

# Evidence of Hawking (Falconry) from Bird and Mammal Bones

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**ABSTRACT** This paper deals with the archaeozoological and archaeological evidence for hawking, or falconry. The methods and history of hawking in Europe are described, after which five types of evidence for hawking are discussed. These are illustrated with material from the Slavonic stronghold of Oldenburg in Ostholstein, in the north of Germany, dated to AD 750–1150. © 1997 by John Wiley & Sons, Ltd.

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**Key words:** hawking, falconry, goshawk (*Accipiter gentilis*), sparrow-hawk (*Accipiter nisus*), prey animals.

## The methods of hawking

Hawking is the hunting of birds or mammals with trained birds of prey (raptors). The training involves three aspects. The first is that the birds learn to be carried on the fist, to be launched from the fist in the direction of the prey or to hover and afterwards chase after the prey which has been roused, and, very importantly, to return to the falconer's fist or the lure after a failed flight. The second thing the hawk has to learn is not to consume the prey, or, even worse, to fly off with it, but to wait for the arrival of the falconer. The falconer will take the prey from the hawk and give the bird part of the animal caught. The third thing the hawk has to learn is to hunt for larger and mostly different kinds of prey than it would in natural circumstances<sup>1–9</sup> (Figures 1 and 2).

The main objectives of hawking are (i) the supply of food for the table and (ii) the sport of watching the prey trying to escape, and the

hawk chasing it. Either of the two objectives may be the more important, depending on the type of hawk and on the status, wealth and individual liking of the falconer. The hawk never becomes domestic, or even tame. It is an essentially wild animal.<sup>8,9</sup> The best results in hawking are obtained with the short-winged hawks, goshawk (*Accipiter gentilis*) and sparrow-hawk (*Accipiter nisus*), and with the long-winged hawks, the falcons, especially peregrine (*Falco peregrinus*), gyrfalcon (*Falco rusticolus*) and merlin (*Falco columbarius*). Larger birds of prey, such as eagles, are too heavy to be carried on the fist.

Most hawks are caught as young birds, either directly from the nest or when the birds are just leaving it. The training of adult birds is possible, but more difficult. The care and training of hawks is a very time-consuming activity. The bird has to become accustomed to humans, dogs and human-made objects, and to the sounds they make. The falconer needs to give attention to his animal constantly. He or she needs to give it the right type of food to keep the animal in good health and in the right condition for hunting.<sup>1–9</sup>

Two types of hawking can be distinguished: the high flight and the low flight. In the high flight the hawk is carried on the fist to the place

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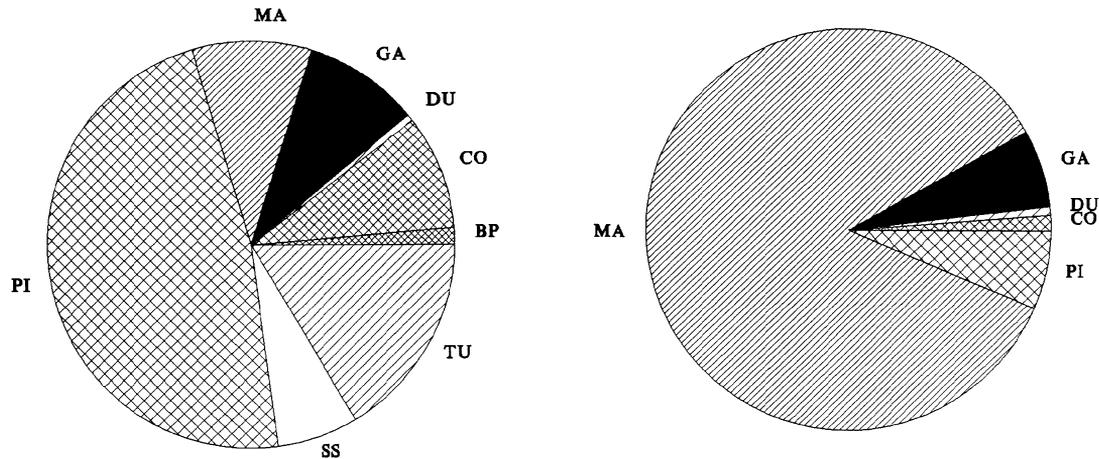


Figure 1. Quarry of goshawk, both sexes. Left: wild, untrained goshawk ( $N=6941$ ).<sup>21</sup> Right: trained goshawk ( $N=11\ 002$ ).<sup>2,3,22,23</sup> MA, Mammals (mostly brown hare and rabbit); GA, gallinaceous birds (pheasant, partridge, etc.); DU, ducks; CO, Corvidae (corvines); BP, birds of prey; TU, Turdidae (thrushes); SS, sparrows and starlings; PI: pigeons, larks and other medium-sized and small birds.

where the hawking takes place. Before any prey is visible the hawk is released. The bird takes its place high in the air waiting for prey to be roused by the dogs. Then the hawk descends on the prey at high speed. It may pursue its quarry over distances of up to 2 km. This type of hawking is only practised with falcons in open terrain. The high flight is mostly done for entertainment;<sup>9,10</sup> in late medieval and post-medieval times it was carried out especially by the nobility.<sup>11</sup>

In the low flight, the falconer walks or rides on horseback with his bird on the fist in search of

prey. A dog may rouse the game, but the low flight can be done without a dog. When a prey animal is seen or heard, the falconer launches his hawk from the fist in the direction of the prey. This type of hawking is especially suited to woodland, and it is the only method used with the goshawk and the sparrow-hawk, birds of prey are adapted to hunting in wooded areas (the sparrow-hawk preferentially hunts along woodland edges). Goshawk and sparrow-hawk follow their quarry over a distance of about 500 m. The low flight can also be practised with falcons in open terrain. The objective of the low flight with

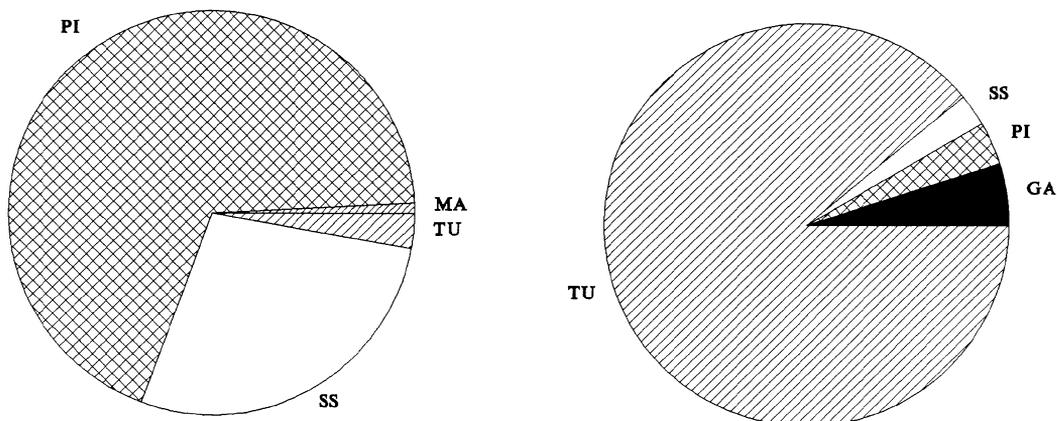


Figure 2. Prey of sparrow-hawk, both sexes. Left: wild, untrained sparrow-hawk ( $N=1943$ ).<sup>21</sup> Right: trained sparrow-hawk ( $N=702$ ).<sup>2,3</sup> Key as Figure 1.

short-winged hawks is mostly to supply game for the table.<sup>9,10</sup>

## History of hawking in Europe

Where and when the first birds of prey were trained for hawking is uncertain. It is generally assumed that peoples who came from the steppe areas in Asia in the Migration Period (third—fourth century AD) brought this hunting method to Europe. No hawking was practised in Europe before this time.<sup>12</sup>

The first written sources in Europe date to the fifth century AD. For instance, Paulinus of Pella, who spent most of his life in Bordeaux, recalls in AD 459 how in his youth, at the beginning of the fifth century, he wished to possess a swift dog and a hawk. The sixth-century laws of the various Germanic tribes mention fines for the theft or killing of someone else's hawk. The fine rises with the value of the bird, depending on its hunting ability and the size of the prey it can catch. The laws indicate that by this time the Germanic peoples were already eager falconers.<sup>12</sup>

The first illustrations of falconry date to about AD 500. A frieze of seven mosaics with hunting scenes was discovered by the Dutch archaeologist Vollgraf in a house at Argos in the beginning of this century. Trained birds of prey with jesses on the legs are portrayed in the mosaics and the fowlers, one of whom wears a leather falconer's glove, are accompanied by dogs.<sup>13</sup>

After AD 500 the art of falconry spread throughout Europe. In medieval and post-medieval times it was a popular type of hunting or sport. Peregrine and gyrfalcon were only possessed by people of the highest rank (royalty, the high nobility and high-ranking clergy); goshawk and sparrow-hawk both by people of high rank and by the lower nobility and rich commoners.<sup>1,14</sup>

## Archaeozoological and archaeological evidence

What evidence might reveal to archaeozoologists and archaeologists that hawking was

practised at a given site? Five types of evidence can be distinguished. The first and most unequivocal is the presence of the specific falconer's equipment. These are: the *jesses* (leather leads, one on each leg, also called *short leashes*; the falconer holds the jesses between the fingers when he carries the hawk around, for instance when hunting), the *swivel* (a set of interconnecting metal rings which connects the jesses to the long leash), the *long leash* (a long leather lead which attaches the hawk to the perch or the rack on which the hawk may sit and sleep), the *bell* (a metal bell attached by the *bewit*—a small leather strip—to one of the legs, by the sound of which the falconer may locate the hawk after a flight; in goshawk and sparrow-hawk it was sometimes attached to a caudal feather), the *glove* (a thick leather glove with or without fingers, to protect the falconer's hand from the hawk's beak and talons), the *lure* (a leather cushion in the shape of a bird; it is turned around with some meat attached to it to attract the hawk after a failed flight (only used with falcons)) and the *hood* (a cap which hides the bird's eyes during training and transport, also used only with falcons and probably not in use before the thirteenth century).<sup>1,4,7,9</sup>

Each of these devices is small. The jesses, leash, glove and hood, being made of leather, will decay in many types of soil. The bell must be made of light material and its weight must not exceed 7 g. It and the metal swivel are more likely to survive. When these items are found, it is fairly certain that hawking was practised.

The second type of evidence for hawking is a skeleton of a bird of prey buried alone or together with a human being, its presumed owner. Birds of prey buried in graves of their own have not been found so far. Goshawks were buried in fifth- to seventh-century human inhumation graves in Thuringia (Germany),<sup>15,16</sup> and cremated remains of goshawks, peregrines and merlins have been found in cremation burials in Sweden, dating from the sixth to the ninth century AD.<sup>17</sup> These were most probably trained birds of prey that were inhumed or cremated together with their owners (and sometimes with other animals in addition).

The third type of evidence for hawking is the presence of bones of hawks among the other

finds from a site. If a trained hawk dies, its body will be thrown on the waste tip. As birds of prey are normally not consumed by humans, we may take high proportions of remains of goshawk, sparrow-hawk, peregrine and other falcons as an indication that birds were trained and used for hunting at the site. Remains of goshawk and sparrow-hawk make up 15 per cent of the identified remains of wild birds in the Slavonic stronghold of Oldenburg in Ostholstein (hand-collected and sieved material combined)<sup>18,19</sup> (Figure 3). This proportion is so high that it can be argued that hawking was performed with goshawk and sparrow-hawk at the castle. The other identified birds of prey at this site are kestrel (*Falco tinnunculus*), merlin, white-tailed eagle (*Haliaeetus albicilla*) and a harrier species (*Circus* sp.).<sup>18</sup> Merlin and kestrel may have been used for hawking as well. Peregrine has not been identified at Oldenburg, and presumably was not used in hawking here.

The fourth type of evidence for hawking is a preponderance of remains of female birds among those of goshawk and sparrow-hawk. The mature hens are larger than the males of these species, without any overlap. The females can catch

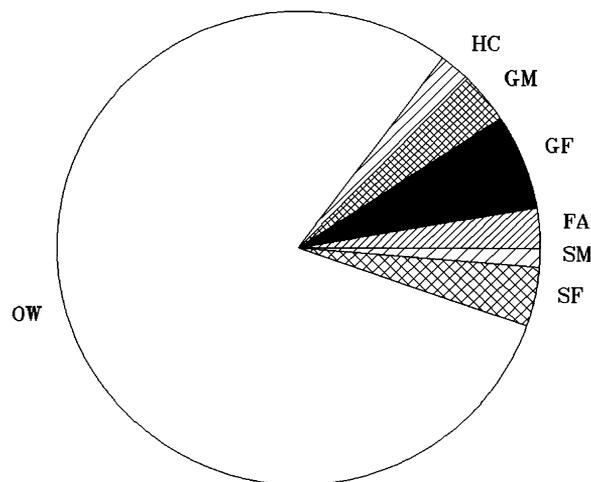


Figure 3. Oldenburg, Ostholstein (Germany), AD 750–1100: wild bird remains (hand-collected and sieved material combined),  $N=322$ .<sup>18</sup> HC, White-tailed eagle (*Haliaeetus albicilla*); GM, male goshawk (*Accipiter gentilis*); GF, female goshawk; FA, small falcons—kestrel (*Falco tinnunculus*), merlin (*Falco columbarius*), possibly hobby (*Falco subbuteo*) and a harrier (*Circus* sp.); SM, male sparrow-hawk (*Accipiter nisus*); SF, female sparrow-hawk; OW, other wild birds.

larger game than the male birds, and for this reason are better for supplying food for the table. At Oldenburg, remains of female goshawks and female sparrow-hawks outnumber those of males by two to one and three to one, respectively (Figure 3), a further argument to show that at Oldenburg goshawk and sparrow-hawk were chosen for hawking.

The fifth type of evidence for falconry is the remains of the game caught by the trained hawks. The quarry of the hawks is consumed both by humans and by the hawks themselves.<sup>4,9,14</sup> The remains of the prey animals will have been incorporated in the waste of the settlement. Pigeons, larks, Turdidae (thrushes), Corvidae (corvines) and other medium-sized and small birds make up more than three-quarters of the prey of wild goshawks in Schleswig-Holstein, Germany. Wild mammals, such as brown hare and rabbit, are caught in small numbers<sup>20,21</sup> (Figure 1, left). Altogether, as many as 139 different animal species are caught by the wild goshawk.<sup>20</sup>

The composition of the prey of modern trained goshawks, as reported in the nineteenth and twentieth century literature, is quite different.<sup>2,3,22,23</sup> Hare and rabbit make up more than three-quarters of the prey. Partridge and pheasant, sparrows, starling, Corvidae (corvines) and ducks are regularly caught (Figure 1, right). Pre-nineteenth century references to hawking also show that large birds such as heron, goose, bustard and crane were considered suitable prey for a trained goshawk.<sup>14</sup> Hence we may assume that in medieval times the trained goshawk hunted small, medium-sized and also large game birds.

The wild sparrow-hawk catches all kinds of medium-sized and small birds, such as pigeons, larks, sparrows, starlings and thrushes. Besides these, it catches some mice<sup>20,21</sup> (Figure 2, left). Modern trained sparrow-hawks are specialized in the capture of thrushes; partridge and pheasant, which are rather large prey for the sparrow-hawk, are also regularly caught<sup>2–9,23</sup> (Figure 2, right). Although these last are consumed by humans, sparrows and starlings are today hunted merely for sport.

Remains of brown hare (*Lepus europaeus*) make up 12.8 per cent of the remains of wild mammals

at the Slavonic stronghold of Oldenburg (hand-collected and sieved material combined)<sup>18</sup> (Figure 4). This proportion is high in relation to the woody surroundings of the site, which were less suitable for the brown hare. This suggests that brown hare was specifically hunted, and may have been caught by trained goshawks at the stronghold. The red squirrel (*Sciurus vulgaris*), which was found in small numbers (0.9 per cent), is a second wild mammal species that may have been caught by these goshawks.

Remains of various species of duck make up 60 per cent of the identified remains of wild birds other than birds of prey in Oldenburg. These may have been hunted with goshawks. Hawking for ducks is depicted in the mosaics at Argos of about AD 500<sup>13</sup> and in a ninth-century manuscript now in Munich.<sup>10</sup> The waders and pigeons may also have been hunted with goshawks; while the larks and finches are more likely to have been hunted with sparrow-hawks. These groups together make up 14 per cent of the remains of wild birds other than birds of prey at Oldenburg. Remains of large birds (heron, goose, cormorant, black stork, bittern and swan) make up 12 per

cent of the non-raptor wild bird remains. Some or all of these too may have been hunted with the trained goshawk. The same holds for the corvines (9 per cent). Thrushes, partridge, sparrow and starling may have been caught by sparrow-hawks (Figure 5); the few larks by sparrow-hawks or possibly by merlins.

Goshawks and sparrow-hawks pluck their mammal or bird prey and carefully nip the meat from the bones, though the bones themselves are normally not devoured.<sup>8,20</sup> For this reason we may expect to find the bones of prey animals consumed by the trained goshawks and sparrow-hawks among the waste from the site. The goshawk may bite a fragment out of the breast-bone of birds.<sup>8</sup> This phenomenon has not been observed at Oldenburg, but most bird sterna from the site are very fragmented.

It can never be proved that all wild mammal and bird species listed in Figures 4 and 5, and all individuals of these species, were hunted with trained goshawk and sparrow-hawk. There were other methods available to catch the wild mammals and birds found: catapults, blowpipes, bows and arrows, snares, traps and nets.

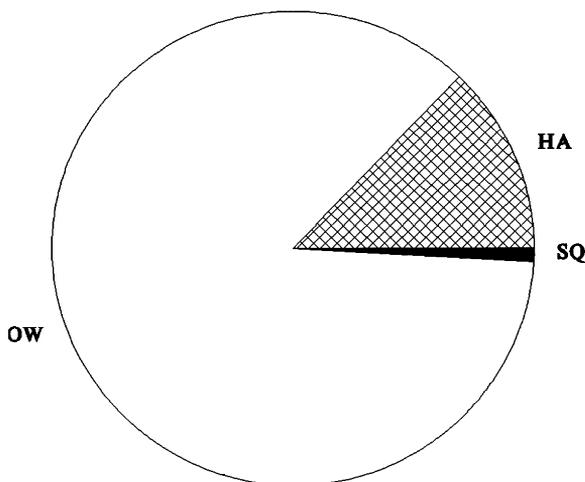


Figure 4. Oldenburg, wild mammal remains (hand-collected and sieved material combined),  $N=772$ .<sup>18</sup> HA, Brown hare (*Lepus europaeus*); SQ, red squirrel (*Sciurus vulgaris*); OW: other wild mammals.

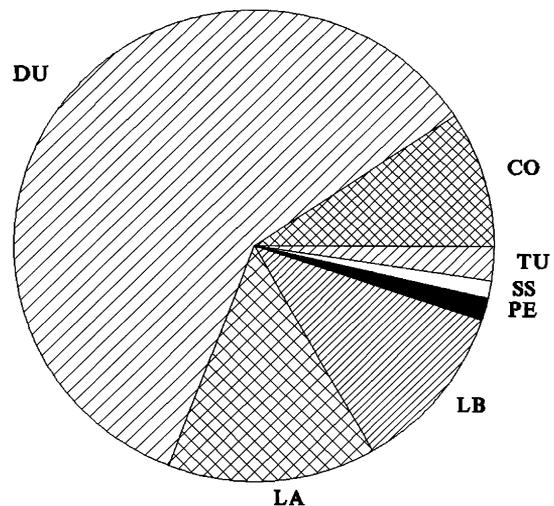


Figure 5. Oldenburg: wild bird remains other than those of Accipitridae and Falconidae (hand-collected and sieved material combined),  $N=257$ .<sup>18</sup> LB, Large birds; DU, ducks; TU, Turdidae; CO, Corvidae; PE, partridge (*Perdix perdix*); LA, pigeons, larks and other medium-sized and small birds; SS, sparrows and starlings.

However, the species frequently discussed in falconry literature as prey animals of these hawks are well represented in the Oldenburg materials.<sup>2-9,14,22,23</sup> This prompts the conclusion that hawking was practised at Oldenburg in Ostholstein between AD 750 and 1150.

## Conclusion

The analysis of the bones of birds and mammals from any archaeological site may reveal which hunting methods were used at that site. This is demonstrated for the hunting method of hawking (falconry). The trained birds, the falconer's equipment and the prey captured by the hawks may turn up at a site. That hawking was practised at the Slavonic stronghold of Oldenburg in Ostholstein is shown by (i) the remains of the hawks themselves (in this case goshawk, sparrow-hawk, and possibly merlin), (ii) a predominance of remains of female goshawk and sparrow-hawk and (iii) the remains of the prey of the trained hawks: various species of mammals and birds.

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