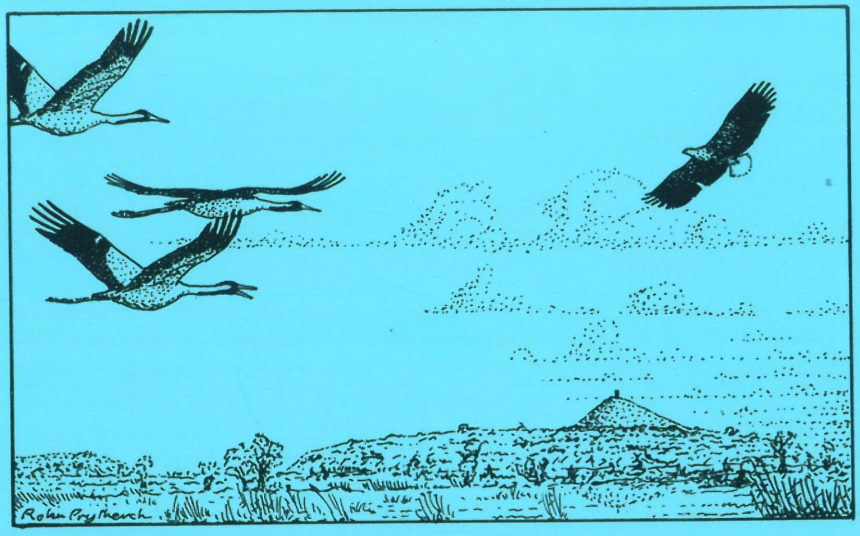
BRISTOL ORNITHOLOGY

THE JOURNAL OF THE BRISTOL ORNITHOLOGICAL CLUB



NUMBER 29, 2008

BRISTOL ORNITHOLOGY

THE JOURNAL OF THE BRISTOL ORNITHOLOGICAL CLUB

NUMBER 29, 2008

CONTENTS

Cover: Common Crane *Grus grus* and White-tailed *Eagle Haliaeetus* over the Somerset Levels. A view of the past … and future? (Robin Prytherch)

Preface

A variety of subject matter and styles fill this issue. Terry Bond has been watching and monitoring birds at Barrow Gurney Reservoirs for many years and has recently spent much time in summer keeping track of the Little Ringed Plovers there. His account of the arrival and continued presence of the plovers as a new breeding bird indicates his dedication to the species and the place. His co-operation with Bristol Water staff has helped to bring in conservation measures that should encourage the birds and other wildlife in the future.

The two papers by Matthew Rogers look back as well as forwards as he discusses the future possibilities for two species which bred in our area a long time ago, but are now absent. This has been a 'desk job', hunting through a mass of literature to find the evidence for their status in the past then to ask the question, could they come back?

Tony Parsons has been visiting Steep Holm in the Bristol Channel for over thirty years and he provides us with a thorough account of the history of the bird ringing activities there. A fascinating read for those who have been there and for those, the majority, who have looked at the island from the coast and wondered. A much newer birdwatching site is well described by Mark Ponsford – the Weston-super-Mare sewage treatments works is becoming a well established location with plenty of exciting records. 2008 is the tenth year since the works was commissioned.

Jane Cumming, Robin Prytherch and Lyndon Roberts
Bristol Ornithology Editorial Committee

ISSN 0950-2750. Published by the Bristol Ornithological Club, 2008 (c/o 23 Caledonia Place, Clifton, Bristol BS8 4DL). Printed by C&S Print Services Ltd, Weston-super-Mare.

Little Ringed Plovers at Barrow Gurney Reservoirs

Terry E. Bond

Introduction

The Little Ringed Plover *Charadrius dubius* is a relative newcomer to the ranks of bird species that breed in Britain. There was no record of breeding until 1938 and by 1944 there were still only two breeding pairs (Sharrock 1976). At Barrow Gurney Reservoirs, North Somerset, the first breeding occurred in 1999.

Quite widely spread across Europe, the birds prefer to be near fresh water, usually with banks of shingle, sand, silt etc. In Britain they have adapted to manmade sites, such as gravel pits, sewage farms, industrial tips, waste ground and reservoirs. Many of these are sites which are quite heavily disturbed, but the species has proved tolerant and prepared to re-lay if a first nest is destroyed, although they will clearly move on if disturbance becomes too constant (Sharrock 1976).

An increase in this type of habitat and the birds' tolerance has seen numbers gradually rise over the years, but the Little Ringed Plover is, at best, uncommon, and in many parts of the country is still a rare breeding species. The latest estimated population is 825-1,070 summering pairs (Gibbons et al. 1993). In 2007 the BTO ran a UK-wide survey of this species, the results of which are currently being analysed with a paper to be published in 2009. The BTO website quotes "the species' broader breeding range has shown only a slight expansion".

Little Ringed Plovers are quite specific as to the sort of habitat in which they will breed which is, very often, of a transient nature. As emergent growth spreads rapidly, breeding sites from one year can easily be overgrown by the next. Additionally, as sites, such as gravel pits, are worked out, they are changed to other uses, e.g. fishing lakes. This usually means that the birds do not remain at one site for too long, but regularly move on to fresh sites where the habitat is more suitable. The Cotswold Water Park, Gloucestershire/Wiltshire, is a prime example of this, where the birds tend to follow the relatively new diggings, leaving behind previously favoured sites as they become overgrown or flooded. Elsewhere, exposed gravel shoals in slow flowing rivers in South and East Wales (*Welsh Birds*, 2008) are used for nesting, but because of the ephemeral nature of such gravel shoals, sites again can vary from year to year.

The birds winter in Africa, most returning to Britain in April and May, although a few early ones may appear in March. They also leave early, and there are usually few left by mid September (Cramp and Simmons 1983).

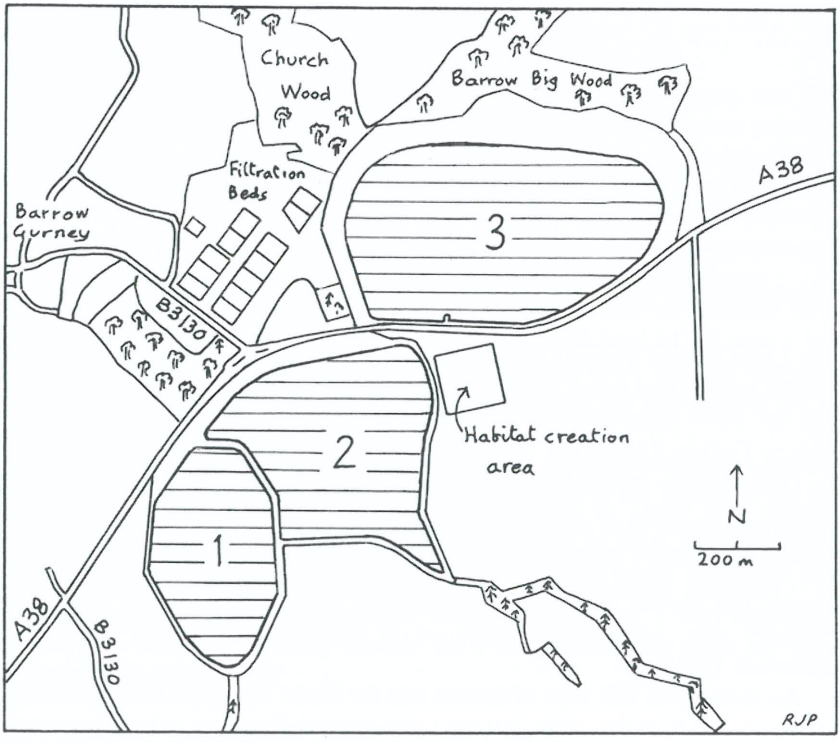


Fig. 1 *Map of Barrow Gurney Reservoirs, North Somerset. The main areas used by the Little Ringed Plovers* Chardrius dubious *were Reservoir 2 and the filtration beds.*

The Reservoirs

The three Reservoirs have traditionally not held suitable breeding habitat for Little Ringed Plovers. These reservoirs (see Fig. 1) are artificial with concrete and stone embankments into which water is pumped, with only one minor natural inflow into one of the reservoirs. Occasionally, the water level in one of the reservoirs is maintained at a lower level exposing fringe mud and every few years one will be partially or wholly empty for the purpose of maintenance work. However, all three reservoirs are normally kept fairly full, leaving no suitable habitat around the fringes.

Alongside the three reservoirs is the Bristol Water plc main working site, which contains a number of filter beds, some of which have not been in use in recent years and which contain a small amount of emergent vegetation.

First breeding records

There was no expectation that passage birds in the spring would ever be tempted to linger and breed. Indeed, it was not until August 1979 that this species first occurred here, with an immature bird stopping off for a couple of days on return passage. This was followed by another in August 1981. The first spring record came in May 1982, a bird being present for one day. In subsequent years, it became more regular as a passage visitor, and the odd one or two could be looked for stopping off briefly in the spring or autumn, but it did not necessarily appear every year.

The appearance of three birds together in April 1999 was therefore unusual, but suggested nothing untoward. However, the water level on Reservoir 2 was somewhat lower than usual, exposing some stony areas, and the continuing presence of one of the birds well into May prompted the thought that breeding might be possible. However, there were no further sightings until another adult was seen at the beginning of July, which was assumed to be an early returning migrant. It was therefore a total surprise when, on 10th July, four chicks were seen together on the south bank of Reservoir 2, clearly the result of successful breeding as they were far too young to fly. There had been no indication whatsoever of breeding activity during the previous weeks. These birds grew swiftly over the ensuing days, and all fledged successfully – the first ever breeding record at the Barrow Gurney Reservoirs.

After that, the normal pattern resumed with occasional migrant birds but no further breeding activity until 2004 when works on Reservoir 1 required it to be drained resulting in a lot of fresh suitable habitat becoming available. A pair bred once more in that year, successfully bringing off three chicks. In 2005 Reservoir 2 similarly became empty and again a pair bred successfully, fledging four young. Astoundingly, in the same year, another three pairs also set up territory on Reservoir 2. Two of these were definitely sitting on nests, although it would seem unsuccessfully as no young resulted. The fourth pair showed all the right signs with territorial display and calling, but the birds were not actually seen on a nest.

In 2006, Reservoir 2 was still empty, and two pairs again bred, but monitoring was much more difficult this year as there was much tall emergent vegetation from the previous year. Two young were seen, of different ages, presumably one from each pair. Large numbers of Carrion Crows *Corvus corone* and a couple of Great Black-backed Gulls *Larus marinus* were present throughout the summer on Reservoir 2, which may have led to predation of eggs or young, hence the relatively poor result.

In spring 2007, up to eight birds reappeared on Reservoir 2. However, with the work completed it was now being filled. A rapidly rising water level was clearly a barrier to any breeding attempts – or so it seemed! In fact, one pair spent almost the next two months in territorial display along the causeway between Reservoirs 1 and 2 and appeared to be nesting. Ultimately they were

not successful – whether because they were inexperienced birds or whether their nest was predated is unknown. Another pair took up territory in the north-east corner of Reservoir 2, and at one stage their behaviour strongly suggested that they were protecting a nest, but in the event no young were seen. In the meantime a third pair that had been "hanging around" between Reservoirs 2 and 3 and the filter beds were suddenly found to have a nest with four eggs in one of the disused beds. This pair was successful, fledging four young (Plates 1 & 2).

Habitat creation and most recent breeding records

With the 2007 pair breeding within the working complex, albeit in one of the disused beds, discussion took place with Bristol Water staff. This led to very positive consideration as to whether it might be possible to set aside/create an area of suitable habitat to encourage the Little Ringed Plovers to continue to use the reservoirs as a nesting site in the future. Research was carried out and a decision was made that a piece of land adjacent to reservoir 2, by the north-east corner, could be used to create a piece of habitat that would be sufficiently isolated as to be protected from casual disturbance. The work was undertaken in the early part of 2008, but with the expectation that it would not be ready for occupation, were that to happen, until the 2009 season.

In the event, up to four Little Ringed Plovers reappeared in early April 2008, of which a pair appeared to be settling down in the north east corner of Reservoir 2, just a few yards from where the habitat creation work was taking place. They remained there for some days but eventually disappeared, before reappearing with a nest on the same filter bed as had been used in 2007. Four eggs were laid, all of which hatched, but unfortunately the young disappeared within a couple of days, presumably predated. One of the adults was subsequently seen on its own in the filter bed - clearly the breeding attempt ultimately failed in 2008.

After the early pioneering attempt in 1999, there has now been successful breeding by this species in each of the last four years, producing a total of thirteen fledged young in addition to the four in 1999, plus a further nearly successful attempt in 2008, although the young ultimately seem not to have survived. For a bird that is a very scarce breeder in North Somerset, the Barrow Gurney Reservoirs seem to be providing an attractive breeding site. The new artificial habitat that has been created will have settled by the 2009 breeding season, and it is very much the hope that Little Ringed Plovers will continue to breed here in the future.

Acknowledgements

I should like to offer my thanks to Tim McGrath from Avon Wildlife Trust and Chris Klee, Conservation Consultant to Bristol Water plc, for their advice on potential habitat creation and to both Chris Stone and Sean Davies who have

contributed regular updates from their observations over the last few years.

A special word of thanks is due to Bristol Water plc whose interest in the birds and their welfare led to the creation of the new artificial habitat, which will hopefully be of significant benefit over the coming years. In this regard, I should like specifically to mention Jeremy Williams, whose support throughout has been appreciated, and most particularly Colin Hunt for his interest, contribution and determination without which the habitat work would not have been completed.

Finally, I would like to thank Mike Chaffey who has for many years shared my interest in the birds of Barrow Gurney and it is with his help that the recording work necessary to complete this article was achieved.

References

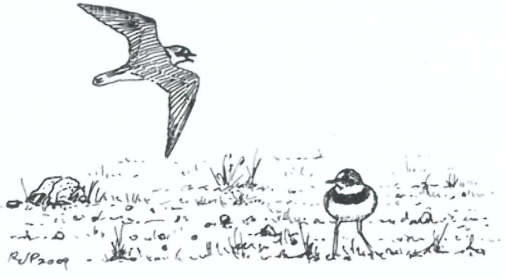
Cramp, S. & Simmons, K.E.L. (eds) 1983. *Birds of the Western Palearctic* Vol. 3. OUP Oxford.

Gibbons, D.W., Reid, J.B. & Chapman, R.A. (1993) *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991*. Poyser, London.

Sharrock, J.T.R. 1976. *The Atlas of Breeding Birds in Britain and Ireland.* Poyser, London.

Welsh Birds 2008. Vol. 5, No.3: 175.

Terry E. Bond
3 Lapwing Crescent, Chippenham, Wiltshire, SN14 6YF.



The Common Crane in the Bristol Region: it's past, present and future?

M.A.Rogers

Introduction

The Common Crane *Grus grus* is a scarce passage migrant to Britain, with smaller numbers occurring in the winter and summer months. It is also a very rare breeding bird, restricted to the north-eastern part of the Norfolk Broads where a small resident population has been established since the early 1980's (Batten et al. 1990, Dymond et al. 1989). During the sixteenth century, however, Common Cranes appear to have been a familiar part of the British avifauna. A 1534 Act of Henry VIII 'To Avoide Destruction of Wilde Fowle' made it illegal, between the first day of March and the last day of June, to take or destroy the eggs of this species, the penalty being a year's imprisonment and a fine of twenty pence. Clearly, this legislation did not protect juvenile birds - in June 1543 a 'yong pyper Crane' is recorded as having been obtained at Hickling, Norfolk, as part of a present to the Duke of that county. In his *Avium Praecipuarum*, published the following year, William Turner informs the reader that:

> Among the English also, Cranes nest in marshy places, and I have very often seen their pipers ..

Subsequent references to cranes breeding in England have little or nothing to do with the first-hand experiences of later authors and merely echo Turner's original observations. In the *Ornithologiae Libri Tres*, written by Francis Willughby in 1676, we are told that:

> .. they come often to us in England, and in the fen countries in Lincolnshire and Cambridgeshire there are great flocks of them but whether or not they breed in England (as Aldrovandus writes he was told by a certain English-man who said he often seen their young ones), I cannot certainly determine, either of my own knowledge, or from the relation of any credible person.

From this account, it seems that Common Cranes continued to be a widespread and abundant visitor to this country, even though breeding had ceased, before

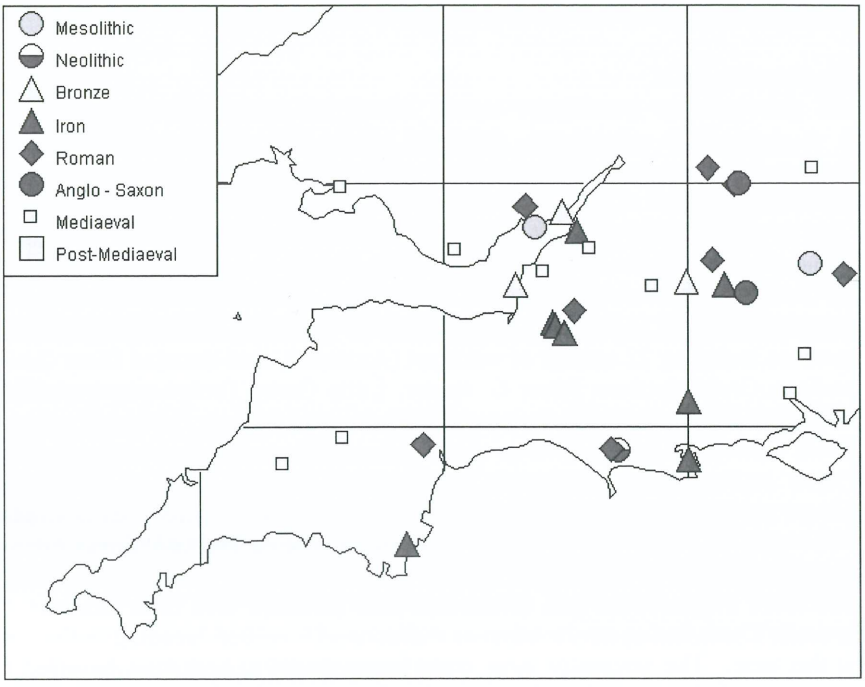


Fig.1 *Map of south-west Britain showing locations of Geological and Archaeological remains of Common Crane* Grus grus. (DMAP per D. Yalden)

the wholesale drainage of Britain's once extensive fenlands began in the seventeenth century (Boisseau & Yalden 1998, Gurney 1921, Harting 1882, Southwell 1901).

These early historical sources are supported by a wealth of documentary, place-name and archaeological evidence from Britain (Boisseau & Yalden 1998, Yalden 2002). The Crane is particularly ubiquitous as a sub-fossil - its remains have been found at over 150 sites across the country, ranging in date from the Late Pleistocene (see note on page 37) to the post-Medieval period (D. Yalden pers. comm.). This paper examines a similar range of evidence from Somerset, Wiltshire, the old County of Avon[1], Gloucestershire and Gwent (Fig. 1). In 2009, The Great Crane Project, a joint re-introduction scheme by the Royal Society for the Protection of Birds, Wildfowl and Wetlands Trust and Pensthorpe Conservation Trust, will begin and I will attempt to address the question: what impact could this project have on the future status of the Common Crane in our region?

[1] Avon covers the area of Bristol, South Gloucestershire, Bath & NE Somerset and North Somerset

Somerset

Archaeological

A crane bone excavated from Bronze Age deposits at Brean Down was not assigned to any particular species in the published archaeological report (Levitan 1990).

The Iron Age marsh settlements of Glastonbury and Meare, made justifiably famous by the classic 19/20th century excavations of Arthur Bulleid and Harold St. George Gray, were occupied between 250 BC and the 1st century AD. Their inhabitants hunted and/or ate a wide variety of waterbirds from the surrounding marshes including 22 species of wildfowl (Anatidae), Red-throated Diver *Gavia stellata*, Great Northern Diver *G. immer*, Little Grebe *Tachybaptus ruficollis*, Great Crested Grebe *Podiceps cristatus*, Dalmatian Pelican *Pelecanus crispus*, Great Cormorant *Phalacrocorax carbo*, Great Bittern *Botaurus stellaris*, Grey Heron *Ardea cinerea*, White-tailed Eagle *Haliaeetus albicilla*, Marsh Harrier *Circus aeruginosus*, Water Rail *Rallus aquaticus*, Common Moorhen *Gallinula chloropus*, Eurasian Coot *Fulica atra*, Lesser Black-backed Gull *Larus fuscus*, Herring Gull *Larus argentatus* and Great Black-backed Gull *Larus marinus* (Andrews 1917, Bate 1966, Harrison 1987, Levine 1986). The presence of juvenile Crane bones can be taken as evidence of localised breeding in the area at this time. The unusually large crane bones found at both sites have led to much speculation regarding their identity. Some archaeozoologists believe that they belong to 'archaic' Common Cranes that diminished in size in response to habitat loss and degradation. Others maintain that these bones are from the extinct species *Grus primigenia* or even the extant Sarus Crane *G. antigone*. The academic debate on the identity of large crane bones from British archaeological sites will be discussed more fully later in this paper.

Crane bones from the Great Cave at Wookey Hole were poorly stratified at the time of their discovery. However, they were found amongst Romano-British material and were therefore assumed to date from that period (Newton 1911).

Documentary

A remarkable piece of documentary evidence exists which describes how Cranes could still be obtained at Steart, in the Parish of Babcary, as late as the seventeenth century. However, there is nothing in the following passage to suggest that they were anything more than rare winter visitors:

> STEORTE
>
> A place that hath its extraordinarie foulnesse and dirt recompensed with as much fertility. It was held of the King by serjeanty to pay him yearly at Michaelmas one Crane or as latter Inquisitions have it 3 sh. *It seemes ye price of Cranes*

> *was increased as the birds in theis parts decreased* [italics mine].

This 'serjeanty', a form of feudal tenure conditional on rendering some specified personal service to the monarch, apparently dated back to the beginning of the 13th century (Gerard of Trent 1900). Cranes had evidently declined in this part of Somerset over a 400 year period, to the point where three shillings sometimes had to be paid to the king instead of the customary bird at Michaelmas. It is interesting to note that just to the east of Steart is a place called Crane Hill (ST5025), perhaps commemorating the fact that the species once frequented this part of Somerset.

Historical

There are at least fifteen records:
1865 One at Stolford on 17 October (Haddon 1865).
1875 One at Wick Farm, South Brent, in May (Mathew 1879).
1889 One at Stolford on 5 or 6 December (Bidgood 1889).
1963 Sutton Bingham Reservoir, 48 on 29 October. 39 over Stogursey and others heard over Stolford, both on 30th. 13 near the Huntspill River and 7 over Ilminster on 31st. These birds were part of a large influx of Cranes into Britain in October 1963 (Harber 1964).
1986 One flying over Bridgwater on 22 April.
1988 One at West Sedge Moor from 10-17 April.
1989 One at West Sedge Moor from 5-7 April.
1997 An adult north of Norton Fitzwarren on 6 May.
1999 One at West Sedge Moor from 3-4 November, at Canada Lake, Shapwick Heath, on 9th and again at West Sedge Moor from 18 November - 2 December.
2000 The bird from 1999 was at King's Sedge Moor from 9 January - 3 March.
2002 Single birds at West Sedge Moor on 16 March, in fields between Huntspill Sewage Treatment Works and the Brue Estuary on 14 April and in fields between Allerford and Bossington on 13 May. Two birds at Berrow on 5 May and commuting between stubble fields near Stileway and Ham Wall from 20 October - 6 November (at Catcott Lows on the latter date).
2007 One flying south over Ham Wall National Nature Reserve on 18 April.

Wiltshire

Archaeological

Crane bones have been found at four sites in the county:
Potterne (Locker 2000) *Bronze Age.*
Blunsdon St. Andrew (Coy 1982) *Iron Age.*

Silbury Hill (Gardner 1997) *Roman.*
Collingbourne Ducis (Hamilton-Dyer 2001) *Saxon.*

The majority of these archaeological sites, and indeed *Cran*-derived place-names (see Appendix), are located in the north of the county. This appears to suggest that there was a long-established trade route with the alluvial lowlands to the west of Wiltshire or that a discrete local wintering and/or breeding Crane population was present. However, the absence of any juvenile bones at the above sites would tend to discount the latter.

Historical

There are eight records:
1969 Adult over Trowbridge on 11 June.
1975 One at All Cannings from 8-10 April.
1988 Three adults at Odstock Down during the first two weeks of November.
1995 Adult at Calne from 14-24 December.
2002 A juvenile at the Cotswold Water Park on 17 January (see Gloucestershire records). Two west of Castle Eaton on 16 June.
2006 Three near Bowerchalke on 8 April.
2007 One seen near Bulford on 21 June flew over Stonehenge early the next morning.

Avon

Archaeological

A crane tibiotarsus found during excavation of an Iron Age settlement at Hallen is the oldest evidence that we have of the former presence of the species in our area (Hamilton-Dyer, 2002). Two crane bones have been recovered from the Medieval site of Bristol Castle and date to around 1080-1137 and 1275-1320 respectively. It is possible that these are the remains of birds that had been consumed at one of the extravagant royal banquets that characterized this period. The bone from later stratigraphic levels was excavated from a structure that has been interpreted as one of the castle kitchens (Ponsford 1979).

Recent archaeological investigations at Puxton Moor, near Weston-super-Mare, have uncovered evidence of a 12-13th century fen-edge settlement. A Crane ulna and carpometacarpus were excavated from two separate trenches on the site (Hamilton-Dyer 2006). The Crane bones from Bristol Castle and Puxton are part of a rich assemblage of waterbird remains that include seven species of wildfowl, Cormorant, Grey Heron, Stork *Ciconia* sp., Marsh Harrier and six species of wader. The palaeornithological and documentary evidence from Avon and Somerset suggests that Cranes were still fairly common in the 12-13th centuries. Clearly, some wetlands had survived attempts to drain and reclaim

them for agriculture during the Medieval period. An alternative explanation could be that such marginal lands were deliberately set-aside for hunting, fishing and grazing livestock. This raises an interesting question: were these birds obtained locally or did they come from elsewhere in the region, i.e. the Somerset Levels?

Historical

There are three accepted records:
1971 Two over Clevedon on 31 March.
2000 Two over Severn Beach on 3 January.
2003 Five adults in the Tortworth area from 25 February - 2 March. These birds were observed feeding in maize *Zea mays* fields by day before flying off to roost at Slimbridge WWT at night (see Gloucestershire records).

Gloucestershire

Archaeological

Crane bones have been excavated from three sites in the county:
Claydon Pike (Parker 1988) *Roman.*
Barnsley Park (Bramwell 1985) *Roman.*
Sherbourne House, Lechdale (Maltby 2003) *Saxon.*

Historical

There are at least seventeen records:
1869 Young male shot at Fiddington, near Tewkesbury, on 17 May (Gurney 1869).
1976 One at Aylburton Warth, near Lydney, on 2 April.
1979 One at the New Grounds, Slimbridge, on 13 November.
1980 An adult at Frampton-on-Severn/the New Grounds from 31 August - 5 September. One in flight over Frampton on 25 September and over Cheltenham on 26. One at the New Grounds on the 29 & 30 September.
1981 Three over Slimbridge on 15 December.
1982 One at Jackbarrow, between Winstone and Sapperton, on 7 September.
1983 One at Ashleworth Ham on 29 & 30 April.
1990 An adult at Churchdown on 20 September.
1999 One at Childswickham on 13 March.
2002 A juvenile at the Cotswold Water Park (West) on 17 January.
2003 Five over Woorgreens Lake, Forest of Dean, on 23 February. Subsequently relocated at Slimbridge WWT later the same day, where they remained until 2 March, roosting there at night and flying across the border to Tortworth (in South Gloucestershire) during the day to feed in maize

fields. Immature birds were seen at the New Grounds on 4 & 5 March and on 22 April.
2004 One at Longborough on 12 April.
2008 One flying south at Eastington, near Stonehouse, on 22 April.

Gwent

Archaeological

At Goldcliff, near Newport, ancient trackways of Crane footprints, along with those of Red Deer *Cervus elaphus*, Roe Deer *Capreolus capreolus*, Aurochs *Bos primigenius* (extinct wild cattle), Wolf *Canis lupus*, Grey Heron, Oystercatcher *Haematopus ostralegus*, Black-headed Gull *Larus ridibundus*, Common Gull *Larus canus* and terns *Sterna* sp. are exposed on the foreshore at low tide. These trace fossils were made by animals that walked across fine-grained spring/summer sediments of the intertidal mudflats around 7750 years ago (Dark & Allen 2005). Up until this time, the area we know today as the Severn Estuary was a forested river valley before sea levels rose rapidly at the end of the Last Ice Age. The increasing salinity levels killed off the woodland over a century or more, creating a landscape of dead and dying trees protruding through the accumulating saltmarsh and reedbeds. Around the various islands of bedrock, bands of Mesolithic (Middle Stone Age) hunter-gatherers established seasonal camps where they manufactured flint tools and exploited the rich natural resources of the developing estuarine environment. The footprints of both adults and children are also preserved in the sediments at Goldcliff (Scales 2007). Elsewhere, crane footprints, dated to the Neolithic period (*c.*5000 years BP), have also been found on the intertidal mudflats of Formby Point at the mouth of the Mersey Estuary (Roberts *et al.* 1996)

Juvenile crane bones, discovered in Bronze Age palaeochannels at Caldicot (in the lower Nedern Valley), suggest that the species was breeding in the county at this time (McCormick et al. 1997). Excavations on the site of a Roman fortress at Caerleon have shown that the species was still fairly common in the area during this period. Amongst the many bones recovered were specimens larger than those of modern-day Common Cranes. These have been attributed to the extinct species *Grus primigenia* (Hamilton-Dyer 1993).

Historical

There are just four recent records:
1978 One at Monmouth on 25 January.
2000 Two at St. Brides on 2 January.
2001 Four (two adults and two immature birds) in the Rhymney Valley, between Michaelston-y-Fedw and Machen, from 13-16 January. This group was also seen on the Wentlooge Level, near Peterstone Wentlooge, on 14

January.
2002 An adult at the Gwent Levels Nature Reserve on 11 & 12 April.

The Great Crane Bone Debate

In the late 1970's, sub-fossil bird bone collections held by London's Natural History Museum were re-examined by the late Dr. Colin Harrison. He identified an unusually large crane ulna from Glastonbury Lake Village as belonging to that of the extinct species *G. primigenia* Milne-Edwards, 1869 (Harrison & Cowles 1977). Other specimens from Late Pleistocene, Bronze Age, Iron Age, Roman and Saxon sites in Britain have also been assigned to *G. primigenia* (Boisseau & Yalden 1998, Harrison 1987, Harrison & Cowles 1977, Serjeantson 2003). Other archaeozoologists, however, believe that these bones are from the extant Sarus Crane *G. antigone*, a species unknown historically (at least as a genuinely wild bird) or as a sub-fossil in the Western Palearctic. The nearest resident populations are found in Pakistan, India and Nepal. This identification has been proposed for the Crane bones excavated from Meare Lake Village East in 1982 and Longthorpe Roman Fortress in Cambridgeshire (King *et al.* 1987, E.M. Northcote *in* Levine 1986). To complicate matters further, several authors have attempted to address the question of *G. primigenia* as a valid taxon. They have based their arguments on the zoogeographical distributions of Crane fossils in relation to modern taxa as well as using non-biometric osteological traits to separate *G. primigenia* from *G. antigone* (Northcote 1982, Northcote & Mourer-Chauvire 1985).

In an attempt to determine the taxonomic status of large crane bones from British archaeological sites, Stewart (1999) conducted a detailed survey, measuring both ancient and recent specimens, regardless of whether they had been identified as those of the Common Crane, Sarus Crane or *G. primigenia.* This demonstrated, for the first time, that the bones of male Common Cranes are larger than those of the female. Furthermore, it became apparent that there was a lack of fossils the size of modern females, suggesting that the Common Crane has diminished in size since the Roman era, possibly in response to habitat loss and degradation resulting from wetland reclamation during that period. If this hypothesis is correct, ancient females could have been the size of modern males and larger specimens attributed to *G. primigenia*, may, in fact, belong to male Common Cranes. Both species would, therefore, be synonymous. It is worth noting that the middle toes of the Crane footprints uncovered at Goldcliff and Formby Point measured 9-10cm in length, whereas those of modern-day birds are, on average, 6-7cm (C. Fisher pers. comm., Roberts et al. 1996, G. Roberts pers. comm., Scales 2007). This apparent reduction in size since the early Holocene has also been linked to anthropogenic environmental change (Huddart et al. 1999).

Unfortunately, the debate on whether larger, archaic Common Cranes or other similarly-sized species were present in Britain as late as the Saxon period

has yet to be satisfactorily resolved.

Conclusion

From the available archaeological, documentary and place-name evidence (see Appendix for the latter) the Common Crane appears to have been a familiar part of the avifauna in Somerset, Wiltshire, Gloucestershire and Gwent until the Middle Ages. Osteological remains from Bristol Castle and Puxton Moor, as well as extra-limital records from the Medieval sites of Lougher Castle and Llantrithyd (Glamorgan), hint at the later survival of the species in the region (Bourdillon 1993, Bramwell 1977, Brothwell 1993, Hamilton-Dyer 2006, Ponsford 1979). According to Gerard of Trent, Cranes could still be obtained on the marshes around Steart, in Somerset, as late as the seventeenth century (Gerard of Trent 1900).

The species is now a scarce passage migrant and winter visitor - apart from a few sporadic appearances in the eighteenth century, and the exceptional influx in October 1963, most of the reported sightings occurred after 1970. But what factors contributed to this apparent long-term decline? Human predation of the adult birds, and possibly their eggs or young, would be the obvious answer to this question. However, hunting could have been a sustainable practice were it not for Roman, Medieval and later attempts to drain and reclaim the wetlands on both sides of the Severn Estuary (Rippon 1997, Williams 1970).

Habitat loss and degradation would have made any potential breeding birds vulnerable to disturbance and over-exploitation as a source of food. It seems likely that this also triggered morphological changes in the species, namely a significant reduction in body size over time. The changing status of the Common Crane in Britain has also been affected by fluctuating population levels on the continent. By the seventeenth century the species had become extinct in most of western and southern Europe, and this downward trend continued until the 1960s. Since then, the European population has increased and spread further north and west. Protection of Common Cranes and the conservation of the wetlands on which they depend has aided the recovery of the species across its European range tripling between 1980 and 2000 (Dubois et al., 2008). In recent decades, Common Cranes have also developed a tendency to winter further north, closer to their breeding grounds.

Up until the 1950s, the majority of birds using the western flyway on migration traditionally overwintered in Morocco. Nowadays, the bulk of the wintering population can be found at the Laguna de Gallocanta, Extramadura, Spain, with smaller but increasing numbers in France (Hagemeijer & Blair 1997, Wernham et al. 2002). Up to 70,000 (out of a total flyway population of around 200,000) now winter in France, about 70% of these inhabiting the marshes of Les Landes in the south-west, with the rest mostly in Champagne-Ardenne around the Lac du Der and nearby lakes. Quite a few are now wintering as far north and east as Germany. These changes are linked to the

increase in the European population, adptation to agricultural changes across Europe (i.e. more Maize stubble) and secure roosting sites as well as climate change, with milder winters in northern Europe (Dubois et al., 2008, Ken Hall pers comm).

The increase in sight records over the last thirty years or so, both locally and nationally, reflects the resurgence of the species in Europe and coincides with its return as a breeding bird on the Norfolk Broads. Unfortunately, the typically low breeding productivity of this small population has prevented any further expansion beyond the Horsey/Hickling areas. The 2005 breeding season was the best to date - from an estimated wintering population of 24 birds, five pairs reared a total of five young. That is why, in 2009, the Royal Society for the Protection of Birds, Wildfowl and Wetlands Trust and Pensthorpe Conservation Trust will be implementing the Great Crane Project. It is hoped that free-flying birds, reared in captivity, will re-colonise parts of the Lincolnshire Fens around the Lower Welland Valley. If this proves to be successful, there is no reason why it could not be extended to other parts of Britain, in a similar way as the Red Kite *Milvus milvus* and White-tailed Eagle reintroduction projects were.

Common Cranes need large, undisturbed wetlands where they can breed and roost in comparative safety. The area most closely matching these requirements lies just outside the Bristol region, between the Mendip and Polden Hills, and is collectively known as the Somerset Levels or Avalon Marshes. This rich mosaic of reedbeds, open water, acid bog, heathland, Alder-carr and Birchwood has not only been threatened by drainage but also large-scale commercial peat extraction. Thankfully, conservation groups such as English Nature (now Natural England), Somerset Wildlife Trust and the RSPB, have managed to acquire and protect substantial tracts of this unique landscape. Flooded former peat-workings have also been used to create new nature reserves or enlarge existing ones. The development of a range of habitat types within these protected areas has aided the return of the Great Bittern and Marsh Harrier in recent years.

The 2007 breeding attempt by a pair of Common Cranes at Lakenheath Fen, in Suffolk, demonstrates what can be achieved by the re-creation of wetland habitats, bearing in mind that this RSPB reserve was originally an area of former carrot fields when it was purchased in 1995. If the Avalon Marshes were to be selected for a Common Crane reintroduction project the species would, no doubt, become a more familiar sight in the Bristol region, particularly when birds disperse more widely during the winter. Such projects are expensive and must be sustained over a long period of time to yield any tangible results. However, I believe that the end justifies the means and that this paper presents a strong case for the reintroduction of the species into Somerset.

Acknowledgements

I would like to thank the following individuals for their assistance: Richard

Baatsen (Gloucestershire County Recorder), Paul Castle (Wiltshire Ornithological Society), Clem Fisher (Liverpool Museum), Brian Gibbs (Somerset County Recorder), Ken Hall, Chris Jones (Gwent County Recorder), Gordon Roberts (Liverpool John Moores University), Harvey Rose (Avon County Recorder to 2008), Rachel Scales (Reading University) and Derek Yalden (Manchester University). The author welcomes any feedback regarding archaeological sites, documentary evidence, place-names or historical records not included in this paper.

References

Andrews, C.W. 1917. *Report on the remains of birds found at the Glastonbury Lake Village.* pp. 631-637 *in* Bulleid, A. & Gray, H.St.G. (eds.) *The Glastonbury Lake Village.* Vol. 2. Glastonbury.

Ballance, D.K. 2006. *A History of the Birds of Somerset.* Cornwall.

Bate, D.M.A. 1966. Bird bones. pp. 408-410 *in* Gray, H.St.G. & Cotton, M.A. (eds.) *The Meare Lake Village.* Vol. 3. Taunton.

Batten, L., Bibby, C.J, Clement, P., Elliott, G.D. & Porter, R.F. 1990. *Red Data Birds in Britain.* London.

Bidgood, W. 1889. Crane in Somersetshire. *The Field* 21 December 1889: 888.

Boisseau, S. & Yalden, D.W. 1998. The former status of the Crane *Grus grus* in Britain. *Ibis* 140: 482-500.

Bramwell, D. 1977. *Bird bones.* pp. 70-71 in Charlton, P., Roberts, J. & Vale, V. (eds.) *Llantrithyd: a ringwork in South Glamorgan.* Cardiff Archaeological Society, Cardiff.

Bramwell, D. 1985. Identification of bird bones. pp. 96-97 *in* Webster, G.A. (ed.) Excavations at Barnsley Park, Gloucestershire. *Transactions of the Bristol & Gloucestershire Archaeological Society* 103: 73-100.

Brothwell, D. 1993. Bird remains. pp. 170-171 *in* Lewis, J.M. (ed.) Excavations at Lougher Castle, West Glamorgan. *Archaeologia Cambrensis* 142: 99-181.

Coy, J. 1982. The animal bones. pp. 68-73 *in* Gingell, C. (ed.) Excavation of an Iron Age enclosure at Groundwell Farm, Blunsdon St. Andrew 1976-7. *Wiltshire Archaeological & Natural History Magazine* 76: 33-75.

Dark, P. & Allen, J.R.L. 2005. Seasonal deposition of Holocene banded sediments in the Severn Estuary Levels, Southwest Britain: palynological and sedimentological evidence. *Quaternary Science Review* 24: 11-33.

Dubois, P.J., Le Maréchal, P., Olioso, G. and Yésou, P. 2008. *Nouvelle Inventaire des Oiseaux de France.* Delachaux and Niestlé, Paris.

Dymond, J.N., Fraser, P.A. & Gantlett, S.J.M. 1989. *Rare Birds in Britain and Ireland.* Calton.

Ferguson-lees, J., Castle, P. & Cranswick, P. 2007. *Birds of Wiltshire.* Wilshire Ornithological Society, Wiltshire.

Gardner, N. 1997. Vertebrates and small mammals. pp. 47-49 *in* Whittle, A. (ed.) Sacred mound, holy rings: a later Neolithic complex in North Wiltshire.

Oxbow Monograph 74. Oxford.
Gerard of Trent, T. 1900 (written 1633). *The Particular Description of the County of Somerset.* (ed. Rev. H.E.Bates) Somerset Record Society vol. XV. Taunton: 223.
Gurney, J.H. 1869. Crane at Tewkesbury. *Zoologist* 1869: 1803.
Gurney, J.H. 1921. *Early Annals of Ornithology.* London.
Haddon, C. 1865. Crane in Somerset. *The Field* 2 December 1865.
Hagemeijer, W.J.M. & Blair, M.J. 1997. *The EBCC atlas of European breeding birds.* London.
Hamilton-Dyer, S. 1993. The animal bones. pp. 132-136 *in* Zienkiewicz, J.D. (Ed.) Excavations in the Scamnum Tribunorum at Caerleon. The Legionary Museum Site 1983-5. *Brittania* 24: 27-140.
Hamilton-Dyer, S. 2001. Animal bone. pp. 102-107 *in* Pine, J. The excavation of a Saxon settlement at Cadley Road, Collingbourne Ducis, Wiltshire. *Wiltshire Archaeological & Natural History Magazine* 94: 88-117.
Hamilton-Dyer, S. 2002. Economic Evidence; the animal bone assemblage. pp7-10 *in* Gardiner, J., Allen, M.J., Hamilton-Dyer, S., Laidlaw, M. and Scaife, R.G. (Eds). Making the most of it; late prehistoric pastoralism in the Avon Levels, Severn Estuary. *Proceedings of the Prehistoric Society* 68: 1-39.
Hamilton-Dyer. 2006. Bird, fish and mammal bones. pp. 244-246 *in* Rippon, S. (Ed.) Landscape, community and colonisation: the North Somerset Levels during the 1st to 2nd millenia AD. *CBA Research Report* 152. York.
Harber, D.D. 1964. The influx of Cranes in October 1963. *British Birds* 57(12): 502-8 (Somerset records on p.505).
Harting, J.E. 1882. Cranes at Christmas. *The Field* 23 December 1882: 890.
Harrison, C.J.O. 1987. Pleistocene and prehistoric birds of South-West Britain. *Proceedings of the University of Bristol Spelaeological Society* 18(1): 81-104.
Harrison, C.J.O. & Cowles, G.S. 1977. The extinct large Cranes of the Western Palearctic. *Journal of Archaeological Science* 4: 25-27.
Huddart, D., Roberts, G. & Gonzales, S. 1999. Holocene human and animal footprints and their relationships with coastal environmental change, Formby Point, NW England. *Quaternary International* 55 (1): 29-41.
King, J., Metcalfe, W., Northcote, E.M. & Cowles, G.S. 1987. *Animal bones.* p. 189 *in* Dannell, G. & Wild, J.P. (eds.) *Longthorpe II, the military works-depot: an episode in landscape history.* Brittania Monograph 8. London.
Levine, M.A. 1986. The vertebrate fauna from Meare East 1982. *Somerset Levels Papers* 12: 61-71.
Levitan, B. 1990. The vertebrate remains. pp. 220-239 *in* Bell, M. (ed.) Brean Down excavations 1983-1987. *English Heritage Archeological Report* 15. London.
Locker, A. 2000. Animal bone. pp. 107-109 *in* Lawson, A.J. Potterne 1982-5: animal husbandry in later prehistoric Wiltshire. *Wessex Archaeology Report* 17. Salisbury.
Maltby, M. 2003. Animal bone. pp. 71-76 *in* Bateman, C., Enright, D. & Oakey,

N. (eds.) Prehistoric and Anglo-Saxon settlements to the rear of Sherbourne House, Lechdale: excavations in 1997. *Transactions of the Bristol & Gloucestershire Archaeological Society* 121: 23-96.

Mathew, M.A. 1879. Ornithological notes from Somersetshire. *Zoologist* 1879: 128.

McCormick, F., Hamilton-Dyer, S. & Murphy, E. (1997) The animal bones. pp. 218-241 *in* Nayling, N. & Caseldine, A. (eds.) Excavations at Caldicot, Gwent: Bronze Age palaeochannels in the lower Nedern Valley. *CBA Research Report* 108. York.

Newton, E.T. 1911. p. 590 *in* Balch, H.E. & Troup, R.D.R. (eds.) A late Romano-British cave dwelling at Wookey Hole, near Somerset. *Archaeologia* 62(ii): 565-592.

Northcote, E.M. 1982. Sympatry of Common Cranes, *Grus grus* with larger Cranes in the last *c.*125,000 years. *Bulletin of the British Ornithological Club* 102: 141-142.

Northcote, E.M. & Mourer-Chauvire, C. 1985. The distinction between the extinct Pleistocene European Crane *Grus primigenia* and the extant Sarus Crane *G.antigone. Geobios* 18: 877-881.

Parker, A.J. 1988. The Birds of Roman Britain. *Oxford Journal of Archaeology* 7(2): 197-226.

Ponsford, M.W. 1979. *Bristol Castle: archaeology and history of a royal fortress*. Unpublished M.Litt. Thesis, University of Bristol. Vol. 2: 509-514.

Rippon, S.J. 1997. *The Severn Estuary: landscape evolution and wetland reclamation.* Leicester.

Roberts, G., Gonzales, S. & Huddart, D. 1996. Intertidal Holocene footprints and their archaeological significance. *Antiquity* 70: 647-651.

Scales, R. 2007. Footprint tracks of people and animals. pp. 139-159 *in* Bell, M.G. (ed.) Prehistoric coastal communities: the Mesolithic in Western Britain. *CBA Research Report* 149. York.

Serjeantson, D. 2003. Bird bones from Baleshare and Hornish Point. pp. 150-152 *in* Barber, J.W. (ed.) Bronze Age farms and Iron Age farm mounds of the Outer Hebrides. *Scottish Archaeological Internet Reports* 3.

Southwell, T. 1901. On the breeding of the Crane in East Anglia. *Transactions of the Norfolk & Norwich Natural History Society* 7: 160-170.

Stewart, J.R. 1999. *The Evolution of Quaternary birds in the Western Palearctic: Aspects of Taxonomy and Ecomorphology.* Unpublished PhD Thesis, University of London.

Swaine, C.M. 1982. *The Birds of Gloucestershire.* Gloucester.

Venables, W.A., Baker, A.D., Clarke, R.M., Jones, C., Lewis, J.M.S., Tyler, S.J., Walker, I.R. & Williams, R.A. 2008. *The Birds of Gwent.* London.

Wernham, C., Toms, M., Marchant, J., Clark, J., Siriwardena, G. & Baillie, S. 2002. *The migration atlas. Movements of the birds of Britain and Ireland.* London.

Williams, M. 1970. *The draining of the Somerset Levels.* Cambridge.

Yalden, D.W. 2002. Place-name and archaeological evidence on the recent

history of birds in Britain. *Acta Zoologica Cracoviensia* 45 (special issue): 415-429.

The following periodicals were searched for records of Common Cranes:

Avon Bird Report 1983-2006.
Bristol Ornithology 1968-1985.
Gloucestershire Bird Report 1951-2006.
Gwent Bird Report 1965-2006.
The Hobby 1974-2005.
Proceedings of the Bristol Naturalists Society 1936-1982.
Report on Somerset Birds. Duplicated typescript 1911-1923, printed 1924-1960, thereafter known as *Somerset Birds* 1961-2006.
Wiltshire Archaeological & Natural History Magazine 1854-1980.

M.A. Rogers
11 Ashcroft Road, Sea Mills, Bristol, BS9 2N.

Appendix

Place names from Somerset, Gloucestershire and Gwent.

The modern English name Crane is derived from the Old English (OE) *cran.* This is the most frequent element in local place-names but *cron* or *corn* and *cranuc* also occur.

Somerset

Cornmoor: *OE cran mor* - Crane moor ST3344 - 3444.
Crancombe Lane: *OE cran, cumb* - Crane valley ST3340 - 3441.
Crandon: *OE cran, dun* - Crane hill ST3239.
Crane Hill: *OE cran, hyll* - Crane hill ST5025.
Cranmore (East & West): *OE cran, moor* - Crane marsh ST6843/6643.
Crannel Moor: *OE cran, hyll, mor* - Crane hill moor ST5041 - 42.
Great Cornham: *OE corn, hamm* - Cranes water-meadow ST7439.

Wiltshire

Cranefurlong: *OE cran, furlong* - SU2093.
Cranemede: *OE cran, maed* - ?
Cranhill: *OE cran, hyll* - ST8755.
Cranley Farm: *OE cran, leah* - SU0179.

Cranley Farm: *OE cran, leah* - SU0278.
Cranmore: *OE cran, mor* - SU1663.
Crannell: *OE cran, hyll* - SU0259.

Gloucestershire

Cornacks Leaze & Tyning: *OE cranuc* - Crane pool ST6898.
Cornham: *OE corn, hamm* - Cranes water-meadow SO7717.
Cram Pulle: *OE cran, pull* - Crane pool SO8630.
Crane Farm: *OE cran, maed* - Crane meadow SU0497.
Crane Hill SU9630.
Cranham: *OE cran ham* - Homestead frequented by Cranes SU8912.
Cranhams: *OE cran hamm* - Crane's water-meadow SP0201.
Cranhill Barn: *OE cran hyll* - Crane hill SO9503.
Cranmoor Rhine: *OE cran, mor* - Open ditch by a Cranes marsh ST5485.
Cranmoores: *OE cran, mor* - Crane moor SU9720.
Cranmore Farm: *OE cran mere* - Crane lake farm ST8497.
Cranmore Farm: *OE cran, mor* - Crane marsh farm ST8989.
Crannells: *OE cran, hyll* - Crane hill ST6083.
Cromer's Orchard: *OE cran, more* - Crane moor SU9233.
Cron Mere: *OE cran, mere* - Crane lake SO7431.

Gwent

Corndon Hill: *OE corn, dun* - Hill frequented by Cranes SO3096.

White-tailed Eagles in Avon and Somerset

M.A. Rogers

"...sometimes eagle's wings
Unseen before by Gods or wondering men,
Darken'd the place..."

Extract from *Hyperion*, a poem by John Keats (1820)

Introduction

At the beginning of the nineteenth century, White-tailed Eagles *Haliaeetus albicilla* were still fairly common around the northern and western coasts of Scotland and Ireland. Over one hundred active eyries were known in the former country and at least fifty more in the latter. Just over a century later both populations were gone, wiped out by farmers, gamekeepers and bird collectors. The last documented nesting attempts took place on the cliffs of North Mayo in 1898 and at Dunvegan Head, Isle of Skye, in 1916. The very last Scottish bird, an albino female, was shot on North Roe, Shetland, in 1918.

Early attempts to reintroduce the species to Argyll in 1959 and Fair Isle in 1968 were unsuccessful, the seven birds released disappearing within their first year of freedom. However, between 1975 and 1985 a total of 82 nestlings collected from donor populations in Norway were hacked from release sites on the Isle of Rhum, a National Nature Reserve in the Inner Hebrides. Courtship and nest-building behaviour was first observed in 1982 and eggs laid in 1983 and 1984 which failed to hatch due to adverse weather in early May. The first successful breeding attempt for almost seventy years took place in 1985 when one pair of eagles reared a single chick. In the year 2000, nineteen pairs reared a total of twelve young (Batten *et al.* 1990; Cade 2000; Holloway 1996; Love 1983).

In the latter part of the eighteenth century, White-tailed Eagle eyries were reported from Dewerstone Rock in South Devon, the Isle of Man, Lundy Island, the Isle of Wight and the Lake District (D'Urban & Mathew 1892; Ralfe 1905; Seebohm 1883; Warner 1795; Yarrell 1871). If the early ornithological records are to be believed, then these isolated pairs could have been the last surviving remnants of a resident English population that once inhabited many other parts of the country. If this was indeed the case, did the breeding range of the species once extend into Avon[1] and Somerset? Evidence exists in the form of unpermineralised (sub-fossil) bones from over forty archaeological sites

[1] Avon comprises Bristol, South Gloucestershire, Bath & NE Somerset and North Somerset

(Yalden 2007), including four in our region. Two of these sites are caves (Soldier's Hole and Walton Bone Cave) containing deposits that were laid down during the Devensian Glaciation between 40,000 and 10,000 years ago (see note on page 37). The other two are Iron Age marsh settlements (the Glastonbury and Meare Lake Villages) that were occupied some time between 250 BC and the first century AD.

From the pollen and vertebrate fossils preserved at these sites this paper will attempt to reconstruct the prehistoric environments and ecosystems of the Mendip Hills, Gordano Valley and Somerset Levels. This will form the basis for speculation regarding the status and ecology of White-tailed Eagles in Avon and Somerset during the Devensian Glaciation and Iron Age. A summary of nineteenth and twentieth century records is included. The effects of hunting, habitat loss and persecution on a putative resident eagle population, both locally and in England as a whole, will also be discussed.

Archaeological records

Sub-fossil bones of the White-tailed Eagle have been found at four sites in Avon and Somerset:

Soldier's Hole (ST 468 540) - This is a large cave on the south side of Cheddar Gorge, in the Mendip Hills. It was excavated under the direction of R.F. Parry between 1927 and 1930. Parry divided the cave deposits into four stratigraphic units (1-4) which he sub-divided into twenty-one spits, numbered from top to base. The avian fossils recovered were only partially identified by J.W. Jackson in the final report (Parry 1931), but Bramwell (1960) produced a more complete list. The whole collection was re-examined by Harrison (1988) who used a much larger range of recent osteological specimens for comparison. White-tailed Eagle bones were found in spits 3 (unit 3) and 16 (unit 4). The deposits in spits 15-21 are thought to be around 50-30,000 years old which means that they accumulated during the middle of the Devensian Glaciation. Somerset remained free of glacial ice throughout this period but extensive permafrost and very little in the way of rain or snow made the ground too cold and dry for trees to grow. In their place was a mixture of grassland and tundra, known as tundra-steppe.

Although winters were extremely harsh, Somerset experienced the same long, warm summers as today. As a result, the plants of the tundra-steppe were more diverse, abundant and faster-growing than those found in the tundra regions of the modern-day Arctic. The rich flora included various grasses, sedges, herbs, small shrubs, prostrate willows and Dwarf Birch *Betula nana*. There were also many mosses and lichens. This highly productive habitat supported an equally diverse mammal fauna that included Woolly Mammoth *Mammuthus primigenius*, Wild Horse *Equus ferus*, Woolly Rhinoceros *Coelodonta antiquitatis*, Irish Elk *Megaloceros giganteus*, Reindeer *Rangifer*

tarandus and Bison *Bison priscus.* These, in turn, were hunted by packs of Wolves *Canis lupus*, Brown bears *Ursus arctos*, Spotted Hyaenas *Crocuta crocuta* and Lions *Panthera leo.*

Mammals, taken either as live prey or in the form of carrion, probably dominated the diet of the White-tailed Eagle at this time. With the expansion of the northern polar ice cap, sea levels around the British Isles had fallen by up to 100 metres. This, and the absence of any permanent bodies of fresh water, would have meant that fish were absent from the local fauna. As regards birds, only four potential prey species (Greylag Goose *Anser anser*, White-fronted Goose *Anser albifrons*, Ptarmigan *Lagopus muta* and Kittiwake *Rissa tridactyla*) were recorded from spits 21-11. However, Mountain Hare *Lepus timidus*, Lemmings and Voles were particularly abundant in the area.

White-tailed Eagles had to compete with Long-tailed Skua *Stercorarius longicaudus*, Red Fox *Vulpes vulpes* and Arctic Fox *Alopex lagopus* for these sources of food. They would also have fed on the carcasses of much larger animals that had died naturally or had been killed by other predators. The species was probably a summer visitor to Somerset during the middle of the last glaciation. In an open landscape without trees, the only nesting sites available would have been cliff ledges. The local population may have dispersed after the breeding season was over, moving south to escape the extreme cold of the Arctic winter.

The deposits in spits 10-3 are believed to be around 10-13,000 years old which means that they were laid down near the end of the Devensian Glaciation. At the beginning of this period there was a warm phase, known as the Windermere Interstadial, when trees (mainly Birch *Betula sp.*) began to re-invade Southern England across the land bridge from mainland Europe. However, woodlands did not really develop on a large scale - heaths and grasslands were the dominant types of vegetation. This was followed by a short, sharp cold phase, the Loch Lomond Re-advance, when ice sheets re-formed over the Scottish massif, before the final climatic amelioration 10,000 years ago that marked the beginning of the Holocene (the epoch in which we now live).

Ancient pollen from the sediments of Gough's Cave, also in Cheddar Gorge, show that the environment of the Mendip Hills was similar to that of the present-day Cairngorms of Scotland (Leroi-Gourhan 1986). Ptarmigan and Snow Buntings *Plectrophenax nivalis* inhabited the montane heath and boulder fields at higher altitudes. Lower down, the steep hill-sides were covered by heather moorland, Juniper *Juniperus communis*, Birch scrub and bare scree where Merlin *Falco columbarius*, Willow Grouse *Lagopus lagopus* and Ring Ouzel *Turdus torquatus* could be found. At the foot of the escarpment, and in the valleys, was a forested zone composed of Birch, Hazel *Corylus avellana* and Alder *Alnus glutinosa.* The bird community of this woodland included Black Grouse *Tetrao tetrix*, Hazel Grouse *Bonasa bonasia*, Dunnock *Prunella modularis*, Blackbird *Turdus merula*, Fieldfare *Turdus pilaris*, Song Thrush *Turdus philomelos* and Magpie *Pica pica.*

Plate 1 *(opposite). Little Ringed Plover* Charadrius dubius *at Barrow Gurney Reservoirs, North Somerset (page 3). A juvenile fledged by one of the recent breeding pairs.* (Photo: Neil Burstow)

Plate 2 *(above). Little Ringed Plover* Charadrius dubius *at Barrow Gurney Reservoirs, North Somerset (page 3). An adult of one of the recent breeding pairs.* (Photo: Neil Burstow)

The meadows and developing marshes to the south of Mendip were the haunt of Mallard *Anas platyrhynchos*, Eurasian Wigeon *Anas penelope*, Teal *Anas crecca*, Grey Patridge *Perdix perdix* and Black-tailed Godwit *Limosa limosa*. White-tailed Eagles would have nested on cliff ledges along with Rock Dove *Columba livia*, Common Raven *Corvus corax* and Western Jackdaw *C. monedula*. Avian fossils from other late glacial cave deposits in the Mendips show that many more bird species were present in Somerset at this time (Harrison 1986, 1987, 1989a, 1989b). This means that White-tailed Eagles probably enjoyed a more varied diet during the Windermere Interstadial, even though fish remained very scarce with the continuing lowstand of the sea. Unfortunately, they now had to compete with other avian predators such as Golden Eagle *Aquila chrysaetos*, Common Kestrel *Falco tinnunculus*, Hobby *F. subbuteo*, Peregrine Falcon *F. peregrinus* and at least four *Strigiformes* (Barn *Tyto alba*, Eurasian Eagle *Bubo bubo*, Long-eared *Asio otus* and Short-eared Owls *A. flammeus*).

Woolly Mammoth, Woolly Rhinoceros, Bison, Spotted Hyena and Lion did not return to Somerset after the coldest part of the Devensian Glaciation ended 15,000 years ago. They were gradually replaced by Steppe Pika *Ochotona pusilla*, European Beaver *Castor fiber*, Saiga *Saiga tatarica*, Aurochs *Bos primigenius*, Lynx *Lynx lynx* and Wolverine *Gulo gulo*. The birds and mammals in the area were also hunted by Late Palaeolithic people who inhabited the various caves and rockshelters of Mendip.

Skeletal material found: ulna, humerus (Cheddar Caves Museum).

Walton Bone Cave (ST 418 726) - This is a small cave near Clevedon that was uncovered by quarrying in 1905 and excavated the following year by S.H. Reynolds on behalf of Bristol City Museum, where the finds are now stored. The bird bones were provisionally identified by E.T.Newton (Reynolds 1907). Before its discovery, the cave was buried beneath alternate layers of breccia (fossil scree) and aeolian (wind-blown) sandy loams. These deposits accumulated near the end of the Devensian Glaciation when freeze-thaw processes dislodged large quantities of rock from the local limestone cliffs. Strong Arctic winds picked up unconsolidated sands and silts from the exposed bed of the Severn Estuary/Bristol Channel and deposited them on top of the breccias. However, the highly ossiferous cave earth yielded a bird and mammal fauna typical of a more temperate climate. This means that Walton Bone Cave and its overlying deposits are probably of the same age as those in unit 3 of Soldier's Hole. It seems likely, therefore, that the status and ecology of the White-tailed Eagle were very similar at both sites.

Skeletal material found: distal end of right metacarpal (Bristol City Museum, R. Clark *pers.comm.*).

Glastonbury Lake Village (ST 492 408) - This was an Iron Age marsh settlement situated 1.5 km north-west of Glastonbury on the edge of the Somerset Levels. It was excavated between 1892 and 1907 by Arthur Bulleid

and Harold St. George Gray and the bird bones found at the site were identified by Andrews (1917). The original list of species was revised after the entire collection, now held by the British Museum of Natural History, was re-examined by Harrison (1980). Glastonbury Lake Village was occupied by Ancient Britons between 250 BC and the first century AD (probably from 150-50 BC), when the Somerset Levels were still a vast natural wetland with extensive areas of open water, reedswamp, Willow/Alder carr and raised bog. The diverse fauna included Otter *Lutra lutra*, European Beaver, Great Cormorant *Phalacrocorax carbo*, Dalmatian Pelican *Pelecanus crispus*, Eurasian Bittern *Botaurus stellaris*, seven species of wildfowl, Marsh Harrier *Circus aeruginosus*, Coot *Fulica atra*, Moorhen *Gallinula chloropus* and Common Crane *Grus grus*.

White-tailed Eagles may have nested on the forested slopes of the uplands that surrounded the rich hunting grounds of the Somerset Levels. They would have enjoyed a varied diet of fish waterbirds and, quite possibly, the young of domestic animals that were put out to graze in the marshes by the farmers of the lake village during the summer. In the winter, the resident population was perhaps augmented by immature birds dispersing from eyries on the coast or the Bristol Channel islands.

Skeletal material found: humerus, metacarpus, tibiotarsus (British Museum of Natural History).

Meare Lake Village (ST 446 423) - This is another Iron Age marsh settlement situated 5.2 km south-east of Wedmore, on the edge of the Somerset Levels. It too was excavated by Bulleid and Gray between 1910 and 1956. The bird bones were identified by Bate (1966). Only the specimens collected in 1936/7 have been re-examined (Harrison 1987). The avifauna at Meare Lake Village is very similar to that found at Glastonbury. Birds recorded at the former site but not at the latter include Red-throated Diver *Gavia stellata*, Great Northern Diver *G. immer*, Grey Heron *Ardea cinerea* and nine species of wildfowl.

Skeletal material found: three ungual phalanges (British Museum of Natural History).

Historical records

Between 1694 and 1945 at least twenty birds were seen or shot in Avon and Somerset. Doubtful or unsubstantiated records are square-bracketed in the following list:

1694 On page 76 of *The life of that incomparable Princess, Mary, our late Sovereign Lady, etc.* (Mary II 1695) it is stated that "from Bristol we have a certain account that a keeper of Sir John Smith's [Smyth's] park [Ashton Court] shot an eagle flying some very few days before the Queens death [28 December], being a bird of that extraordinary size, that her extended wings

reached three yards wanting two inches...". The appearance of this bird was seen as an omen of the impending death of Queen Mary II. If one disregards the symbolic connotations of this passage, and the exaggerated biometrics, this could be the earliest historical record of the White-tailed Eagle in our region.

1805/6 An immature shot near Nether Stowey in late December or early January (Dance 2003).

1811 A male shot on the Mendip Hills (Montagu 1813).

1849 One shot at High Ham (Garth 1849).

1856 An adult shot at Stolford in November (Blathwayt 1906).

1857 One shot at West Quantoxhead in January (Melhuish 1857).

1861 An adult shot at Weston-super-Mare in January (Crotch 1861). This was probably the same bird seen near Bleadon earlier in the month which was thought to be a North American Bald Eagle *Haliaeetus leucocephalus* (Compton 1861).

*c.*1869 An immature shot at Oare "some few years before" 1874 may have been one of a pair. Originally identified as a Golden Eagle, it was later proved to be a White-tailed (Smith 1875).

1871 An immature male shot at Dodington Park, near Tormarton, in December (Rickards 1872).

1890 A pair frequented the Quantock Hills early in the year (D'Urban & Mathew 1892).

1905 A pair in the North Hill area of Exmoor on four dates in January. Four in Grexy Combe on 25 April. These birds were originally identified as Golden Eagles (Allen 1976; Twist 1991).

[1911 or 1912 One seen on Exmoor (*Report on Somerset Birds* 1928: 8).]

[1916 A pair seen near Treborough on 8 July (*Report on Somerset Birds* 1922: 10).]

1919 One seen near Steep Holm on 6 March (Lewis 1920).

1927 One seen at Weston-super-Mare on 18 December. [A large vulturine eagle, possibly White-tailed, was observed flying north over Lympsham on 8 July] (*Report on Somerset Birds* 1927: 9).

1945 An immature female shot at Manor Farm, near Steart, on 1 December. Specimen now in Bristol City Museum (*Report on Somerset Birds* 1945: 13; S. Trebilcock pers. comm.).

A further four or five specimens, said to have been obtained between Minehead and Bridgwater, existed in a few private collections during the nineteenth century (D'Urban & Mathew 1892; Mathew 1893). Most, if not all, of these birds were probably winter visitors from northern or central Europe. The lack of records after 1945 can be attributed to the declines that have taken place in many European countries since the nineteenth century. White-tailed Eagle populations on the continent have been reduced by human persecution, habitat destruction and pollution from organochlorine pesticides such as DDT (Hagemeijer & Blair 1997).

Discussion

I will now discuss how hunting, habitat loss and persecution could have led to the decline and eventual extinction of a possible White-tailed Eagle population in Avon and Somerset.

White-tailed Eagle bones have been found at many other archaeological sites in England and these are listed below in chronostratigraphic order (the age of rock strata in relation to time). Unidentified eagle remains, which probably belong to *H. albicilla*, are indicated by an asterisk:

Wolstonian
Tornewton Cave, Devon.
Devensian
Langwith Cave, Derbyshire*.
Soldier's Hole, Somerset.
Upper Devensian
Soldier's Hole, Somerset.
Walthamstow, Essex.
Walton Bone Cave, Somerset.
Flandrian
Church Hole Cave, Derbyshire.
Holocene
Hornsea, Yorkshire.
Bronze Age
Burwell Fen, Cambridgeshire.
Coneybury Henge, nr. Stonehenge, Wiltshire.
Potterne, Wiltshire.
Iron Age
Cat's Water, Cambridgeshire.
Cleaval Point, Ower, Dorset.
Glastonbury Lake Village, Somerset.
Meare Lake Village, Somerset.
Haddenham V, Cambridgeshire.
Puckeridge, Hertfordshire.
Iron Age/Roman
Dragonby, Lincolnshire.
Roman
Billingsgate Buildings, London.
Binchester, Durham.
Caister-on-Sea, Norfolk*.
Camulodunum (Colchester), Essex.
Colchester, Essex.
Droitwich, Worcestershire.
Dunstable, Bedfordshire.

Haddenham III, Cambridgeshire.
High Street, Leicestershire.
Long Bennington, Lincolnshire.
Longthorpe, Huntingdonshire.
Ower, Purbeck, Dorset.
Preston, nr. Weymouth, Dorset*.
Redwick Farm, Stanwick, Northamptonshire.
Scole-Dickleburgh, Norfolk.
Southwark, London.
Stonea, Cambridgeshire.
The Lanes, Carlisle, Cumbria.
Tolpuddle Ball, Dorset.
Uley, Gloucestershire.

5-8th century
York Minster (SE), Yorkshire.

Saxon
Barton Court Farm, Abingdon, Oxfordshire.

Anglo-Scandanavian
Coppergate, Yorkshire.

9-11th century
York Minster, Contubernia, Yorkshire.

Medieval
Nantwich, Cheshire.

14-16th century
Brougham Castle, Westmoreland.

The most striking feature of this list is the large number of Iron Age and Roman sites, particularly in south-eastern England. The faunal remains excavated from these sites show that wild birds were less important than domestic animals as a source of food. If White-tailed Eagles were not actually being hunted for the pot, how can the presence of their bones at so many archaeological sites be explained? In order to try and answer this question, one must consider the role of eagles as divine beasts in polytheist Romano-British religion. Before the Romans invaded north-western Europe there is some archaeological and documentary evidence that the Iron Age tribes of that region worshipped the thunder deity known as Tanarus, with whom the eagle was closely associated. A White-tailed Eagle humerous from the late Iron Age site of Puckeridge bore three deep cut marks or scratches (Ashdown 1979). This could be physical evidence of the ancient animist or shamanistic belief that a person could assimilate the strength and hunting prowess of an eagle through the ritual consumption of its flesh. The native cult of Tanarus was incorporated into that of Jupiter Optimus Maximus ('Jupiter Best and Greatest'), the Roman sky-god. An altar dedicated to both was discovered at Chester and is inscribed "Jupiter Optimus Maximus Tanarus". Of the 20 Roman sites listed above, only Uley and Haddenham III have been identified as shrine complexes (Cowles 1993; Beech

2006), the rest being fortresses, villas, towns and rural settlements.

In Roman society, religion was an integral part of everyday life and it is possible that eagle bones were curated as votive offerings at smaller private shrines. Of particular interest are what archaeologists term 'special deposits' which have been interpreted as evidence of animal sacrifice. At Dunstaple, for example, a complete White-tailed Eagle skeleton was found at the bottom of a nine metre deep shaft (Jones & Horne 1981). The remains of two more were excavated from a pit at Camulodunum (Colchester) where they had been deliberately buried (Luff 1982). However, the hunting of eagles for Romano-British religious practices cannot account for the scarcity of the species at later archaeological sites. Two main factors, namely persecution and habitat loss, were responsible for its decline and eventual extinction as a breeding bird in England.

In the 1533 *Acte for the Preservacion of Grayne*, churchwardens were obliged to make bounty payments to their parishioners for the "destruction of noyfull fowles and vermin". Of the many birds mentioned in the act, the sum of four pence "for everie Iron [a corruption of *Erne*, the Anglo-Saxon for eagle] and Osprayes head" was the largest reward on offer, perhaps reflecting the rarity of the White-tailed Eagle in England at this time. Its inclusion along with another large pisciphagous raptor, the Osprey *Pandion Haliaetus*, suggests that it was also guilty of raiding Medieval fish ponds. The act was renewed in 1566, 1572 and 1598 during the reign of Elizabeth I (1558-1603) and was not repealed until 1863. Over three hundred years of persecution would have had a major impact on a resident eagle population in England.

In the summer months, when water levels were lower, it was customary for the farmers of the Middle Ages to take their cattle and sheep out into the fens of East Anglia to graze on the rich growth of grass and reeds. The presence of dead or dying animals would have provided any White-tailed Eagles in the area with a ready source of carrion, leading to the mistaken belief that they predated livestock, particularly lambs. In the seventeenth century Sir Thomas Browne referred to the regular occurrence of what he called 'Fen Eagles' in Norfolk (Southwell 1902). Up until then, the fens of East Anglia were Britain's largest natural wetland, covering around 400,000 hectares (1 million acres) of Cambridgeshire, Lincolnshire, Norfolk and Suffolk. Sir Cornelius Vermuyden, a Dutch engineer, realised that the fens flooded in winter because the rivers that flowed through them could only reach the sea via a network of sinuous channels. Vermuyden set about straightening the rivers and their tributaries and this significantly reduced the risk of flooding. This meant that substantial tracts of former fenland could then be reclaimed for agricultural purposes, resulting in the loss of several wetland birds such as the Eurasian Spoonbill *Platalea leucorodia*, Common Crane and Ruff *Philomachus pugnax*. As natural sources of food dwindled, 'rogue' eagles may have been forced to take young lambs to supplement their diet, bringing the species into direct conflict with the farming community. The campaign of persecution would have intensified, thus hastening the demise of the resident eagle population in East Anglia.

I may appear to have digressed from the main theme of this paper, but a putative local eagle population would also have been affected by the anthropogenic factors so far discussed. In south-west Britain as a whole, only Devon has two alleged nesting sites, eleven *Erne*-derived place-names (mainly around Dartmoor) and at least seventeen historical records (D'Urban & Mathew 1892; Gelling 1987; Moore 1969; Seebohm 1883; Yalden 2007). All of this evidence suggests that the county has long been a favoured haunt for the species and hints at the earlier presence of a core population there. If this was indeed the case, it would be reasonable to assume that outlying pairs once inhabited Avon and Somerset and that they would have been particularly vulnerable to persecution and environmental change. Roman engineers were the first to attempt to drain and reclaim the marshes around the Severn Estuary but the process did not begin in earnest until the Middle Ages (Rippon 1997). The largest single loss for the species would have been the Somerset Levels which were almost completely enclosed and drained by the late eighteenth century (Williams 1970). There is a distinct lack of archaeological and documentary evidence of persecution after the Iron Age, but it must be remembered that most of the historical records from our region refer to birds that were shot by farmers or gamekeepers. It seems likely that the species was regarded with some animosity long before then, largely thanks to its undeserved reputation as a lamb killer, and would have met a similar fate wherever it appeared.

In the nineteenth century, William Yarrell thought that this species was "much more common" than the Golden Eagle and noted specimens obtained as close to London as Wimbledon Common and Epping Forest (Yarrell 1871). By this time, however, White-tailed Eagles were merely winter visitors to England from northern or central Europe. The species remains a very rare vagrant, mainly to south-eastern England during the winter months (Dymond *et al.* 1989) and this trend has continued to the present day (Naylor 1996). The proposed reintroduction of the White-tailed Eagle into East Anglia is yet to be approved; the decision is due in Spring of 2009. Sadly, there have been some objections to the plans set out by Natural England. Clearly, the deep-rooted suspicion of any plans to reintroduce large predatory animals to the British fauna will continue to be a barrier to the return of the White-tailed Eagle as a breeding resident in England.

Acknowledgements

I would like to thank the following: David Ballance (Somerset Ornithological Society), Roger Clark (Bristol City Museum), Dan Pemberton (Sedgwick Museum, Cambridgeshire), Francis Pryor (Council for British Archaeology), Sam Trebilcock (Bristol City Museum), Mike Tyler (Devon Birdwatching and Preservation Society) and Derek Yalden (Manchester University).

References

Allen, N.V. 1976. Exmoor birds - then and now. *Exmoor Naturalist* 2: 10-12.

Andrews, C.W. 1917. Report on the bird remains found at the Glastonbury Lake-Village. pp. 631-637 in Bulleid, A. & Gray, H.St.G. (eds.) *The Glastonbury Lake Village*. Glastonbury.

Ashdown, R.R. 1979. The avian bones from Station Road, Puckeridge. pp. 92-96 in Partridge, C. (ed.) Excavations at Puckeridge and Braughing 1975-79. *Hertfordshire Archaeology* 7.

Bate, D.M.A. 1966. Bird bones. pp. 408-410 in Gray, H.St.G. & Cotton, M.A. (eds.) *The Meare Lake Village*. Vol. 3. Taunton.

Batten, L., Bibby, C.J., Clement, P., Elliott, G.D. & Porter, R.F. 1990. *Red data birds in Britain*. London.

Beech, M. 2006. Animal remains: evidence of animal sacrifice. pp. 369-396 in Evans, C. & Hodder, I. (eds.) *Marshland communities and cultural landscapes from the Bronze Age to the present day*. The Haddenham Project Vol. 2. McDonald Institute Monographs, Cambridge.

Blathwayt, F.L. 1906. Birds. pp. 140-162 in Page, W. (ed.) *The Victoria County History of Somerset*. Vol. 1. London.

Bramwell, D. 1960. Report on a collection of bird bones from the 1929 excavations at Soldier's Hole, Cheddar. *Proc. Somerset Archaeol. & Nat. Hist. Soc*. 104: 87-91.

Cade, T.J. 2000. Progress in the translocation of diurnal raptors. pp. 343-372 in Chancellor, R.D. & Meyburg, B.-U. (eds.) *Raptors at risk: Proceedings of the V World Congress on Birds of Prey and Owls*. Berlin.

Compton, T. 1861. Occurrence of the American Whiteheaded Eagle (Falco leucocephalus) in *Somerset. Zool*. 1861: 7380-7381.

Cowles, G.S. 1993. Vertebrate remains. pp. 257-303 in Woodward, A. & Leach, P. (eds.) The Uley Shrines: excavation of a ritual complex on West Hill, Uley, Gloucestershire 1977-79. *English Heritage Archaeological Report* 17. London.

Crotch, W.D. 1861. Occurrence of the White-tailed Eagle in Somersetshire. *Zool*. 1864: 7381.

Dance, S.P. 2003. Let*ters on ornithology 1804-1815 between George Montagu and Robert Anstice*. Wigtown.

D'Urban, W.S.M. & Mathew, M.A. 1892. *The birds of Devon*. London.

Dymond, J.N., Fraser, P.A. & Gantlett, S.J.M. 1989. *Rare birds in Britain and Ireland*. Calton.

Garth, J.C. 1849. White-tailed Eagle in Somerset. *Zool*. 1849: 2409.

Gelling, M. 1987. Anglo-Saxon Eagles. *Leeds Studies in English*. (n.s.) 18: 173-181.

Hagemeijer, W.J.M. & Blair, M.J. 1997. *The EBCC Atlas of European Breeding Birds*. London.

Harrison, C.J.O. 1980. A re-examination of British Devensian and earlier

Holocene bird bones in the British Museum (Natural History). *J. Archaeol. Sci.* 7: 53-68.

Harrison, C.J.O. 1986. Bird remains from Gough's Cave, Cheddar, Somerset. *Proc. Univ. Bristol Spel. Soc.* 17 (3): 305-310.

Harrison, C.J.O. Pleistocene and prehistoric birds of South-West Britain. *Proc. Univ. Bristol Spel. Soc.* 18 (1): 81-104.

Harrison, C.J.O. 1988. Bird bones from Soldier's Hole, Cheddar, Somerset. *Proc. Univ. Bristol Spel. Soc.* 18 (2): 258-264.

Harrison, C.J.O. 1989a. Bird remains from Gough's Old Cave, Cheddar, *Somerset. Proc. Univ. Bristol Spel. Soc.* 18 (3): 409-411.

Harrison, C.J.O. 1989b. Bird bones from Chelm's Combe Shelter, Cheddar, *Somerset. Proc. Univ. Bristol Spel. Soc.* 18 (3): 412-414.

Holloway, S. 1996. *The Historical Atlas of Breeding Birds in Britain and Ireland: 1875-1900*. London.

Jones, E.V. & Horne, B. 1981. Analysis of the skeletal material. pp. 69-72 in Matthews, C.L. (ed.) A Romano-British inhumation cemetary at Dunstable. *Bedfordshire Archaeological Journal* 15.

Leroi-Gourhan, A. 1996. Pollen analysis of sediment samples from Gough's Cave, Cheddar. *Proc. Univ. Bristol Spel. Soc.* 17 (2): 141-144.

Lewis, S. 1920. White-tailed Eagles in Somerset. *Brit. Birds*. 13 (8): 219.

Love, J.A. 1983. *The return of the Sea Eagle*. Cambridge.

Luff, R.M. 1982. The Sheepen birds. pp. 63-87 in *A zooarchaeological study of the Roman NW provinces*. BAR International Series 137. Oxford.

Mary II, Queen of England. 1695. *The life of that incomparable Princess, Mary, our late Sovereign Lady etc*. London.

Mathew, M.A. 1893. A revised list of the birds of Somerset. *Proc. Somerset Archaeol. & Nat. Hist. Soc.* 38: 102-139.

Melhuish, J. 1857. White-tailed Eagle. *Naturalist (Morris's)* 7: 112.

Montagu, G. 1813. *Supplement to the Ornithological Dictionary or Synopsis of British Birds*. Exeter.

Moore, R. 1969. *The birds of Devon*. Newton Abbott.

Naylor, K.A. 1996. *A reference manual of rare birds in Great Britain and Ireland*. Vol. 1. Nottingham.

Parry, R.F. 1931. Excavation at Cheddar. *Proc. Somerset Archaeol. & Nat. Hist. Soc.* 76: 46-62.

Ralfe, P.G. 1905. *Birds of the Isle of Man*. Edinburgh.

Reynolds, S.H. 1907. A bone cave at Walton, near Clevedon. *Proc. Bristol Nat. Soc.* 4th ser. Vol. 1, pt. 3: 187-188.

Rickards, M.S.C. 1872. White-tailed Eagle in Gloucestershire. *Zool.* 1872: 2991.

Rippon, S.J. 1997. The *Severn Estuary: landscape evolution and wetland reclamation*. Leicester.

Seebohm, H. 1883. *A history of British birds*. Vol.1. London.

Smith, C. 1875. Ornithological notes from Somersetshire. *Zool.* 1875: 4332-4335.

Southwell, T. 1902. *Notes and letters on the natural history of Norfolk, more especially on the birds and fishes: from the MSS of Sir Thomas Browne...* London.
Twist, M.F. 1991. Golden Eagles. *Exmoor Naturalist* 17: 68-69.
Warner, R. 1795. *History of the Isle of Wight*. Southampton.
Williams, M. 1970. *The draining of the Somerset Levels*. Cambridge.
Yalden, D.W. 2007. The older history of the White-tailed Eagle in Britain. *Brit. Birds* 100: 471-480.
Yarrell, W. *A history of British birds*. Vol. 1. London. 4th edition.

The following periodicals were searched for White-tailed Eagle records:
British Birds 1907- present.
Devon Bird Report 1928-1946.
Report on Somerset Birds. Duplicated typescript 1911-1923, printed 1924-1945.
The Zoologist 1843-1916.

M.A. Rogers
11 Ashcroft Road, Sea Mills, Bristol BS9 2NE

A Guide to Recent Geological and to Archaeological Time Periods

Many readers may not be familiar with the Geological and Archaeological time periods used in the two papers on the status of Common Crane *Grus grus* and White-tailed Eagle *Haliaeetus albicilla* in the Bristol/Somerset regions (pp. 8 and 23). Matthew Rogers has provided the following guide to the time periods used in his papers. The two time periods run in parallel with most of the Archaeological times occurring within the Holocene - the most recent Geological epoch in which we are now. The start date for each period, given as BP (Before Present), also indicates the ending of the previous period. Many dates are, of course, approximate and rounded to the nearest 10, 100, 1,000 and so on. [Eds]

Geological Time Periods

The period of time covered here is the previous 2.5 million years which is called the **Quaternary Period**. It is divided into two **epochs**, the **Pleistocene**, comprising almost all of the period, and the **Holocene** comprising the final 10,000 years to present. The late Pleistocene is further divided into Glacial (cold) and Interglacial (warm) periods. The main ones are as follows.

7-600,000 BP Cromerian Interglacial
300,000 BP Anglian Glaciation
250,000 BP Hoxnian Interglacial
200,000 BP Wolstonian Glaciation
130,000 BP Ipswichian Interglacial
120,000 BP Devensian Glaciation
10,000 BP Present Interglacial (Holocene)

The earliest part of the Holocene epoch is sometimes referred to as the Flandrian, when sea levels began to rise again following the last Ice Age (Devensian).

Archaeological Time Periods

These time periods start part way through the Cromerian Interglacial and all but the first are within the Holocene.

500,000 BP Paleolithic or Old Stone Age
10,000 BP Mesolithic or Middle Stone Age
6,200 BP Neolithic or New Stone Age (4,200 BC)
4,500 BP Bronze Age (2,500 BC)
2,750 BP Iron Age (750 BC)
1,960 BP Roman or 'Romano-British' (43 BC)
1,600 BP Post Roman (410 AD)
1,560 BP Saxon (450 AD)
980 BP Medieval or Middle Ages (1,066 AD)*
460 BP Post Medieval (1550 AD)
Present time.

* The transition between the Saxon and Medieval Periods is sometimes described as 'Anglo-Norman'. In places such as York the mixing of Saxon and Norse (Viking) culture is referred to as 'Anglo-Scandinavian'.

Bird Ringing on Steep Holm

Tony Parsons

Introduction

The island of Steep Holm lies in the Bristol Channel, eight km (five miles) west of Weston-super-Mare, rising to 78m (256 ft) above mean high water. At mean high water, the island is just under 20 ha (50 acres), at mean low water 25 ha (63 acres), the difference being due to the extreme tidal range in the Channel (Fig.1). The island is heavily vegetated with scrub and has a dense ground vegetation, primarily of Alexanders *Smyrnium olusatrum*.

During the Second World War, the island was occupied by the Army. After the War, the owner (Lord Wharton) offered the island to a Trust formed from four local societies – the Somerset Archaeological & Natural History Society, the Bristol Naturalists' Society, the Mid-Somerset Naturalists Society and the Bristol Folk House Archaeological Club – on a 21 year lease, assigned to the Steep Holm Trust, which commenced on 25 March 1953. A Gull Research Station commenced work on the island in 1955 with gull studies including ringing being a major proportion of their work but also undertaking extensive ringing of other species. In addition, a considerable number of birds had already been ringed, privately, between 1946 and 1954, primarily through the work of Ray Poulding and other members of Bristol Naturalists' Society and Bristol Medical Naturalists (for example, 553 gulls *Larus* were ringed in 1949).

Results for the first period

Between 1946 and 1973, some 11,700 birds of 55 species were ringed, about 6,200 being gulls and about 5,500 being other species. The gull community was one of the largest in England (for example, by 1962 there were 95 pairs of Great Black-backed Gulls *L. marinus* occupying nest sites) but the complete mixing of Lesser Black-backed *L. fuscus* and Herring Gulls *L. argentatus* made large-scale ringing a problem, because the chicks were not then identifiable to species and the British Trust for Ornithology (BTO) prohibited ringing with BTO rings where the species might be in doubt. Initially, adult birds were captured, or nests of known species were ring-fenced to avoid the chicks straying, but catches were decreasing. In 1958 it was decided that chicks would be ringed in the following year but with privately addressed rings, in the name of member Dorothy Crampton (who also paid for the 1000 rings which were used in 1959) – this was quite legitimate at that time. By 1960, it had become possible to identify the older chicks, once the primary wing feathers were almost fully grown, so there was no necessity to repeat the exercise. In 1960 and 1961,

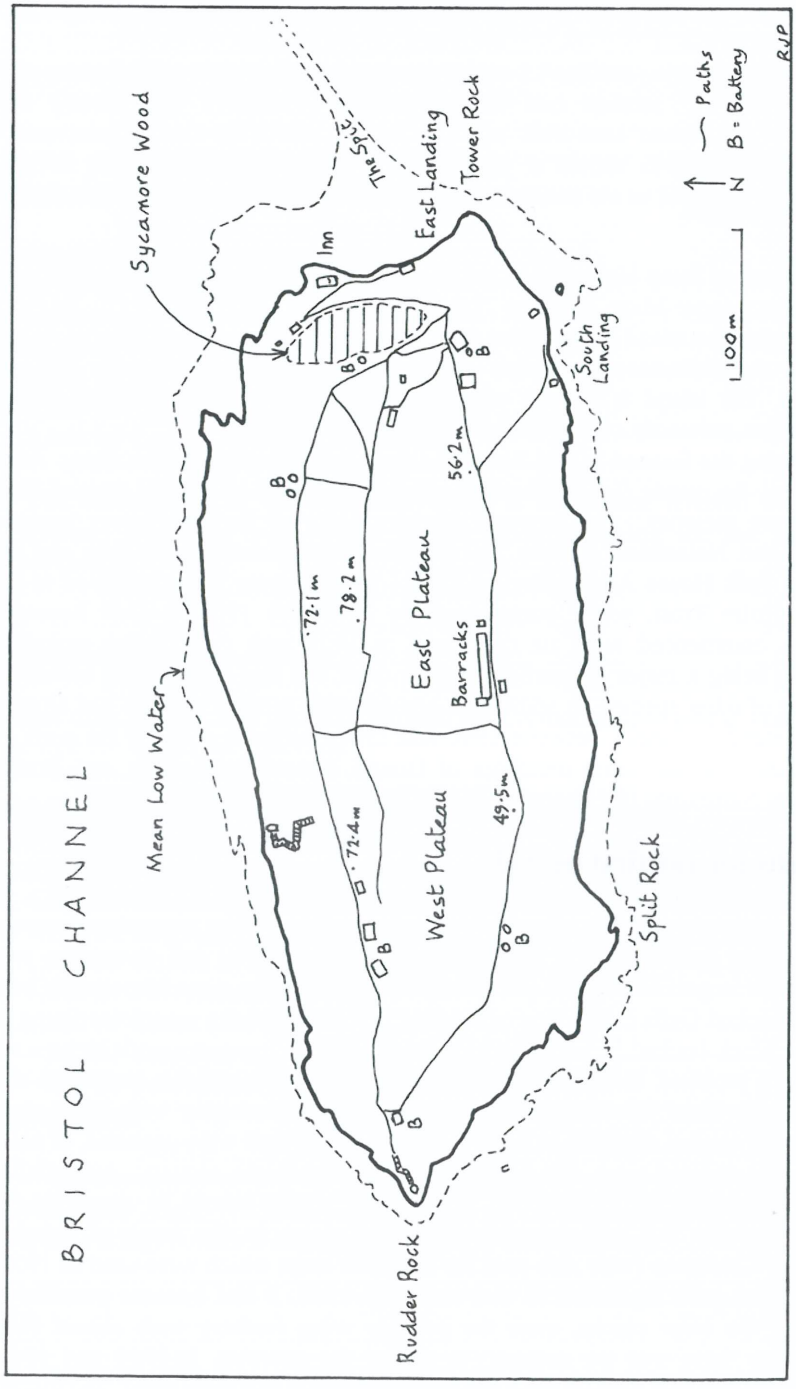


Fig.1 Map of Steep Holm, Bristol Channel, showing the most important features.

however, a total of 1,370 young (mostly unidentified) chicks were wing-tagged to assess mortality before fledging. Few were reported off the island because the tags easily became hidden beneath the feathers.

Plate 3 *Steep Holm, Bristol Channel, viewed from the east, showing the east landing.* (Photo: Tony Parsons)

Gull ringing produced good numbers of recoveries off the island. For Herring Gulls, most were around the Bristol Channel area and along the south coast, including eight in Hampshire (2 to 7 years old) but also from Brittany (6 months old), Lancashire (shot at 11 yo) and Stirling in Scotland (2½ yo). For Lesser Black-backs, one was shot in Staffordshire (16 mo) but there was the expected scatter of birds to the south with eleven in France, Spain and Portugal (4½ mo to 4½ yo, at 770 to 1770 km (480 to 1,100 miles)) and one in Morocco (6 yo). Great Black-backs, ringed as pulli, were mainly recovered around the Bristol Channel area, with one shot 32 km (20 miles) inland at Langport, but there were also recoveries at Southampton (132 km, 82 miles), on Skomer (150 km, 95 miles), at Burton-on-Trent (190 km, 120 miles), at Finistère, France (320 km, 200 miles), and at Frederikstad in Norway (1290 km, 800 miles, in January, 5½ years after ringing).

A new owner

When the Steep Holm Trust's lease was coming to an end, Lady Wharton, now a widow, decided that she no longer wanted the responsibility of the island and offered to sell it to the Trust or to one of the component societies. None of the societies felt able to take on the island, so it was offered to the fledgling

Kenneth Allsop Memorial Trust (KAMT). After much debate, the KAMT decided that Steep Holm would be an appropriate challenge and memorial and agreed to purchase the island. The Steep Holm Trust's involvement finished in 1973, and was followed by a small amount of ringing carried out by Cardiff University under Peter Ferns who, with Greg Mudge, was surveying the gulls in the Inner Bristol Channel. This totalled 282 gulls and 34 passerines ringed in 1974 and 1975.

In September 1975, I started ringing passerines on the island on behalf of the KAMT. Since that time, no more gulls have been ringed. A huge amount of work had been done on the gulls over more than twenty years and it seemed sensible to concentrate on the other resident and the migrant species, not least because of the manpower required to deal with the gulls. I was appointed as a Trustee, the island was registered as a Ringing Station and the problems started! Transport to and from the island can be difficult – in 33 years I have been unable to land on more than a dozen planned sessions and have been stranded, waiting for days to be picked up, on as many occasions. (Steep Holm was also offered to the National Trust before we bought it but the offer was turned down on the grounds of "insurmountable access difficulties").

Poor catches and good catches

Ringing itself can be poor to downright miserable. One week, I landed, set up 500 feet of mist nets then, between Saturday night and the following Friday, captured 22 birds (including putting the nets up and taking them down amounts to one bird every three hours). In conditions of high pressure thick fog can linger for days on end. This usually restricts catches to the odd Dunnock *Prunella modularis* or Wren *Troglodytes troglodytes*! The best weather is a warm, still night followed by a sea mist just before dawn. It can happen that such a combination will dump hundreds of nocturnal migrants, or cause an early morning movement of hirundines to hang around for a couple of hours, but Spurn Point this is not and such occurrences are not common. The average catch rate is probably not much over two birds per hour. My best daily catch has been 110 birds in October but populations of most species have declined badly since the 1980's. As an example, Meadow Pipits *Anthus pratensis* used to be common autumn migrants with at least 2,500 in 1986, out of which 103 were ringed. In autumn 2006 we had a total passage of 20 birds and in 2007 of 24 birds.

Most land-birds which stay for a few hours or more will turn up at the eastern end of the island, perhaps to leave towards Brean or Steart, or to feed, shelter or roost in the Sycamore *Acer pseudoplatanus* wood. When hirundines feed low over the island, they favour the south-eastern area. Hence most mist nets are erected in that area. In the past, rows of mist nets were erected on the plateau but most of the candidates for capture here (such as pipits *Anthus*, larks *Alauda*, chats *Saxicola* & Linnets *Carduelis cannabina*) have become much scarcer in recent years, so I tend to put just two or three mist nets near the

margin. I use one of the WW2 winch-huts of the incline railway as a ringing hut which enables me to be within 100 metres of all the mist nets. The nets are normally opened at dawn but may be closed at any time during the day, depending on the prevailing conditions.

I usually erect more mist nets than I expect to use, because the use of any one net will depend on wind direction and force. During the day, it is usually possible to anticipate approaching weather, which is mainly from the south-west. If an easterly wind is blowing there is no point in opening anything. Conditions can change quickly and one can easily get caught out. I lost one 60 ft mist net when the wind went from ten to sixty mph in a few minutes. The larger mist nets have to be double-guyed at each end – the 60 ft net took off with four guys and two 12 ft poles and was completely destroyed as it explored the brambles adjacent to the plateau. Sometimes, nets can be used in a moderate breeze by modifying them. I have often used a third pole, guyed, against the centre of a 60-footer to prevent it catching on adjacent trees or bushes (effectively turning it into two shorter nets). A similar effect can be obtained with an encircling string vertically at the centre of the net which can be contracted around the net as the wind rises, or the exposed top two shelves can be closed, leaving just the protected bottom ones in use.

Special birds and notable recoveries

Since 1975, I have ringed (with help from David Reid and Brian Bailey) 6,158 birds of 53 species. This adds up to only about 17,850 birds of 65 species ringed in 62 years. On the bright side, though, some good birds have been ringed over the years – Hen Harrier *Circus cyaneus*, Turtle Dove *Streptopelia turtur*, Stock Dove *Columba oenas*, European Nightjar *Caprimulgus europaeus*, Wryneck *Jynx torquilla*, Woodlark *Lullula arborea*, Red-backed Shrike *Lanius collurio*, Ring Ouzel *Turdus torquatus*, Black Redstart *Phoenicurus ochruros*, Yellow-browed Warbler *Phylloscopus inornatus*, Melodious Warbler *Hippolais polyglotta*, Firecrest *Regulus ignicapilla* and Raven *Corvus corax*. There have also been some interesting results. One of the best must be the juvenile Wren I ringed in August and which was killed by a cat the following July – to the south-east of Paris! At the time it was one of only twelve British Wrens ever recovered abroad and the first such from the south-west. Recoveries of Swallows have proved that many passing Steep Holm come from south-western Eire and there have been the expected controls from winter reedbed roosts in South Africa. Ringing of Blackbirds *T. merula*, Song Thrushes *T. philomelos* and Robins *Erithacus rubecula* has shown that there are extensive autumn movements around the Bristol Channel. It is these movements which sustain Steep Holm's populations since the island is by no means an ideal home for many species in the long term. Not all thrushes are so local, of course – a Blackbird ringed in October 1965 was recovered in Utrecht in the Netherlands the following June. We all know that Song Thrushes have declined in numbers

in recent years. Could it be significant that 33 per cent of our recoveries on the mainland have been killed by cats?

Sparrowhawks *Accipiter nisus* are often seen on Steep Holm during autumn to spring. Ringing has shown that such birds move between Steep Holm and Flat Holm. The Dunnock is the commonest passerine on Steep Holm with 2,129 birds ringed yet the only recoveries of Dunnocks off the island are of two which were ringed in 1961 and controlled on Flat Holm by Rae Vernon in 1962. I have seen Dunnocks in October in flocks of hundreds on the coasts of Europe. Surely, at times when there have been 250 or more Dunnocks on the island after a good season, the odd bird must have moved to Brean Down or Sand Point.

Recoveries of crests *Regulus* are low – hardly surprising in view of their size – but there have been three decent results. Two Goldcrests *R. regulus* from fourteen ringed on 26th and 27th September 1999 were recovered. One was found dead at Penryn, Cornwall, on 6 March 2000. The other was controlled on Bardsey Island, North Wales, sixteen days later on 22 March. Undoubtedly, many of our Goldcrests winter in the south-west peninsula but the Bardsey bird suggests that, as with the Swallows *Hirundo rustica* (and one House Martin *Delichon urbica*), some of our Goldcrests come from Ireland. Only thirteen Firecrests have been ringed on Steep Holm but there is one recovery. A bird ringed on 3rd October 1986 was controlled at Landguard Point in Suffolk on 10th April 1988 (18 months after ringing). In a straight line, this matches closely in course and dates two birds ringed on Lundy and recovered in the Netherlands – dates of ringing 6th October 1979 and 29th October 2003; dates of recovery 31st March 1980 and 13th April 2004.

We have one recovery of a Chiffchaff *Phylloscopus collybita* in northern Spain 24 days after ringing (940 kms, 584 miles) and one of a bird ringed in January in Senegal and controlled on Steep Holm 77 days later (4,055 kms, 2,520 miles), both being typical movements. When Blue Tits *Cyanistes caeruleus* were more common than they are now, they were regular visitors to the island in autumn. Indeed, on several occasions, birds ringed in autumn have been controlled in spring; either they wintered or they were using a regular passage route. Not all were local birds, however. One controlled on Steep Holm in September 1975 had been ringed the previous March in Oxfordshire (134 kms, 83 miles).

Starlings *Sturnus vulgaris* used to roost regularly on Steep Holm in large numbers until the Peregrines *Falco peregrinus* returned. Many Starlings were ringed and most were recovered within 80 kms (50 miles) but there are three recoveries which I found intriguing. On 6th to 8th October 1971, 23 Starlings were ringed. In May 1976, one of these was recovered in Belgium (4½ years later). In January 1977, one was recovered at Folkestone, Kent (5¼ years later). In May 1977, one was recovered just to the south-east at Highbridge (5½ years later). Two factors caught my attention – the 13% recovery rate after around five years, and the recovery sites. Obviously, the Steep Holm roosts (regularly 5,000+ birds) consisted of both local birds and continental migrants.

Concluding comments

Ringing on Steep Holm can be an absorbing pastime, can add to the sum of knowledge and, particularly, can provide valuable information to assist in opposing environmental threats (such as the Severn Barrage, now planned to pass 100 metres from our bird cliffs). On the other hand it can be extremely hard work, but can also be very frustrating. For example, when a pick-up for departure has been arranged, all the nets and ancillary equipment have to be taken down and stored, which is likely to take some eight hours. If the pick-up has to be cancelled, one can only wait because the boat (on standby in Weston-super-Mare) may be able to reschedule its arrival at short notice to fit in with the tides. So everything must remain packed, ready to embark. This sometimes means being stuck for several days, which gives plenty of time to think up projects which don't involve ringing (and to be imaginative with the last remaining food supplies)!

At the time of writing this (in mid May 2008) we have already missed four of our first five visits of the year! If you should wish to visit the island on one of the day trips, the Booking Secretary is Mrs Joy Wilson, on 0193 452 2125 but, as you will have realised, you may need to be both patient and flexible!

Tony Parsons
Barnfield, Tower House Road, Crewkerne, Somerset TA18 8BJ

Plate 4 *Spotted Flycatcher Muscicapa* striata *ringed on Steep Holm, Bristol Channel.* (Photo: Tony Parsons)

Weston Sewage Treatment Works: A Site Account

Mark Ponsford

Introduction

Weston-super-Mare Sewage Treatment Works (WSM STW) was constructed on land adjacent to the River Axe during the 1990s and was commissioned in 1999. The site was formerly arable land and the works required the restoration of nearly 13 hectares (32 acres) of saltmarsh, recreating at the same time a series of creeks that mirrored the relic creek system. The realignment of the sea defence wall left part of the old Mediaeval sea wall in place and created a new area of salt marsh that should be inundated by the highest of spring tides approximately eighty times a year. The construction works included two ultraviolet (UV) lagoons[1] that were designed as spare capacity for a final polishing of the treated effluent as well as a wildfowl lagoon with graded margins to provide optimum habitat for wildfowl with a range of depths of water to support emergent vegetation (Plate 5). The site is surrounded by arable land to the south and east whilst the River Axe forms the western boundary and the Avon Wildlife Trust manage Walborough Hill to the north. The agricultural land is in the main farmed sympathetically including land that has in the past been given over to set-aside or managed as part of a countryside stewardship scheme. The tidal nature of the R. Axe ensures that waders can utilise a rich feeding area although substantially increased disturbance from sailing boats, water-skiers and dog walkers often results in the disappearance of all but the most tolerant species.

This wide variety of habitat is countered by several factors, in that there are no significant stands of mature trees – there is no woodland at all, and Brean Down has a detrimental impact on migration since many species follow the coast and at times of large visible movements at other coastal sites such as Sand Point and Severn Beach there are very few birds passing overhead at the sewage works.

Since its inception records have been made at all times of the year at WSM

[1] The UV lagoons are so called as they were designed as an overflow system at times when the works were unable to deal with high flows. They would provide a cheap final polishing for treated effluent before discharge to the estuary. As these are holding lagoons, it was envisaged that sunlight would bring down the bacterial load using the ultra-violet component of light (hence UV). In practice, they have not been used for this purpose and as such they have become established as additional wildfowl lagoons.

STW and to date (July 2008) I have recorded 153 species of bird at this site (as well as four species of escaped bird) and one can expect year totals of around 120 species.

Breeding Season

The site has approximately 40 species of breeding birds. During the last ten years there have been some additions to the list of breeding species. Cetti's Warbler *Cettia cetti* first appeared in 2001, then three singing males were noted in 2004 and there are now five or six territories each year. On the debit side, Yellow Wagtail *Motacilla flava* and Northern Lapwing *Vanellus vanellus* now only occur as migrants or in the case of the latter also as winter visitors, the last confirmed breeding of either species having taken place several years ago.

The site and surrounding fields hold a significant breeding population of BAP (Biodiversity Action Plan) species, such as Sky Lark *Alauda arvensis*, Reed Bunting *Emberiza schoeniclus* and Grey Partridge *Perdix perdix*, with the latter breeding in most years. The salt marsh is home to at least one pair of Meadow Pipit *Anthus pratensis,* but this area is so heavily disturbed by dog walkers that no other species except Sky Lark attempts to breed. The site still holds Common Cuckoo *Cuculus canorus,* but despite many visits during the summer months I have never seen any young and still do not know which host species are used.

Within the works, Oystercatcher *Haemotopus ostralegus* has attempted to breed for the last eight years. Carrion Crows *Corvus corone* often predate the eggs just before hatching and, even though some chicks have survived for several days, none have yet made it to become fully fledged. Site staff make every effort to ensure their survival by covering open drains and rescuing those young that have fallen into road gullies.

The UV lagoons hold up to nine pairs of Little Grebe *Tachybaptus ruficollis*, and recently Tufted Duck *Aythya fuligula* has been added to the site breeding bird list. Great Crested Grebes *Podiceps cristatus* occur early in the breeding season but the site does not appear to meet their exacting requirements. Other notable species that have summered, but not bred, include Black-necked Grebe *Podiceps nigricollis* (2001 and a pair in 2002) and Long-eared Owl *Asio otus* (2000).

Winter

During the winter there can be significant flocks of Northern Lapwing that can number in excess of 5,000, particularly during periods of hard weather, and these are usually accompanied by a few European Golden Plover *Pluvialis apricaria*. Cold spells also bring in increased numbers of Common Snipe *Gallinago gallinago* and during January 2005 there were 51 around the margins of the wildfowl and UV lagoons. Water Pipit *A. spinoletta* and Rock Pipit *A.*

petrosus used to be a regular feature of the salt marsh. However, the increased disturbance in this area has resulted in the former species only occurring on passage and it is now increasingly difficult to find. Short-eared Owls *A. flammeus* winter in variable numbers. During the 2007/08 winter, up to five could be seen late in the afternoon. Unfortunately, this species generally roosts away from the saltmarsh due to the substantial number of dog walkers who frequent the sea wall.

The site plays host to reasonable numbers of wintering wildfowl although the shallow depth of the UV and wildfowl lagoons deters Common Goldeneye *Bucephala clangula* from lingering. Gadwall *Anas strepera* winter in increasing numbers and will perhaps stay to breed in the not too distant future. Ruddy Duck *Oxyura jamaicensis* has not been recorded for nearly two years, presumably a reflection of the impact of culling at its more regular wintering sites. Scaup *A. marila* are occasionally recorded as are Pintail *Anus acuta*, but the most numerous species are Eurasian Wigeon *A. penelope* and Teal *A. crecca*, both of which feed on the estuary and take advantage of the River Axe and wildfowl lagoon as roosting sites during high tides.

Migration

Migration is usually the most exciting time at this site and spring passage is often condensed into a three week window from the middle of April. Autumn migration is far more protracted and waders appear from the end of June whilst later migrants such as Wood Pigeon *Columba palumbus* and Sky Lark are still passing through in late October. Weather plays a significant part in determining if this site is going to benefit from a good fall and south-easterlies with rain overnight can yield surprising numbers and variety with 15 April 2006 being one such day. The highlights amongst a wide range of common migrants were nine Grasshopper Warblers *Locustella naevia*, 49 Willow Warblers *Phylloscopus trochilus*, two Yellow Wagtails and a Common Redstart *Phoenicurus phoenicurus*. On another occasion, (29 April 2001) 36 Northern Wheatears *Oenanthe oenanthe* were accompanied by four Whinchat *Saxicola rubetra* - maybe not noteworthy by Portland Bird Observatory standards but nonetheless very good for our area.

Marsh Harrier *Circus aeruginosus* is a scarce but regular migrant at this site, but it rarely lingers. Other large raptors such as Osprey *Pandion haliaetus*, Red Kite *Milvus milvus* and Hen Harrier *C. cyaneus* have also been noted. In fact, many of the more interesting birds at this site are those that have flown straight over (White Stork *Ciconia ciconia,* Kittiwake *Rissa tridactyla* and Common Crossbill *Loxia curvirostra* are equally rare and 'went straight through'). Other species such as Rose-coloured Starling *Sturnus roseus* and Richard's Pipit *Anthus richardi* have remained long enough for others to see. The latter species has now occurred on three occasions at this site making it more 'common' than Tree Pipit *A.campestris*, a bird that I have logged only twice!

Birds are not the only attraction at this site. Twenty-four species of butterfly (Lepidoptera) have been recorded, and 15 species of dragonfly (Orthoptera), including a Lesser Emperor *Anax parthenope* on 25 June 2008.

The Future

There are still a number of 'gaps' on the list, particularly woodland birds, including Wood Warbler *Phylloscopus sibilitrax*, Spotted Flycatcher *Muscicapa striata*, Pied Flycatcher *Ficedula hypoleuca*, Coal Tit *Periparus ater*, Eurasian Nuthatch *Sitta europea* and Eurasian Treecreeper *Certhia familiaris* which have yet to be recorded. This is a reflection of the paucity of mature trees. Despite the close proximity of the coast, Sanderling *Calidris alba*, and Bar-tailed Godwit *Limosa lapponica* have yet to occur. Not withstanding the fact that Britain's first 'American' Black Tern *Chlidonias niger surinamensis* appeared at the UV lagoons in October 1999, I have yet to see either Sandwich Tern *Sterna sandvicensis* or Arctic Tern *S. paradisaea*.

The site, generally, would benefit from a more sympathetic and positive management regime. Adjoining land also has the potential to attract back both Northern Lapwing and Yellow Wagtail as breeding species, as well as offer suitable habitat for breeding Redshank *Tringa totanus* and Common Snipe.

Mark Ponsford
4 Red House Road, East Brent, Somerset TA9 4RR

Plate 5 *Weston Sewage Treatment Works, North Somerset. View from the north-west across the UV Lagoons.* (Photo: Lyndon Roberts)

Club Activities 2007 and 2008

Club membership remained fairly constant with an average of 680 members recorded over the two year period. *Bird News* continued to be published monthly with the bird records collated by Steve Hale, Peter Hazelwood, Brian Channon and Geoff Harris and various committee members editing Club News which contained field meeting reports, members' contributions and items of interest. The bird records are used in the compilation of the annual *Avon Bird Report*, published jointly by BOC and the Bristol Naturalists' Society. In 2007, members were given the option of receiving *Bird News* via email and to date about 90 members have taken up this offer. Many Club members undertook local surveys for the British Trust for Ornithology (BTO) under the leadership of John Tully and Richard Bland and many more have become involved with the National BTO Atlas Survey. The Club's website was given a complete update in 2008 with Martyn Hayes, Steve Hale and Charles Stapleton joining Ed Drewitt and Gordon Youdale to maintain the site and move it forward.

The Peregrine watch weekends in the Avon Gorge took place each year, organised by Charles Stapleton. Three young were fledged in 2007 and a record five juveniles were successfully fledged in 2008. The weekends prove a good opportunity to promote the Club and provide many members of the public with excellent views of the Peregrines. Migration watches were held in October each year at various points on the Severn Estuary from Severn Beach to Sand Point. The regular Tuesday meetings continued to grow in popularity, organised by Margaret Swatton and David Turner with Peter Holbrook taking over in 2008.

2007

In January the club celebrated its 40th Anniversary with an evening including a buffet meal and an entertaining talk by Stephen Moss entitled "Everything you wanted to know about birds but were too afraid to ask".

The year's field meetings began as usual at Slimbridge on a fine, sunny morning with a good selection of geese and waders with the highlight being a Bittern from the Zeiss Hide. There followed a full year of club activities including field meetings, coach trips, weekends and holidays. In April, at a meeting in the New Forest members caught up with Firecrest and Dartford Warbler, while a trip to the Brecon Beacons at Craig Cerig-Gleisiad Nature Reserve in June gave excellent views of Ring Ouzel, Red Kite and Whinchat. A meeting at Meare Heath on the Somerset Levels in October struck lucky with sightings of Pectoral Sandpiper, Osprey and Purple Heron. Coach trips were held to the River Exe in February and to Farlington Marsh in October. Three weekend trips took place, all proved highly successful and continued to be well supported. Highlights of a Cornish weekend in February were very close views of Spotted Sandpiper and a Little Auk; Anglesey in June gave members an opportunity to enjoy the seabird spectacle at South Stack, the tern colony at

Cemlyn Bay and Black Guillemot in Holyhead Harbour while the weekend in South Devon in October caught up with Cirl Bunting and migrating Ring Ouzel. A holiday to the Camargue took place in February, organised by Ken and Lys Hall. It was based near Arles and explored areas of the Camargue and nearby limestone hills where Alpine Accentor and Wallcreeper were found, culminating in a fabulous display of dancing Greater Flamingos at Gacholle lighthouse.

The programme of indoor meetings featured talks by Helen Williams on southern California and Oliver Smart on Handa Island. John Sparks shared some of his birding experiences from his travels on expedition cruise ships around the world, Trevor Gunton went in search of Vikings and Graham Bell gave an entertaining talk on birding in Siberia. Members' evening in February provided a varied programme, many members now making use of the digital equipment.

At the AGM it was agreed that Charles Stapleton should continue as Chairman and that Margaret Searle and Susan Sayers should continue as Secretary and Treasurer. Phyl Dyes presented a Club Special award to Margaret Swatton in recognition of her work in organising the very thriving Tuesday meetings. Ed Drewitt completed the evening with a talk on Peregrine Falcons, including research information from Europe.

2008

Several new venues were added to the programme of field meetings this year. Chris Perry introduced members to his local patch at Golden Valley in Wick where a good range of woodland birds were seen as well as Dipper, Raven and Peregrine. A visit to Brownsea Island took place in May with six members enjoying a day on this attractive island. Highlights from our traditional venues included Long-tailed Ducks at Weymouth in January, Great Grey Shrike and Goshawk in the Forest of Dean in March and an unexpected Hen Harrier near Compton Dando in November. Coach trips took place to the Exe estuary in February, the day ending with the sighting of two over-wintering Cattle Egrets, and to Rainham Marshes RSPB Reserve in September.

Tregaron in February and Suffolk in June were the destinations of the weekend trips this year; a planned trip to Humberside at the end of October had to be cancelled through lack of support. Jane Cumming led a group of twenty members on a week-long holiday to the Isles of Scilly in April where they enjoyed exploring these delightful islands and catching up with some continental migrants such as Hoopoe, Wryneck and Jack Snipe. Soon after in May, 12 members flew to Madrid for a visit to Extremadura and were treated to excellent views of the local specialities on the plains around Trujillo and in the mountains of Monfrague National Park.

Indoor meetings continued to be well supported through 2008. Andy Swash introduced us to the birds of the Atlantic forests of Brazil and Neil Gartshore

gave a fascinating talk on the birding in Japan. Closer to home Nick Gray explained the work he had carried out studying Choughs in Ireland and Kevin Baker gave a master class on warbler identification. Club member Ian McGuire completed the programme with an entertaining and informative talk on British owls. At the AGM Roger White was voted in as Chairman for the next year, but there were no other changes to Officers.

Indoor Meetings

18.01.07	Helen Williams – Southern California
15.02.07	Members' Evening
15.03.07	Oliver Smart – Isle of Handa
20.09.07	John Sparks – Oceans of Birds
11.10.07	Trevor Gunton – In Search of Vikings
15.11.07	Graham Bell – Siberian Dream
20.12.07	Annual General Meeting
17.01.08	Andy Swash – Birds of the Atlantic Forest, Brazil
21.02.08	Members' Evening
20.03.08	Nick Gray – Choughs: A Study of their Irish Stronghold
18.09.08	Kevin Baker – Little Brown Jobs
16.10.08	Neil Gartshore – Birding in the Land of the Rising Sun
27.11.08	Ian McGuire – British Owls
18.12.08	Annual General Meeting

Margaret Searle *Honorary Secretary*

Errata

Bristol Ornithology 28 (2006).

An unfortunate number of errors crept into the text of the previous issue of *Bristol Ornithology*, as listed below. The corrected words are shown in **bold**.

Page 12 COMMON POCHARD *Aythya* ***ferina***
Page 14 LITTLE GREBE ***Tachybabptus*** *ruficollis*
Page 16 OSPREY *Pandion* ***haliaetus***
Page 24 COMMON REDSHANK *Tringa* ***totanus***
Page 33 PIED WAGTAIL *Motacilla alba* ***yarrellii***
Page 34 CETTI'S WARBLER *Cettia* ***cetti***
Page 38 YELLOWHAMMER ***Emberiza*** *citrinella*
Page 39 RINGED TEAL ***Callonetta leucophrys*** and
CHESTNUT MUNIA *Lonchura* ***malacca***

Also, the page header on p.43 should read *Club Activities 2004, 2005 and 2006*