HUNGARIAN ARCHAEOLOGY
E-JOURNAL • 2025/3 – AUTUMN www.hungarianarchaeology.hu

"BEHIND EVERY BEAUTIFUL FUR COAT, THERE IS A STORY"*
Lynx remains and their interpretations

László Bartosiewicz[1] – Erika Gál[2]
Hungarian Archaeology Vol. 14 (2025) Issue 3, pp. 1–8. https://doi.org/10.36338/ha.2025.3.1

Lynx remains are extremely rare in the archaeological record. In Sweden, the most common finds are the distal phalanges, which form the basis of the talons. They are known to occur in female burials, interpretable as evidence of lynx fur. Although it is impossible to reconstruct the stature of lynxes from these small bones, two complete lynx skeletons from Hungary have provided an opportunity to estimate their withers heights. In this study, we attempt to integrate the disparate osteological finds into a unified system in the light of lynx fur quality, seasonally varying behavior, and past human decision-making. A comprehensive understanding of these factors is essential for the archaeological interpretation of lynx remains. The data considered include the measurements of lynx skeletons recorded in museum collections, as well as world-record hunting trophies and knowledge of the contemporary fashion industry.

Keywords: lynx fur, phalanx, talon, withers height, sexual dimorphism, seasonality

Archaeozoology is a discipline without borders. Within the same geographical area, animals and their bones can be compared with greater certainty than archaeological artifacts created by humans. The same holds true for diachronic comparisons between animal remains. Although evolutionary changes may take place in a relatively short time (especially among domesticates selected by humans), bones change slowly enough to remain comparable across a few millennia. Eventual differences between individuals in space and time make such comparisons even more interesting. Our brief summary exemplifies these possibilities based on recent research results.

In Sweden, lynx phalanges have been identified in 52 burials dated to between 400–800 CE. Most occurred in the graves of adult/elderly women, richly supplied with grave goods, some of whom were interred in the company of young children. It was suggested that the high social standing of these women may have been associated with the goddess Freyja (Zachrisson & Krzewińska 2019). The reconstructions of these "Lynx Ladies" offer elaborate and subtle portraits of these women (Zachrisson 2022). The consistent presence of lynx claws in their burials is noteworthy even from an archaeological point of view.

Summary research by Zachrisson (2022, 68–69, Tabell 1) has shown that these burials are characteristic of the Migration (ca. 400–550 CE) and Vendel periods (ca. 550–790 CE), although a few are later, dating to the Viking age (ca. 700–1100 CE). On the mainland, they are concentrated in the area of Uppland province, located just north of Stockholm. However, approximately one-third of them were found on the island of Gotland, located at least 90 km off the Swedish coast further south in the

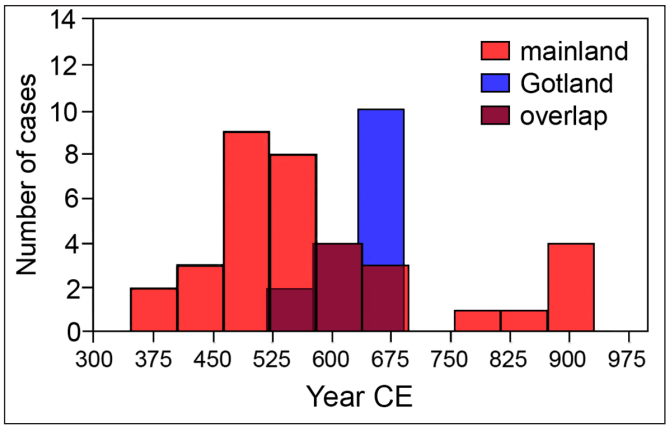

Fig. 1. The temporal and geographical distribution of female burials that yielded lynx phalanges (raw data: Zachrisson 2022)

* Mary Tyler Moore (1995)

[1] Osteoarchaeological Research Laboratory, Stockholm University, https://orcid.org/0000-0002-1588-4406; e-mail: laszlo.bartosiewicz@ofl.su.se

[2] Institute of Archaeology, ELTE Research Centre for the Humanities, Budapest, https://orcid.org/0000-0002-4226-3218; e-mail: gal.erika@htk.elte.hu

Baltic Sea. The chronological difference between the two groups is that burials with lynx phalanges occurred and peaked later on Gotland. However, none of the latest cases were found on this island (*Fig. 1*).

However, what can one say about the physical appearance of these animals? Modest-looking phalanges are often the only evidence of lynx in the archaeological find material in Scandinavia. Of these small bones, the third (distal) phalanges form the core of sharp claws that are made of horn material but, as such, are rarely preserved (*Fig. 2*). The decorative claws were probably left in the skin, together with the phalanges, after the animals had been flayed. Therefore, they can be logically interpreted as what remained of their pelt (Sten & Vretemark 1988, 152, Fig. 7).

Since lynx meat is usually not eaten, the remains of this species occur only as rare bone fragments among thousands of bones from prehistoric settlements (e.g., Lepiksaar 1982; During 1986) and are nearly absent from sites dated to later times when the importance of hunting decreased (e.g., Macheridis 2022; Vretemark 1997). On the other hand, the careful collection and analysis of cremation burials in Sweden increases the chance of recovery of small phalanges. Therefore, a certain emphasis on these skeletal elements in the archaeological literature is understandable (Lindholm & Ljungkvist 2016). However, from these valuable reports we learn hardly anything about the lynx itself, the "missing link" that connects furs and humans (Bartosiewicz 2025).

Fig. 2. Lynx talon and distal phalanx from the left forepaw of a fully developed extant male. Above: horn and bone in natural unison, middle: horn claw and bone separately, below: phalanx, typically found during excavations as archaeological evidence of the claw. Osteoarchaeological Research Laboratory, Stockholm University, No. AK 208. Scale: 3 cm

SKELETON FINDS

While dismembered human remains are considered "deviant burials" in archaeology (Murphy 2008), in the case of animals it is the articulated skeletons that stand out against the quotidian food refuse. The interment of complete animals lends weight to the oft-quoted assertion by Claude Lévi-Strauss, that animal species are chosen not simply for being good to eat, but for being good to think with (*les espèces sont choisies non commes bonnes à manger, mais comme bonnes à penser*; Lévi-Strauss 1962, 132). Of course, between the extremes of mundane meat utilization and ritual burial, numerous and complex motives may be at play. These may include the interment of carcasses as by-products of craft processing or the burial of slayed vermin (Gál et al. 2024, Fig. 8).

Two unusually lucky lynx skeleton finds in Hungary offered a unique opportunity to reflect on the gross dimensions of this wild animal. A large male was found at the Zamárdi–Kútvölgyi-dűlő II site in a pit under the carcasses of four dogs dated to the Migration Period (Gál 2007). The second skeleton from medieval Vác–Széchenyi Street 3–7 was found in a tanning area inside the sixteenth-century city wall, alongside bones from hares and domestic cats (Bartosiewicz 1993). This individual was identified as a female, although sexual dimorphism is not strongly expressed in the skeleton of lynxes (Gál et al. 2022, 788).

LYNX STATURE

The withers heights of the archaeological specimens were estimated using various bone measurements taken in several museum collections (Gál et al. 2024) and published in the literature (Vasiliu & Decei 1964; Bakkay et al. 1971). These data originated mostly from Central Europe (n=155), while some were available from areas toward the north-northeast (Scandinavia, Baltic republics of the former Soviet Union; n=35). The 1971 trophies are of particular interest because since the international convention signed in Bern in 1979 (which Hungary joined in 1990; Rakonczay 1990), the recognition of endangered species and their – at least partial – protection, has significantly improved in Europe (Breitenmoser 1998, 282, Table 1).

Unfortunately, measurements of distal phalanges were not part of gathering measurements on complete skeletons in museum collections that focused on the reconstruction of the two individuals recovered in their entirety in Hungary at the time. Moreover, with only a few notable exceptions (e.g., Daróczi-Szabó et al. 2020, Fig. 5a–b), it is impossible to estimate the age, size, or sex of felines based on phalanges that are of variegated size and shape, and are hard to localize even within the same paw of an individual. The biometric limitation is that small sizes less accurately reflect the size of the entire skeleton.

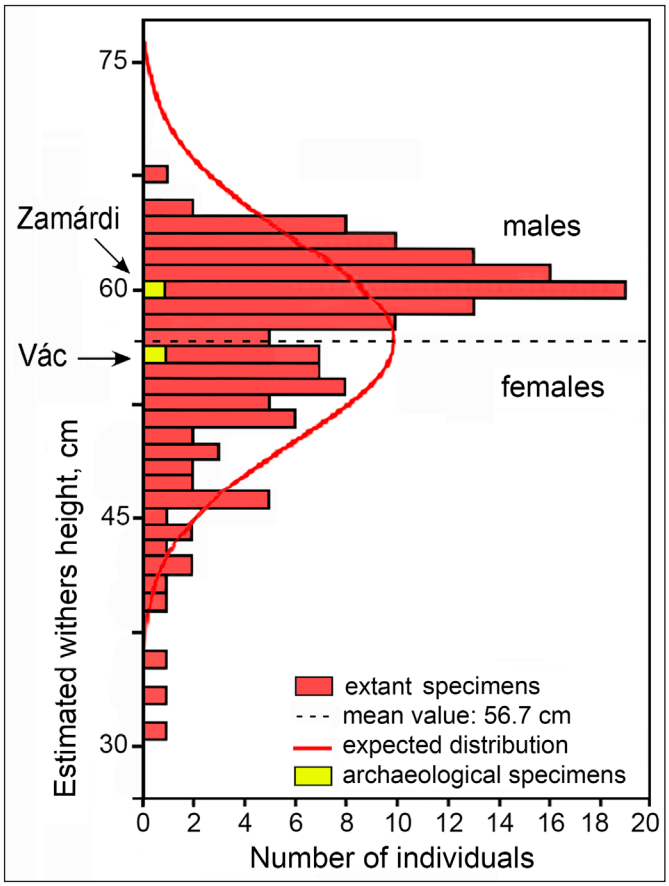

Fig. 3. The estimated withers heights of the two archaeological individuals in relation to those of extant reference skeletons

On average, the 155 Central European lynxes (mean value=56.7 cm) were 1.6 cm taller than the estimates from Northern Europe (mean value=55.1 cm), the considerable size overlap between the two groups (standard deviation=6.7 cm in both samples) made this difference insignificant in statistical terms (p=0.172). The distribution of withers height estimates in the first group, dominated by the remains of Carpathian lynx, is shown in *Fig. 3*.

In comparison with the expected values, the size distribution of withers height estimates is clearly asymmetrical. This reflects the mixed nature of the data, not separated by sex and age. At the bottom of the diagram are some not fully-grown individuals, while the larger peak of taller than average individuals consists of males with greatest probability.

LYNX FURS

In the contemporary fashion industry, lynx pelts are highly valued as their texture is soft and delicate to the touch, while their long fur secures an elegant appearance. Nowadays, the breeding and hunting of fur-bearing animals raises serious ethical questions. In the case of the lynx, these are compounded by the fact that the fur of this species, endangered in many countries, is often procured through poaching (Anonymous 2025). Illegal trading undoubtedly inflates the market value of such products. However, the elite burial contexts in which claw remains are found show the cross-cultural appreciation of lynx fur.

In contrast to earlier times, zoomorphic fur coats featuring recognizable anatomical parts (Bartosiewicz 2015) are not fashionable today. However, pre-tanned lynx pelts advertised on-line (e. g. Etsy and BILODEAU Canada) often include the claws and paws, chiefly for taxidermy purposes. Such pelts can cost 5–10% more than ordinary specimens.

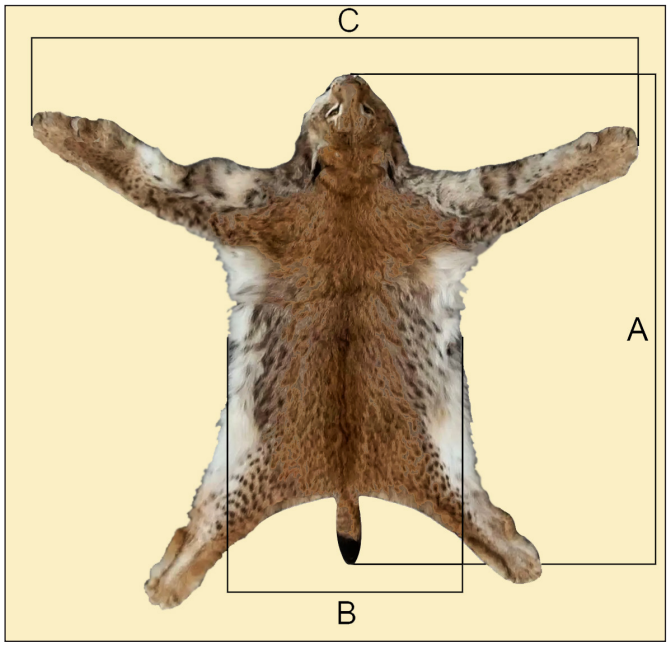

Fig. 4. Measurements taken on lynx trophy skins. A: length, B: width, C: forelimb spread (modified after Bakkay et al. 1971, 384)

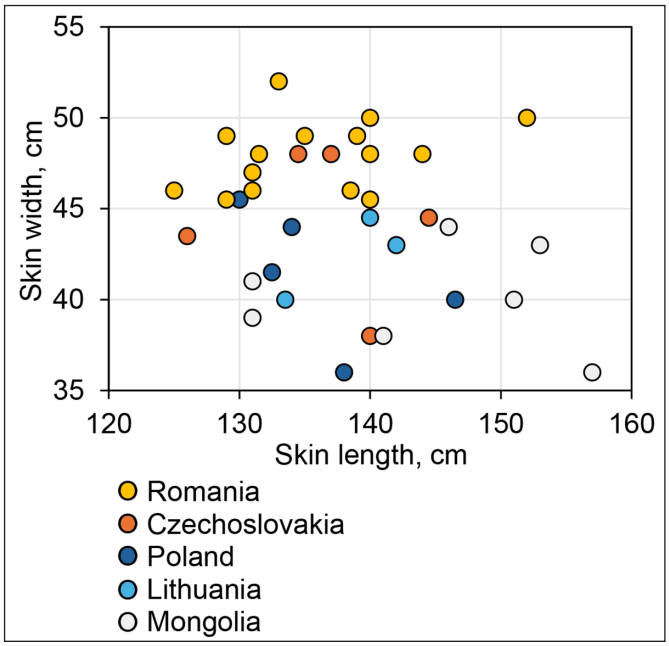

Fig. 5. Geographical differences in the dimensions of record lynx trophies

Trophy skins are scored based on three measurements (*Fig. 4*), calculating a fictional score correlated with their area, using the symbols in Figure 4 in the formula: A × (B+C)/200 (Bakkay et al. 1971, 75). Of the measurements shown in the figure, the length (A) and width (B) are most relevant from a furrier's point of view. In *Fig. 5*, world record trophies from different countries can be compared based on these two main dimensions.

The distribution of trophies from 1971 suggests that record-size pelts of Carpathian lynx from Romania and former Czechoslovakia were relatively broader than others from further north in Europe and Mongolia. While skin lengths between the two groups do not significantly differ, Carpathian lynx skins are, on average, 6 cm broader than others, a difference that is significant in formal statistical terms (p=0.001). Record specimens provide useful comparative data for all species in archaeolozoology, but this biasing effect must always be considered (Bartosiewicz et al. 2008; Bartosiewicz 2021). In commercial terms, lynx pelts longer than 96.5 cm already fall into the XL category; large (L) skins correspond to the 89–96.5 cm length interval (Fur Harvesters 2024). Given that the sexual dimorphism of lynxes is primarily manifested in absolute size, one may reasonably assume that the record-sized trophy skins belong to adult males, because only these had a chance to be graded at the highest international level.

SKIN AND BONE

Fine cutmarks inflicted using a metal blade were found on the third metacarpal bone of the Vác specimen (*Fig. 6*). Similar cutmarks were found on the third and fourth right metatarsals. Their direction corresponds to the recommended contemporary skinning of medium-sized mammals; starting from the back of the toes, the skin is cut on the inside of the forearm (Fehér 1971, 18). These cutmarks, inflicted in the immediate vicinity of the proximal phalanges, suggest that the paw was left on the pelt, or at least its constituent small bones were not removed at this stage of skinning.

Lynxes have been persecuted not only for their desirable fur but also because they posed a threat to small livestock. Feline predators tend to be portrayed as bloodthirsty, as they can kill more than they eat. A drawing by Albrecht Dürer – which he sketched in the ménagerie of Emperor Charles V, during a 1520 and 1521 trip to Brussels – is one of the few historic depictions that does not reflect this fearsome public perception (*Fig. 7*). In the case of lynxes, it seems that during the mating season, wandering males do not have time and patience to eat for very long. Therefore, they tend to kill new prey more frequently.

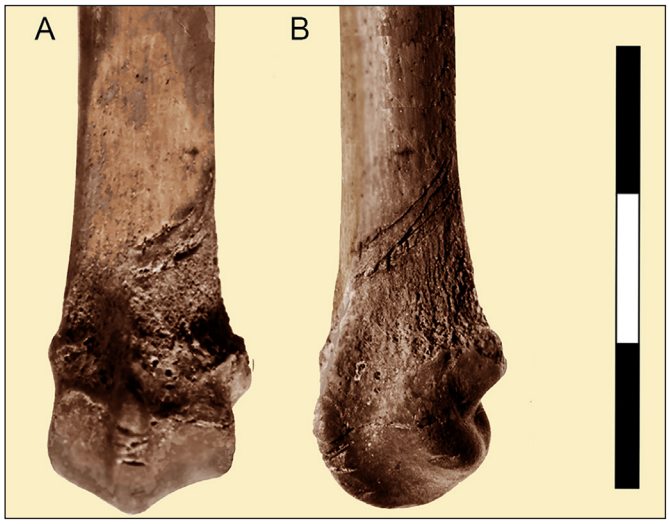

Fig. 6. Cut marks on the right third metacarpus of the medieval lynx from Vác. Plantar (A) and medial (B) aspect. Scale: 3 cm

The lack of skinning marks on the large Zamárdi male raises the question whether its skin was torn during the hunt, although absence is impossible to prove. When pursued by dogs, the lynx tends to flee on the ground rather than climb trees (Schauenberg 1969, 275), which increases the risk of violent confrontation. This would explain why there was no interest in flaying the torn carcass.

Fig. 7. Sketch by Albrecht Dürer (Bartosiewicz 1993, 13, Fig. 12)

CONCLUSIONS

Research on the two complete lynx skeletons revealed trends that suggest that large lynxes were most likely killed in late winter or early spring, at the intersection of two seasonal phenomena likely exploited by humans. The rut takes place in February or March. During this time, the two sexes display different behavior (Andrén & Liberg 2008, 12). Lynxes are perceived as shy and elusive wild animals. However, males, who usually move around over larger areas, become even more daring than females during the mating season. This exposes them more to fatal encounters with hunters, also reflected in their greater contribution to museum collections (cf. *Fig. 3*; Cooper et al. 2019). Coincidentally, the pelt is also in top condition at the same time. The fur of the lynx killed during the winter is longer and denser, the average length of the hairs forming the pelt can reach 4–6 cm. Therefore, it is much more valuable than summer fur (Anonymous 2025). Moreover, in case of snowfall, tracking the animal is also easier (*Fig. 8*).

The observation that during the rut lynx (especially males) are more vulnerable when fur hunting is most rewarding cannot be generalized to all individual archaeological cases. Understanding the full physical characteristics and behavior of lynxes enhances the more sophisticated archaeological interpretation of their rare finds.

Fig. 8. Lynx in winter pelage, Nationalpark Bayerischer Wald, Germany (photo: Martin Mecnarowski, CC BY 2.0, detail)

References

Andrén, H. & Liberg, O. (2008). *Slutrapport – Lodjursprojektet [Final report – The Lynx project]*. Riddarhyttan: Grimsö forskningsstation, Institutionen för ekologi, Sveriges lantbruksuniversitet.

Anonymous (2025). *A hiúzbunda drága luxus! [The lynx fur coat is a costly luxury!]*. https://beautyhub.decorexpro.com/hu/shuba/iz-rysi/ (accessed on 17 January 2025)

Bakkay, L., Kozma, Gy. & Szűcs, F. (szerk.) (1971). *Trófea katalógus*. *[Trophy catalogue]*. Budapest: Vadászati Világkiállítás.

Bartosiewicz, L. (1993). Late Medieval lynx skeleton from Hungary. In Clason, A., Payne, S. & Uerpmann, H.-P. (eds.), *Skeletons in her cupboard*. Oxford: Oxbow Books, 5–18.

Bartosiewicz, L. (2015). "Every skin teeth ain't a laugh": Medieval leopard find from Hungary. *Hungarian Archaeology* 3:3 http://files.archaeolingua.hu/2015O/Bartosiewicz_H15O.pdf

Bartosiewicz, L. (2021). Human Impact on Antler Conformation in Western Red Deer (*Cervus elaphus elaphus* Linnaeus, 1758). *Heritage* 2021:4, 4233–4248. https://doi.org/ 10.3390/heritage4040233

Bartosiewicz, L. (2025). "The missing lynx". In Hederstierna-Jonson, Ch., Kjellström, A. & Ljung, C. (eds.), *Fragment av föremål, platser, kroppar och ord. En vänbok tillägnad Torun Zachrisson*. Uppsala: Upplandsmuseet och Uppsala universitetet, 164–166.

Bartosiewicz, L., Bonsall, C. & Şişu, V. (2008). Sturgeon fishing along the Middle and Lower Danube. In Bonsall, C., Boroneanţ, V. & Radovanović, I. (eds.), *The Iron Gates in Prehistory. New perspectives*. British Archaeological Reports, International Series 1893, 39–54.

Breitenmoser, U. (1998). Large predators in the Alps: the fall and rise of man's competitors. *Biological Conservation* 83:3, 279–289.

Cooper, N., Bond, A. L., Davis, J. L., Portela Miguez, R., Tomsett, L. & Helgen, K. M. (2019). Sex biases in bird and mammal natural history collections. *Proceedings of the Royal Society B*, 286, 20192025. https://doi.org/10.1098/rspb.2019.2025

Daróczi-Szabó, M., Kovács, Zs. E., Raczky, P. & Bartosiewicz, L. (2020). Pending danger: Recent Copper Age lion (*Panthera leo* L., 1758) finds from Hungary. *International Journal of Osteoarchaeology* 30:4, 469–481; https://doi.org/10.1002/oa.2875

During, E. (1986). *The Fauna of Alvastra. An osteological analysis of animal bones from a Neolithic pile dwelling*. OSSA 12, Supplement 1, Stockholm: Stockholm University.

Fehér, Gy. (1971). *Állatpreparátumok készítése*. Budapest: Mezőgazdasági Kiadó.

Fur Harvesters Auction Inc. (2024). *Pelt Sizing*. https://www.mdwfp.com/sites/default/files/2024-02/sizingpelts.pdf (letöltve 2025. november 7-én).

Gál, E. (2007). Állatcsontleletek a Zamárdi–Kútvölgyi dűlő 370-es objektumából. In Belényesy, K., Honti, Sz. & Kiss, V. (szerk.), *Gördülő idő. Régészeti feltárások az M7-es autópálya Somogy megyei szakaszán*

Zamárdi és Ordacsehi között (Rolling time. Excavations on the M7 Motorway in County Somogy between Zamárdi and Ordacsehi). Kaposvár – Budapest: SMM Igazgatósága – MTA Régészeti Intézete, 299–308.

Gál, E., Bartosiewicz, L. & Kiss, V. (2022). A fifth–sixth century CE lynx (*Lynx lynx* L., 1758) skeleton from Hungary 1: Cranial morphology and zoological interpretations. *International Journal of Osteoarchaeology* 34:2, 783–791. https://doi.org/10.1002/oa.3101

Gál, E., Bartosiewicz, L., Kiss, V., Horváth, F. & Melis, E. (2024). A fifth–sixth century CE lynx (*Lynx lynx* L., 1758) skeleton from Hungary 2: Stature and archaeological interpretations. *International Journal of Osteoarchaeology*; e3289. https://doi.org/10.1002/oa.3289

Lepiksaar, J. (1982). [Animal remains from the early Atlantic settlement at Segebro near Malmö]. In Larsson, L. (ed.), *Segebro – en tidigatlantisk boplats vid Sege* ås *mynning*. Malmö: Malmö museum, 105–128.

Lévi-Strauss, C. (1962). *Le totémisme aujourdhui*. Paris: Presses Universitaires de France.

Lindholm, K.-J. & Ljungkvist, J. (2016). The bear in the grave: exploitation of top predator and herbivore resources in first millennium Sweden: First trends from a long-term research project. Pt. I. *European Journal of Archaeology* 19:1, 3–27.

Macheridis, S. (2022). *Animal Husbandry in Iron Age Scania, with a Catalogue.* Lund: Institutionen för arkeologi och antikens historia, Lunds universitet.

Murphy, E. M. (ed.) (2008). *Deviant Burial in the Archaeological Record*. Oxford: Oxbow Books.

Rakonczay Z. (szerk.) (1990). *Vörös Könyv. A Magyarországon kipusztult és veszélyeztetett növény- és állatfajok*. Budapest: Akadémiai Kiadó.

Schauenberg, P. (1969). Le lynx *Lynx lynx* (L.) en Suisse et dans pays voisins. *Revue suisse de Zoologie* 79:9, 257–287.

Sten, S. & Vretemark, M. (1988). Storgravsprojektet. Osteologiska analyser av yngre järnålderns benrika brandgravar [The Great Burial Project. Osteological analyses of bone-rich cremation graves from the Late Iron Age]. *Fornvännen* 83, 145–156.

Vasiliu, D. G. & Decei, P. (1964). Über den Luchs (*Lynx lynx*) der rumänischen Karpaten. *Säugetierkundliche Mitteilungen*, 12:4, 155–183.

Vretemark, M. (1997). *Från ben till boskap. Kosthåll och djurhållning med utgångspunkt i medeltida benmaterial från Sverige* [From bones to livestock. Diet and animal husbandry based on medieval bone materials from Sweden]. Skara: Skaraborgs länsmuseum.

Zachrisson, T. (2022). "Lodjursdamerna" från folkvandrings- och vendeltid: husfruar med speciella kultfunktioner? [The "Lynx Ladies" from the Migration and Vendel Periods: Housewives with special cult functions?]. In Björk, S. K. & Sundqvist, O. (red.), *Kultledare i fornnordisk religion: ett symposium*. Uppsala: Kungl. Gustav Adolfs Akademien för svensk folkkultur, 63–91.

Zachrisson, T. & Krzewińska, M. (2019). The "Lynx Ladies": Burials Furnished with Lynx Skins from the Migration and Merovingian Periods found in Present-day Sweden. In Augstein, M. & Hardt, M.

(Hrsg.), *Sächsische Leute und Länder: Benennung und Lokalisierung von Gruppenidentitäten im ersten Jahrtausend*. Wendeburg: Verlag Uwe Krebs, 103–119.