

# The fossil and archaeological record of the Eagle Owl in Britain

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**ABSTRACT** Eagle Owls *Bubo bubo* have bred in northern England in most years since the mid 1990s, and this has prompted much debate about their place in the British avifauna. The paper reassesses the fossil and more recent archaeological records of Eagle Owl in Britain. Separating fossil remains of Eagle Owl from those of the closely related Snowy Owl *B. scandiacus* is extremely difficult, but records suggest that Eagle Owls, or a species of *Bubo* closely allied with modern Eagle Owl, have been present in Britain for up to 700,000 years, through to the end of the last ice age, some 10,000 years ago, and into the Holocene.

The recent establishment of breeding Eagle Owls *Bubo bubo* in Yorkshire has been the cause of some controversy, mainly over whether the bird belongs in Britain and whether it has been a native part of the British avifauna before. A key concern with the newly established Eagle Owls is that they may predate other rare raptors in the area, such as Hen Harriers *Circus cyaneus* and Hobbies *Falco subbuteo*. The fossil and more recent archaeological records of Eagle Owl for Britain are clearly of relevance to the debate and a list of these has been published recently (Turk 2004). The literature-based record suggests a comparatively continuous occupation of the British Isles by this species but, because of questions over the identifications of bird remains in general (Stewart 2002), it is necessary to review these records with reference to the original skeletal remains. In a recent article, Dennis (2005) claimed that some pre-medieval archaeological records exist, but these were not specified. Post-glacial (later than the last glacial maximum, which ended c. 16,000 years BP) finds are necessary to confirm native status; these would put the species in Britain during a time when many of our native living animal populations were already present.

The latest archaeological record claimed is

that from Meare Lake Village, Somerset, an Iron Age settlement, which would make the record about 2,000 years old (Gray 1966; table 1). A late date such as this, coming from our present climatic regime, would, if genuine, confirm the native status of Eagle Owl in Britain. However, this particular record could also represent an individual imported for use in hunting; the late prehistoric period saw other introductions, whether purposeful or accidental, such as the domestic fowl *Gallus gallus* (believed to have arrived in Europe during the Iron Age from the India–Burma area; Davis 1987) and the House Sparrow *Passer domesticus* (whose earliest records in northern Europe are late Bronze Age (3,200–2,800 years BP), from Sweden; Ericson *et al.* 1997). It is certainly possible, however, that the Iron Age Eagle Owl remains represent native British birds. This species may have been present in the Mesolithic (10,000–5,500 years BP) (Bramwell & Yalden 1988), when humans in Britain were leading hunter-gatherer lifestyles and not in the habit of moving animals around the world. In addition to these more recent Holocene records, there are claims that cover the last 700,000 years, from interglacials (with climates similar to that of the present time) as well as from colder and drier glacials.

Table 1. The fossil record of the genus *Bubo* in Britain (adapted from Yalden in prep.).

No.	Site	Dates	Age	Climate	Source	Skeletal element and identification [identified by], with notes	Revised taxon
1.	Forest Bed, East Runtun, Norfolk	c. 1.7 million–700,000 years BP	Pastonian	Temperate	Harrison (1979a)	Distal right tarsometatarsus. [ID Harrison, confirmed Stewart]	<i>Bubo (bubo)</i>
2.	Unit 4c, Boxgrove, West Sussex	c. 500,000 years BP	Late Cromerian Complex	Temperate	Stewart (in press)	Left coracoid fragment. <i>Bubo (bubo)</i> . [ID Stewart]	<i>Bubo (bubo)</i>
3.	Barnsfield Pit, Swanscombe, Kent	c. 400,000 years BP (Although TL dates: 202,000 ±15,000 and 228,000 ±23,000)	Hoxnian: pollen zone Ho II	Temperate	Harrison (1979b)	Right carpometacarpus fragment. [ID Harrison, confirmed Stewart]	<i>Bubo (bubo)</i>
4.	Tornewton Cave, Devon	c. 200,000–10,000 years BP	Middle or Late Pleistocene	Glacial or interglacial	Harrison (1980)	Ungual phalanx. [ID Harrison, unconfirmed Stewart]	Undet. large predatory bird
5.	Chelm's Combe Shelter, Cheddar, Somerset	<sup>14</sup> C dates: 10,190 ±130 and 10,910 ±110 BP	Devensian: Dryas 3	Glacial	Harrison (1989)	Distal right carpometacarpus. [ID Harrison, reassigned Stewart]	<i>Bubo (bubo)</i> or <i>B. (scandiacus)</i>
6.	Ossom's Cave, Staffordshire	<sup>14</sup> C dates: 10,190 ±130, 10,780 ±70 and 10,600 ±140 BP	Devensian: Dryas 3	Glacial	Bramwell (1960)	Element? [ID Bramwell, not seen]	Not seen
7.	Derbyshire Peak Caves'	c. 110,000–10,000 years BP	Devensian	Glacial?	Bramwell (1977)	Element? [ID Bramwell, not seen]	Not seen
8.	Kent's Cavern, Devon	c. 125,000–10,000 years BP	Late Pleistocene	Glacial?	Tyrberg (1998)	Element? [ID?, not seen] Record of <i>B. bubo</i> in Tyrberg (1998) from Kent's Cavern. May refer to the specimen below.	Not seen
9.	Kent's Cavern, Devon	c. 110,000–10,000 years BP	Devensian	Glacial?	Harrison (1980)	Complete right tarsometatarsus. <i>Bubo scandiacus</i> . [Harrison, confirmed Stewart]	<i>Bubo (scandiacus)</i>
10.	Langwith Basset Cave, Derbyshire	c. 125,000 years BP to present	Late Pleistocene/Holocene	Glacial or temperate	Tyrberg (1998)	Element? [ID Bramwell?, not seen]	Not seen
11.	Merlin's Cave (Wye Valley Cave), Herefordshire	c. 15,000–10,000 years BP	Devensian: Late Glacial?	Glacial?	Newton (1924)	Element? [ID Newton, not seen] May have been lost in the Second World War.	Not seen
12.	Demen's Dale, Derbyshire	c. 10,000–5,500 years BP	Early Holocene (Mesolithic)	Temperate?	Bramwell and Yalden (1988)	Right tarsometatarsus [identified by A. Hazelwood and others. Confirmed from photograph by Stewart.]	<i>Bubo (bubo)</i>
13.	Meare Lake Village, Somerset	c. 700 BC to AD 43	Holocene (Iron Age)	Temperate	Gray (1966)	Two portions of ulnae [identified by D. Bate but may be unreliable (Yalden pers. comm.)]	Not seen

Notes: TL – Thermoluminescent date; <sup>14</sup>C – Carbon-14 date. Tarsometatarsus – foot bone, forms the lower part of the leg limb length; coracoid – bone of the shoulder girdle, forms part of the shoulder blade (scapula) in mammals; carpometacarpus – 'hand' bone, forms part of terminal section of wing; ungual phalanx – bone of claw; ulna – wing bone.

*Review of the fossil records of Bubo in Britain*

A review of the finds listed in table 1 is presented here, although not all material was located for this survey. The finds will be discussed starting from the oldest record; numbers correspond with those in table 1.

1. The record from East Runton, Norfolk (see fig. 1), is considered to be somewhere between 1.7 million and 700,000 years old. The environment indicated from other fossils at the site (pollen and other animals) is that of a temperate climate, the vegetation typical of an interglacial with deciduous woodland (Stuart 1982). Harrison (1979, 1985, 1988) suggested that this bone was more akin to that of a (modern) southern form of Eagle Owl, with relatively small overall size and long legs. This has been confirmed during the present study and is problematic as birds with these proportions today live in open, treeless habitats such as the deserts of North Africa and Arabia. Why a bird with such proportions, which may suggest an adaptation to

warmer or more open conditions, should live during an interglacial in Britain is difficult to fathom. Harrison's (1979a, 1985) explanation was that the species was then in its ancestral state and that larger body size and shorter legs evolved after exposure to northern climes for a longer period of time. Alternatively, this specimen may belong to an undescribed species of *Bubo*.

2. Another early record is from Boxgrove, West Sussex (Stewart in press), and is approximately 500,000 years old (fig. 2). The environment at the time was again that of an interglacial (a temperate episode), although the accompanying rodent species indicate that the climate was more continental than that of Britain today (Parfitt 1999). Some doubt exists over this specimen's identification since the bone is considerably (up to 20%) larger than the same bone in modern Eagle Owls. Other taxa at Boxgrove include the following, verified personally by the author: a swan *Cygnus*, a goose *Anser*, a partridge *Perdix (perdix)*, a probable Northern Gannet *Morus bassanus*, a large falcon *Falco*, a crane *Grus*, a probable Razorbill *Alca torda*, a Great Auk *Pinguinus impennis* (the oldest known record), a swift *Apus* and a crow *Corvus*, as well as a number of undetermined ducks, waders and passerines (Harrison & Stewart 1999; Stewart in press).

3. A record from the Lower Loam at Barnfield Pit, Swanscombe, Kent (Harrison 1979b) is about 400,000 years old. This was the time of the Hoxnian (Holsteinian) interglacial and the Eagle Owl would then have been accompanied by birds such as Capercaillie *Tetrao urogallus*, Great Cormorant *Phalacrocorax*



**Fig. 1.** Distal tarsometatarsus, possibly of small Eagle Owl *Bubo bubo* from East Runton, Norfolk (record no. 1, table 1).



**Fig. 2.** Coracoid fragment, probably of large Eagle Owl *Bubo bubo* from Boxgrove, West Sussex (record no. 2, table 1).

*carbo*, Osprey *Pandion haliaetus*, Wood Pigeon *Columba palumbus* and various geese, ducks and songbirds (Harrison 1979b; Parry 1996).

4. The record from Tornewton Cave (Harrison 1980) is problematic. First, there is no indication as to which deposit within the cave the specimen was excavated from and, as many different strata exist, this means that its age is uncertain. Second, the specimen is dubious owing to a lack of diagnostic osteological features, and Stewart (1996) suggested that the bone cannot be confirmed as that of an Eagle Owl.
5. The fossil from Chelm's Combe Shelter, Cheddar, Somerset, was formerly identified as Eagle Owl by Harrison (1989). Unfortunately, while the specimen (fig. 3) can be confirmed as belonging to the genus *Bubo*, it is not possible to establish whether it belonged to an



**Fig. 3.** Distal carpometacarpus of Eagle Owl *Bubo bubo* or Snowy Owl *B. scandiacus* from Chelm's Combe Shelter, Cheddar, Somerset (record no. 5, table 1).

Eagle Owl or to a Snowy Owl *B. scandiacus*, as these two cannot be distinguished on detailed morphology (Ford 1967) and the specimen lies between these two extant species in size. Osteological evidence was part of the reason for the BOU placing Snowy Owl into the genus *Bubo* in 2003 (see Collinson 2006). The accompanying avifauna includes Willow/Red Grouse *Lagopus lagopus*, Ptarmigan *L. muta*, Common Kestrel *Falco tinnunculus*, Little Auk *Alle alle* and thrushes *Turdus* (Harrison 1989) as well as mammals such as Reindeer *Rangifer tarandus*.

- 6, 7, 10, 11. Specimens from a number of cave localities have not been located in the present survey. Until these fossils can be re-examined, the possibility will remain that they are misidentified remains of Snowy Owl or, even worse, not an owl at all. Separation of Eagle and Snowy Owl can be extremely difficult, particularly if specimens are fragmentary.

- 8, 9. Both Eagle Owl and Snowy Owl have been listed as having been identified from Kent's Cavern, Devon (Harrison 1980; Tyrberg



**Fig. 4.** Tarsometatarsus of Snowy Owl *Bubo scandiacus* from Kent's Cavern, Devon (record no. 9, table 1). Note that it is significantly shorter in relative terms than that from East Runton (fig. 1).

1998), although only the latter species has been located in the collection of the Natural History Museum, London, and its identification confirmed (fig. 4). The Eagle Owl record may have been lost or the Snowy Owl specimen may have been misidentified at some stage and thus two taxa claimed from a single fossil. The Snowy Owl specimen is of great importance and interest as it is the only Pleistocene record for the species in Britain. This is in contrast to the situation in France, where their remains are relatively common from the Late to Middle Pleistocene (Mourer-Chauviré 1975). It is interesting to note that they are also relatively uncommon in Poland, which is on a similar latitude to Britain (Lorenc 2006).

12. The latest confirmed identification of Eagle Owl is from Demen's Dale, Derbyshire (Bramwell & Yalden 1988). The specimen itself has not been re-examined in this study but photographs confirm the identification (and the specimen has also been examined by many experienced palaeornithologists; Bramwell & Yalden 1988). The dimensions of this tarsometatarsus are large, and the relatively long shaft length rules out Snowy Owl. This suggests that the Eagle Owls that lived in Britain during the Holocene were similar in dimensions to the northern birds living in Scandinavia today and raises the possibility that the native British population of Eagle Owls belonged to the nominate subspecies of Eagle Owl *B. bubo bubo*.
13. The claimed record of Eagle Owl from Meare Lake Village (Gray 1966) cannot be traced, despite considerable effort (Derek Yalden pers. comm.), and is perhaps best regarded as unconfirmed. Even when first published, there was doubt over the identification of this specimen. If confirmed, it would provide the latest date for the species, in the region of 2,000 years ago. It is interesting that no other, more recent, records exist, despite a great deal of work by zooarchaeologists working on assemblages from the Roman period onwards (Parker 1988; Derek Yalden pers. comm.).

### Conclusions

The absence of the Eagle Owl from Britain in historical times (i.e. the last 1,000–2,000 years) has been thought to be due to persecution

(Mikkola 1983), although this is difficult to prove. Until recently, the species has occupied most of Europe except the northwest, where many other raptors have certainly been affected by persecution (e.g. Whitlock 1953, O'Connor 1993). Protective legislation has allowed many of these birds to recover to some degree and return to old haunts. The wider phenomenon of human disturbance has affected a whole suite of organisms in Britain and elsewhere (Stewart 2004; Hetherington *et al.* 2005). The recent breeding of Eagle Owl in Britain may have stemmed from the release of captive birds. Alternatively, it may be partly the result of natural recolonisation from mainland Europe, where the population has both increased and spread westwards into Belgium and The Netherlands (Dennis 2005). The change in protective legislation concerning the Eagle Owl in Europe is likely to be partly responsible for its range expansion on the mainland, and it is not impossible that some birds in Britain arrived naturally.

The fossil records discussed here suggest that Eagle Owls, or at least a species from the genus *Bubo* very closely allied with modern Eagle Owl *B. bubo*, have been present in Britain for up to 700,000 years, through to the end of the last ice age some 10,000 years ago and into the Holocene (table 1). During this time they have lived in temperate interglacials (Pastonian, Cromerian, Hoxnian and Holocene) and possibly cold glacials (Devensian). The Hoxnian (Swanscombe) and Pastonian (East Runton) fossils were from river deposits while that from Boxgrove is from a freshwater deposit on a coastal plain of southern England. However, the only Devensian fossil examined by the author (Chelm's Combe, Cheddar) has not been confirmed as Eagle Owl and may represent Snowy Owl. Indeed, previous analyses may have overlooked the osteological similarity between Snowy Owl and Eagle Owl, so that fossil records should not be accepted (as Eagle Owl) unless it can be shown convincingly that Snowy Owl has been considered and eliminated. If genuine, the Chelm's Combe record corresponds with a cold phase of the Late Glacial (the end of the last ice age). The latest confirmed find is from the earlier Holocene (Demen's Dale) in a temperate climate with indications of woodland. This shows that the Eagle Owl (as defined above) has probably been a native species in Britain for a long time and possibly through different climatic regimes with different habitats. It may be

that this native status was not continuous and was punctuated by the extreme conditions of the most severe glacial periods. However, at most other times the climate would probably have been suitable for the species. The finds from the Late Glacial, if they represent Eagle Owl, may well be part of the same population as the earlier Holocene find. There is no climatic reason why these birds may not be part of a continuous occupation by the species.

It is the view of the author that the fossil and archaeological record suggest strongly that the Eagle Owl is part of the natural, native British fauna.

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