and arrow was also in use with oblique arrow heads. As many as eighteen arrow heads were found. Further, dogs (see below) may have acted as helpers during the hunting of mammals and birds.

Represented species

The most important species hunted by the human population at Hög were the wild boar (*Sus scrofa*), the roe deer (*Capreolus capreolus*) and the red deer (*Cervus elaphus*). The beaver (*Castor fiber*) was also very common. Occurrence of elk (*Alces*

alces), badger (*Meles meles*), possibly otter (*Lutra lutra*) and dog (*Canis lupus f. familiaris*) was proven. Table 1 demonstrates the distribution of skeletal elements of the represented species.

The presence of wolf was excluded because of the size of one fourth upper premolar. The tooth was slightly damaged but the length was estimated to have been 22,2 mm, which clearly indicates the size of a dog (Figure 1).

All parts of the body from the deer, boar and from the beaver are represented at Hög. Skeletal elements from the head, the trunk, the front as well as the hind leg have, thus, been found. Apparently, all parts of the body of these species were brought from the site of the kill to this site.

From the elk only distal parts of the extremities have been identified, while from the badger and the dog only parts of the head (cf. Table 1).



Figure 1. Premolars of the mandible of a dog (*Canis lupus f. familiaris*) from Hög, scale 1:1. Photo by Inger Kristensson

Age and sex distribution

Detailed information on age, sex and minimum number of individuals from the Hög site is found in table 2. Regarding the wild boar most skeletal fragments demonstrate hunting of adult individuals as the epiphyses of radius, tibia, calcaneus and the first and second phalanges are fused. Further, the growth of the acetabulum is completed. Only one first phalanx of boar where the fusion has not begun is found.

Skeletal elements as well as the teeth indicate that the minimum number of wild boars is two. The presence of one individual below the age of two and one above the age of two years (G. Bull and S. Payne 1982) is proven by the dental development. Tusks of one male have been found.

Of the red deer most skeletal fragments indicate hunting of adult individuals as the epiphyses of ulna, humerus and a thoracal vertebra are fused. Only one vertebra where the fusion has not started is found. Thus, there are no skeletal elements indicating younger animals. This agrees e.g. with the results from Argusgrunden in Denmark (U. Møhl 1987). Mandibular fragments of deer in Hög prove that the minimum number is two. The minimum age due to dental development is 2–2,5 years (G. Lundberg 1958; F. Bromée-Skuncke 1952, pp. 8–9). One stag has been found, which is ascertained by a caninus.

The roe deer shows fused epiphyses in the humerus and one second phalanx. Further, the acetabulum is closed. No signs of very young animals are found. The skeletal parts prove the existence of two individuals of roe deer. At least one individual is above 1,5 years (F. Bromée-Skuncke 1952, pp. 8–9). At Argusgrunden mostly adult roe deer were hunted as well (U. Møhl 1987).

Parts of two beavers have been found. Fused skeletal parts indicate an age above 2–2,5 years (E. Iregren and G. Stenflo 1982).

As is seen from table 2 of the other hunted species only one individual has been found; elk, otter?, badger as well as of the dog. The age of the dog is above 6 months (I. A. Silver 1963, p. 265; K.-H. Habermehl 1975, p. 161).

Table 2: The Hög Kongemose site, mammals. Ages, sexes and minimum number of individuals

Species	Ages in years	Sexes M/F	Minimum number of individuals
<i>Alces alces</i>			1
<i>Capreolus capreolus</i>	> 1,5		2
<i>Cervus elaphus</i>	> 2-2,5	1 M	2
<i>Sus scrofa</i>	1 < 2; 1 > 2	1 M	2
<i>Canis lupus f. fam.</i>	> 0,5		1
<i>Meles meles</i>			1
<i>Lutra lutra?</i>			1
<i>Castor fiber</i>	> 2-2,5		2

3. Fishing and bird catching

The excavation was undertaken with great care. However, in spite of this and the fact that water sieving was performed very few fragments of birds and fish were found. These bone fragments have been identified and evaluated by Johannes Lepiksaar.

The following species of fish were evidently caught by the people in Hög: tench (*Tinca tinca*), roach (*Rutilus rutilus*) and pike (*Esox lucius*). The fragments of these species derive from rather small individuals. The tench was about 26 cm, the roach was about 23 cm and also the pike was small. The roach and the tench indicate eutrophical water. The tench and the pike indicate a well developed water vegetation. Further, all species can be caught in fresh water. Because of this fact and the other indications of the water conditions mentioned, the fish was presumably caught in the vicinity of the site.

Vertebrae of roach, tench and pike were found, so the fish were evidently consumed at this site.

4. Gathering

Few indications of plant gathering have been documented as is often the case. Only shells from hazel nuts have been found at the Hög site. As these can be stored they are no indication of a late summer occupation. In the contemporaneous site Segebro shells of hazel nuts as well as of water chestnut occur. The water chestnuts are, however, relatively few (L. Larsson 1982, p. 98). Further, we must keep in mind that due to the conditions for preservation of organic material the number of edible plants, fruits, berries and mushrooms will always be under represented in archaeological sites.

5. Seasonal occupation

Only one fragment of bird was found, a scapular fragment of the mallard (*Anas platyrhynchos*). In Scandinavia the mallard is a migratory as well as a wintering bird. Though, it needs open water to be able to stay during the winter. The contemporary warm climate would indicate that the mallard could have passed the whole year at the Scanian coast.

Regarding the bunch of animal bones there are no antler or skull fragments of deer that could help us telling the season, nor are there any bones of very young mammals. Thus, we have no good seasonal indications at this site.

6. Size of the mammals

Rather few bone fragments from Hög could be measured. However, the sizes of animals dated to the Kongemose culture are well known as one of the authors, Johannes Lepiksaar, has worked on this topic. Some of these data will be made available here, as they have not been presented earlier (see measurements below, all data in mm). E. Iregren measured in accordance with the definitions of A. von den Driesch (1976) and corresponding measurements were collected from J. Lepiksaars documentation regarding the other sites. Individual teeth of cervids at Hög were measured according to the definitions (Lb) by E. Iregren (1986, p. 92).

The size of roe deer, red deer and the wild boar are discussed below as measurements of these species have been taken in the Hög material. We must stress however, that the number of measurements is not very large.

Regarding the wild boar in the Early Atlantic Scania the following can be said. The size of the astragali varies a lot as is seen from the measurements below. The animals found at Segebro seem, however, bigger than those in Arlöv I and Hög. When other extremity parts are scrutinized, this picture is not confirmed. On the other hand, it might be difficult to find out if young animals are included on the basis of the astragalus. A relatively wide range of variation is noticed also in the proximal breadth of the radius. The biggest animals derive from Segebro. Wild boars from all the three sites seem, though, to be included in a continuous size variation of the population of this period.

Of the red deer only teeth could be measured. Also in this case, the red deer from Hög falls within the variation of the Kongemose deer hunted.

More measurements of the roe deer are available; they concern extremity parts as well as a few teeth and tooth rows. As expected, the measurements of scapula and humerus from Hög coincide with the size of contemporary roe deer. As these measurements are more frequent than those of the other elements we limit our discussion to these.

7. Comparisons with other Kongemose sites

In table 3 mammals identified from a few Danish and Swedish sites with Kongemose habitation are listed. In figure 2 the sites discussed can be found. Apart from those dwelling sites mentioned below Arlöv I is designated no S 3 and Ageröd VI no S 4.

From table 3 it is evident that larger bone materials often contain a larger number of species. At the site Segebro (S 1, J. Lepiksaar 1983), a very large number of mammals, birds, fish, amphibia and reptilia have been found. Hög (S 2) has yielded a smaller bone material and still smaller is the bone find from Villingebæk (D 2, U. Møhl 1967). In this context it should be noted that the excavated area of Segebro is about 15 times larger than at Hög. Thus it seems as if the number of identified fragments per m² is fairly equal in Segebro and Hög. On the other hand, Argusgrunden (D 1, U. Møhl 1987) contributes with a rather high number of bone fragments, but the number of species is not as high as might be expected.

In all known sites from the Kongemose culture the wild boar, red deer and roe deer are the most important meat giving animals. In Hög the beaver was also very common. The exploitation of the fauna of the landscape around Hög thus gave other possibilities than the settlements closer to the coast. The few other species found contributed much less to the dietary intake.

8. Landscape and Man

Figure 2 demonstrates some of the known sites in South Scandinavia with traces of the Kongemose culture and mentioned in this article. Many of the dwelling sites are found at the coast or close to the sea shore. In 1980 Lars Larsson created a model of the exploitation of the Scanian landscape during the Early Atlantic.

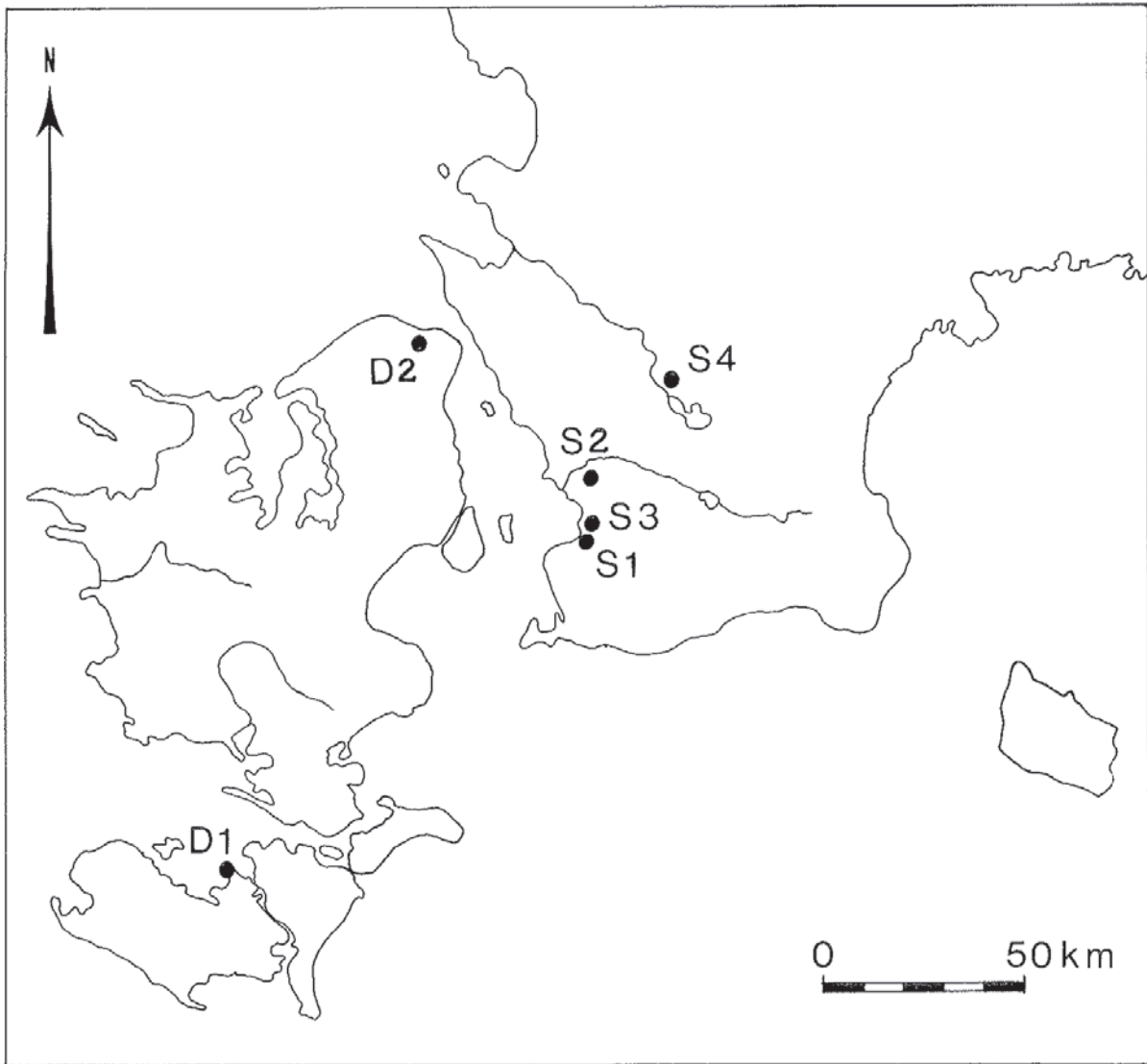


Figure 2. Dwelling sites in Denmark and Sweden with Kongemose habitation. Only sites mentioned in the text can be found on the map. S 1: Segebro, S 2: Hög, S 3: Arlöv I, S 4: Ageröd VI, D 1: Argusgrunden, D 2: Villingebæk. Drawing by Elisabeth Rudebeck

In this hypotheses he stressed the large size of the coastal sites. These sites are often located at the river-mouths. The seasons of habitation indicated by the faunal elements are late spring-summer. Larsson expected from ethno-archaeological examples a large group of people to spend this time of the year living together. This was supported at the site Segebro by the presence of eighteen hearths.

In the autumn, L. Larsson (1980) hypothesized, that smaller groups moved inland to exploit other sources of food. At Ageröd VI organic finds gave support to this idea of autumn habitation inland. Through the river valleys they moved back towards the coast when the winter was approaching. However, they would seek shelter in the forest at some distance from the stormy sea-shore.

There are also other possibilities of interpretation of Early Atlantic habitation. A discussion is going on whether or not the settlements close to sea-shores were inhabited by the same groups as those exploiting inland resources. N. Noe-Nygaard (1988) has performed analyses of ^{13}C -content of bones of dogs and men at sites in Denmark to find out if their diets derived mainly from marine or terrestrial food-webs. Bones from coastal as well as inland sites were analyzed. Her results concerning four settlements indicate that groups of people might have been specialized in exploitation of the food resources of different biotopes.

L. Larsson (1991) has discussed this possibility further. He notes the results of

Table 3: Represented mammals in Kongemose sites in South Scandinavia

Species/Sites	Segebro		Hög		Argusgrunden		Villingebæk	
	N	%	N	%	N	%	N	%
<i>Homo sapiens</i>	2		–		+		–	
<i>Bos primigenius</i>	3		–		–		–	
<i>Alces alces</i>	28	1,1	3	1,7	–		–	
<i>C. capreolus</i>	466	18,7	40	22,9	100	13,9	15	21,1
<i>Cervus elaphus</i>	840	33,6	32	18,3	446	61,9	39	54,9
<i>Sus scrofa</i>	508	20,3	47	26,9	155	21,5	11	15,5
<i>Canis lupus</i>	4	0,2	–		–		–	
<i>C. lupus f. fam.</i>	10	0,4	6	3,4	9	1,2	4	5,6
<i>Vulpes vulpes</i>	9		–		–		–	
<i>Ursus arctos</i>	17		–		–		–	
<i>Martes martes</i>	5		–		–		–	
<i>Meles meles</i>	4	0,2	2	1,1	–		–	
<i>Lutra lutra</i>	18	0,7	1	0,6	4	0,6	–	
<i>Felis silvestris</i>	5		–		–		–	
<i>Lynx lynx</i>	1		–		–		–	
<i>Halich. grypus</i>	149		–		1		–	
<i>Pusa hispida</i>	3		–		–		–	
<i>Phoca vitulina</i>	4		–		–		–	
<i>Phocidae</i>	236		–		1		–	
<i>Ph. phocaena</i>	41	1,6	–		–		2	2,8
<i>Castor fiber</i>	53	2,1	44	25,1	5	0,7	–	
<i>Sciurus vulgaris</i>	3		–		–		–	
<i>Arv. terrestris</i>	4		–		–		–	
<i>Erin. europaeus</i>	7		–		–		–	
Total	2498		175		721		71	

N. Noe-Nygaard (1988) and mentions these as possible indications of different dog populations “coastal as well as inland dogs” (L. Larsson 1991, p. 99). However, three of the four values concern human beings. To us, it also seems evident that dogs follow their masters. This would, thus, suggest different groups of people utilizing different biotopes for their existence.

How does then the Hög dwelling site fit into these scenarios? As reported earlier, there are no clear seasonal indications at Hög. On the other hand, it is clear that the group of people, during an extremely short visit at the bank of the river, were using other resources than within the coastal zone. Among the prey at Hög there are no seals, no whales, no salt-water fishes or coastal birds.

The people staying at Hög were instead fishing in adjacent, eutrophical waters. As the otter was proven present, the waters seem to be rich in fish. These people took their share of deer and wild boar in lowlands rich in small waters and moors. As usual, during this phase, their nutritional base was formed by the three mammal species: red deer, roe deer and wild boar. In the rivers this group exploited the otter, and above all, the beaver. At Argusgrunden beaver was also hunted. The proportion of beaver bones of the Hög site is quite exceptional, however. Further, the beaver dams would have given excellent conditions for fishing and fowling. So, we would conclude that the finds of the Hög site does not contradict the model of exploitation zones and settlement pattern presented by Larsson in 1980. On the other hand, the important question of different group exploiting different habitats can not be solved by means of this osteological analysis.

9. Measurements

Sus scrofa, teeth of the molar row (L – length, B – breadth)

Site	second Side	lower L	molar B	second Side	upper L	molar B	third Side	upper L	molar B
Hög	dx	27,0	22,0	dx	26,5	17,5			
Arlöv	–	27,0	18,0	sin	26,0	–	dx	48,5	20,0
	dx	28,1	–						
	sin	27,0	16,7						
Segebro	sin	26,3	17,3				dx	43,5	24,8
	sin	28,1	20,0				sin	44,0	23,0
	sin	28,7	19,5						

Sus scrofa, long bones

Site	Radius Side	prox. breadth	Site	Tibia Side	dist. breadth
Hög	dx	35,5	Hög	sin	40,5
Segebro	dx	30,2	Segebro	sin	39,0
	sin	33,6			
	–	37,0			
	dx	38,0			

Sus scrofa, astragalus

Site	Side	greatest length of the lateral half	of the medial half
Hög	dx	46,5	(41,0)
Arlöv I	dx	48,0	44,7
	dx	50,0	46,0
	dx	–	46,5
	dx	–	45,1
Segebro	dx	50,0	45,0
	sin	54,7	49,0
	sin	56,0	50,3
	dx	–	46,1
	dx	55,9	49,0
	sin	51,8	47,0
	sin	–	43,0
	dx	–	45,0
	dx	–	41,1

Cervus elaphus, second lower premolar (P₂)

Site	Side	length	breadth
Hög	dx	14,5	12,1
	dx	15,5	–
Segebro	sin	11,6	–
	sin	14,0	–
	dx	15,0	–

Capreolus capreolus, mandible

Site	Side	alveolar length P ₂ -P ₄	Side	third lower molar length	breadth
Hög		28,0	dx	15,2	—
Arlöv I			sin	15,5	—
Segebro			dx	16,0	—

Capreolus capreolus, scapula (LCG – length of the cavitas glenoidalis, BCG – breadth of the cavitas glenoidalis, GLPA – greatest length of the processus articularis, SLC – smallest length of the collum scapulae)

Site	Side	LCG	BCG	GLPA	SLC
Hög	sin	24,5	21,5	28,5	18,5
	dx	24,0	21,5	29,0	19,5
	dx	24,5	23,5	31,5	—
	—	24,5	—	—	—
Segebro	dx	20,3	—	—	17,0
	sin	21,2	20,7	—	17,0
	dx	—	—	—	17,0
	dx	22,0	21,5	—	17,2
	dx	23,0	22,1	—	19,0
	sin	24,0	22,0	—	17,0
	dx	—	21,3	—	—
	sin	—	—	—	19,0
	dx	—	20,0	—	16,5
	sin	21,9	20,3	—	17,0
	dx	—	22,0	—	19,0

Capreolus capreolus, humerus

Site	Side	greatest breadth of the distal end	the trochlea
Hög	sin	28,0	—
	sin	28,5	24,0
	—	(29,0)	24,5
Arlöv I	sin	26,8	
	dx	28,5	
	dx	29,0	
	dx	29,0	
	sin	30,0	
Segebro	dx	28,0	
	dx	28,7	
	dx	29,0	
	dx	29,0	
	dx	29,0	
	sin	29,3	
	sin	30,0	
	dx	31,0	
	dx	31,0	

Capreolus capreolus, os centrotarsale

Site	Side	greatest breadth
Hög	dx	26,0
Segebro	dx	22,0
	sin	24,3
	dx	26,3

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