

## ADDITIONAL RECORDS OF BRITISH PLEISTOCENE AMPHIBIANS AND REPTILES

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### INTRODUCTION

Several British Pleistocene sites have yielded herpetofaunas large enough to publish separately (Holman, 1985, 1986; Holman, Clayden, and Stuart, in preparation), but other sites have produced a few fossil herpetile records that should be published. Moreover, sites previously published (Newton, 1894; Holman, 1985) have yielded new information. The purpose of this paper is to bring these new records to light. Fossils of this report are housed in the British Museum (Natural History) where Dr A. Milner kindly arranged for me to study in 1984 and again in 1986. A Research Initiation Grant from Michigan State University in 1984 and a United States National Science Foundation Grant (NSF BSR-851-5665) in 1986 supported my work in Britain.

### MIDDLE PLEISTOCENE RECORDS

**Hoxnian Interglacial Age** — The Hoxnian is the last interglacial age of the Middle Pleistocene in Britain and follows the Anglian glacial age (Stuart, 1982).

**Barnfield Pit, Swanscombe, Kent** — The Barnfield Pit Hoxnian Site is where a very famous human skull was discovered. The stratigraphy, archaeology, and palaeontology of this locality was detailed by Ovey (1964). Stuart (1982) describes it as “. . . . a series of fluviatile gravels, sands, and silts occupying a broad channel cut by an early River Thames . . . .” BUFO BUFO LAURENTI — BM(NH) R-8985: the posterior part of an appendicular skeleton in a block of sandy matrix (both ilia preserved) from SC71, TRC3, LL. — BM(NH) R-10172: a right ilium from SC70, BILG, No. 143. Holman (1985) has given osteological characters for distinguishing *Bufo bufo* ilia from *Bufo calamita*. *Bufo bufo* occurs in the area today (Frazer, 1983). \*

**Ingress Vale, Swanscombe, Kent** — The Ingress Vale Hoxnian Site is important because of the record of *Emys orbicularis* from the locality (Stuart, 1979, 1982). The Ingress Vale sediments appear to have been deposited in the same manner as the Barnfield Pit material above. NATRIX NATRIX LINNAEUS — BM(NH) R-8286: three vertebrae. Szyndlar (1984) and Holman (1985) give characters for distinguishing the individual vertebrae of *Natrix natrix*. This species is found in the area today (Frazer, 1983).

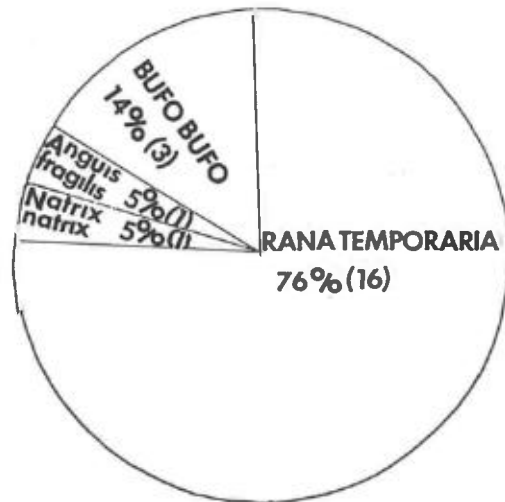
**Remarks on Published Hoxnian Herpetological Records** — At present, the total published records of Hoxnian amphibians and reptiles are as follows: *Bufo bufo* (this paper, Barnfield Pit, Kent); *Bufo* or *Rana* (Stuart, 1982, Ingress Vale, Kent); *Emys orbicularis* (Stuart, 1979, 1982, Ingress Vale, Kent); and *Natrix natrix* (this paper, Ingress Vale, Kent). Considering the rich Hoxnian mammalian fauna which has such exotic species as monkey (*Macaca*), elephant (*Palaeoloxodon*), lion (*Panthera leo*), and rhino (*Dicerhorhinus*), the herpetofauna is surprisingly depauperate.

### LATE PLEISTOCENE RECORDS

**Flandrian Interglacial Age** — The Flandrian interglacial age is defined as the period after 10,000 radiocarbon years before the present. (Stuart, 1982). It is the time period frequently called the Holocene in World Literature.

**Dog Holes, Warton, Lancashire** — The herpetiles from the Dog Holes Flandrian Site are all from the J.W. Jackson Collection that was presented to the BM(NH) in 1910. BUFO BUFO LAURENTI — BM(NH) R-8983: three right ilia — BM(NH) R-8985: a sacral vertebra. Bohme (1977) has given characters for distinguishing the sacra of various European species, including *Bufo bufo*. The species occurs in the area today. A minimum number of three individuals is indicated by the three right ilia. RANA TEMPORARIA LINNAEUS — BM(NH) R-10185: 16 right and 14 left ilia — BM(NH) R-8982: five maxillary fragments. Bohme (1977) and Holman

(1985) have given characters for distinguishing the ilia of *Rana temporaria* from other British and European species. This species occurs in the area today (Frazer, 1983). A minimum number of 16 individuals is indicated by the 16 right ilia. *ANGUIS FRAGILIS LINNAEUS* — BM(NH) R-8987: a mass of osteoderms — BM(NH) R-9299: one Maxillary fragment; one right dentary; 10 vertebrae. Holman (1985) discussed the identification of isolated osteological elements of *Anguis fragilis*. The species occurs in the area today (Frazer, 1983). A minimum number of one individual is indicated. *NATRIX NATRIX LINNAEUS* — BM(NH) R-8986: a vertebra. The species occurs in the area today (Frazer, 1983). A minimum number of one individual is indicated. The Dog Hole Flandrian Herpetofauna is a depauperate "*Rana-bufo*" assemblage as is the Flandrian Cow Cave, Chudleigh, Devon, herpetofauna (Holman, 1986). *Rana*, however, is the dominant species in the Dog Holes fauna (Fig. 1), whereas *Bufo* is the dominant one in the Cow Cave fauna.



**Figure 1.** Pie graph indicating the minimum number of individuals and rounded percentages of minimum numbers of individuals of the depauperate Flandrian "*Rana-Bufo*" fauna of Dog Hole, Warton, Lancashire.

**Bathford, near Bath, Somerset** — The Bathford Flandrian records are from material presented to the BM(NH) by Mrs Joseph Ward in 1859. *BUFO BUFO LAURENTI* — BM(NH) R-10205: one right ilium. The species occurs in the area today (Frazer, 1983). *RANA TEMPORARIA LINNAEUS* — BM(NH) R-10203: a pelvis with both ilia preserved. The species occurs in the area today (Frazer, 1983).

**Netteswell, Essex** — This record is from material purchased from the A.S. Kennard Collection in 1949 by the BM(NH). *RANA TEMPORARIA LINNAEUS* — BM(NH) R-10202: three left and five right ilia. The species occurs in the area today (Frazer, 1983).

**Happaway Cave, Torquay, Devon** — These Flandrian records are all from a collection purchased by the BM(NH) in 1896 from Mrs Pengelly. *BUFO BUFO LAURENTI* — BM(NH) R-10204: left ilium — BM(NH) R-4314: two sacral vertebrae. One of the sacral vertebrae is fused to the following one. The species occurs in the area today (Frazer, 1983). *RANA TEMPORARIA LINNAEUS* — BM(NH) R-10201: one sacral vertebra. The species occurs in the area today (Frazer, 1983). *NATRIX NATRIX LINNAEUS* — BM(NH) R-4314: one vertebra. This snake is present in the area today (Frazer, 1983).

**Ightham Fissures, Near Sevenoaks, Kent** — Holman (1985) described this Flandrian site which yielded a large fossil herpetofauna. Holman (1985) that the herpetofauna represented a time early in the Flandrian when the climate first became as warm as it is in southern England today. *Triturus* sp. listed by Holman (1985) is now identified to species. *TRITURUS HELVETICUS (RAZOU MOSKI)* — BM(NH) R-4736: a partial skeleton of a single individual. This specimen is

assigned to species on the basis of skull characters (see Arnold and Burton, 1980, p.21). The otic capsule separates the parietal and squamosal in *Triturus vulgaris* and *Triturus helveticus*, but the parietal and squamosal are in contact in *Triturus cristatus*. The anterior end of the otic capsule, however, is wider in *Triturus helveticus* than in *Triturus vulgaris*. The fossil skull resembles *Triturus helveticus* in these characters. *Triturus helveticus* occurs in the area today (Frazer, 1983).

#### COMMENTS

The two British Middle Pleistocene species reported above represent extant forms that occur in Britain today. Nevertheless, several unpublished British Middle Pleistocene sites have yielded exotic species derived from continental northern Europe (Holman, Clayden, and Stuart, in preparation).

All of the British Flandrian sites reported here and elsewhere (Newton, 1894; Holman, 1985), with the exception of the Mundesley, Norfolk Site, which yielded *Emys orbicularis*, have produced extant forms that occur in Britain today. Unlike North America, which had a vast southern reservoir of herpetological species in the Pleistocene, Britain was able to derive her herpetofauna only from the limited northern European fauna available during the temperate interglacial stages. The new records presented here do nothing to change that picture.

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