A tale of two cellars: invertebrate synanthropy at Dumbleton, Gloucestershire

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Introduction

On 5 June 1987 I was permitted to inspect the large cellars of two large farmhouses, Bank Farm farmhouse (VC33 SP03 62 m a.sl.) and Cullabine Farm farmhouse (VC33 SP03 55 m a.sl.) in Dumbleton, Gloucestershire, with the objective of provisionally assessing their invertebrate faunas. No detailed assessment of the construction was made although both had been used in the past for the storage of agricultural and domestic food items. These cursory surveys were not followed up in detail. Both farmhouses are brick-built, Cullabine dating from about AD1780, Bank Farm is perhaps a little more recent but possibly rests on older foundations. Bank Farm farmhouse cellar typifies such storage areas: a uniformly constant environment and temperature and reasonably high humidity. Organic items such as wood and fabric had degraded gradually over time usually by straightforward tissue failure or invertebrate or mammal activity and had remained unmoved for decades. The results of the study are shown below (Table 1).

Taxonomy	Bank Farm	Cullabine Farm
Coleoptera Carabidae		
Leistus spinibarbis (Fabricius, 1775)		2 (one ssp. *rufipes* Chaudoir, 1844)
Trechus quadristriatus (Schrank, 1781)	1	-
Pterostichus niger (Schaller, 1783)	-	2 dead
Pterostichus madidus (Fabricius, 1775)	-	6 dead
Coleoptera Tenebrionidae		
Blaps mucronata Latreille, 1804	-	1
Coleoptera Curculionidae		
Pentarthrum huttoni Wollaston, 1854	2	-
Isopoda Trichoniscidae		
Trichoniscus pusillus (Brandt, 1833)	6	-
Androniscus dentiger Verhoeff, 1908	7	10
Isopoda Oniscidae		
Oniscus asellus Linnaeus, 1758	5	-
Isopoda Porcellionidae		
Porcellio dilatatus Brandt, 1833	1	1

Table 1. Invertebrates recorded in two post-medieval cellars at Dumbleton, Gloucestershire, on 5 June 1987.

Discussion and comments on the species

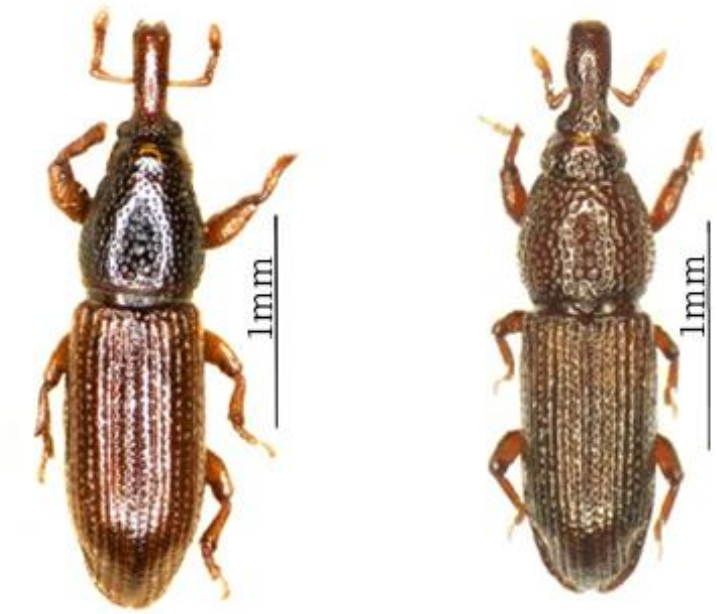
Like caves, cellars have access points through which mobile invertebrates from without can gain access. Unlike modern cave faunas much of the recognised invertebrate fauna of cellars, for which the documentation seems to be somewhat limited, is dependent on human activity so that cellar invertebrate faunas are characterised by synanthropic species. Many active generalists, for example carabid beetles, are unlikely to survive predation by species adapted to life in cellars and would also find it impossible to reproduce.

Some species, such as the large naturalised carabid beetle *Sphodrus leucophthalmus* (Linnaeus, 1758), not recorded here, are of particular interest at least in northern Europe, for their fidelity to cellars (Lindroth, 1992). The author has an example of *S. leucophthalmus* from Olney in Buckinghamshire collected by Mr John Meiklejohn in 1952 which is post-dated in Britain by only 19 documented specimens. Fowler (1887) recorded that *S. leucophthalmus* occurred especially around British ports; Green (2015) demonstrated its presence in Worcester cellars in 1857. It may no longer exist in Britain and is evidently now absent from Northern Ireland (Anderson, McFerran & Cameron, 2000). *Sphodrus leucophthalmus* was intimately linked to populations of the naturalised *Blaps mucronata* Latreille, 1804, a tenebrionid beetle closely tied to stored and degraded produce (Mound, 1989). It has such a marked affinity for the environment of buildings linked to traditional agriculture that in Britain it has been called the Cellar Beetle. The single adult at Cullabine represents a declined relict population of a genus that is represented mostly by dry-loving thermophilous southern species in Europe. Amongst them *B. mucronata* has become so highly adapted to the comparative dryness and shelter of buildings with equable environments that it may persist for some time after such buildings fall into disuse. Aston Mill in Kemerton Parish (VC33 SO93) is believed to have existed in the eleventh century AD; it ceased operating in about 1962. Twenty four years later on 13 July 1986 the author encountered a small relict population of *B. mucronata* in the 19th century brick built part of the mill building.

At Bank Farm the isopod *Androniscus dentiger* Verhoeff, 1908, which is usually pink in colour, existed in darker recesses as an entirely unpigmented form which is likely to have had an extended population history there, rather like some weakly pigmented cave invertebrates (Samways, 1994). *Androniscus dentiger* is frequently lithicolous occupying, for example, rock fissures in quarry faces so would have no difficulty living amongst the detritus of a cellar. The isopod *Porcellio dilatatus* Brandt, 1833, discussed in greater detail below, was located under soft friable degraded oak wood at Cullabine and was also represented by a weakly pigmented specimen. *Porcellio dilatatus* is apparently rare regionally. I have records from a rural stable at Broadway, Worcestershire (SP03) on 17 June 1987, a habitat which, according to Gregory (2009), is a preferred one. *Porcellio dilatatus* can be distinguished from its congeners by the rounded tip of the telson (01 right) and, somewhat less well-understood, by the exact disposition of tubercles on the pereonites (01 left). Like *Blaps mucronata* this species would seem to be climatically sensitive and the author has records from the coastal zone of south Devon.

01. *Porcellio dilatatus* Brandt, 1833. Left, Dumbleton, Gloucestershire, 5 June 1987, habitus. Right, Broadway, Worcestershire, 17 June 1987, telson. Paul Whitehead.

Pentarthrum huttoni Wollaston, 1854 was represented by two examples at Bank Farm farmhouse, both recently dead in spider's webs. This species is generally regarded as synanthropic and human culture-favoured (Britton, 1961) and is evidently strongly associated with old dwellings. I recorded it breeding in an early post-medieval house at Broadway, Worcestershire (SP03) between 1984 and 1989 in a produce store, originally a salting-house, where it regularly occurred, often amongst damp crates with another localised synanthropic beetle *Dienerella vincenti* Johnson, 2007 (see Whitehead, 1992 for the Coleoptera fauna of the wider landscape).



02. Left, *Pentarthrum huttoni* Wollaston, 1854 habitus, Broadway, Worcestershire, 1 August 1989. Right, *Euophryum confine* (Broun, 1881) habitus depauperate male, Dixton Hill, Gloucestershire, 29 April 2019.

Other examples of *P. huttoni* were observed by the author in an early post-medieval building in Evesham town (SP038437) on 9 March 1989 where it may have been associated with decayed window framing; its life cycle of was described by Hickin (1963). *Pentarthrum huttoni* may be confused with another naturalised weevil *Euophryum confine* (Broun, 1881) which is now an almost ubiquitous colonist of degraded heartwood of both broadleaved and coniferous trees in Britain. Their taxonomy and nomenclature was resolved by Thompson (1989). Although superficially similar the two differ significantly in a number of ways (02) more especially by the conspicuous presence in *E. confine* of distal extensions of the lateral interstriae. Although a scarce species *P. huttoni* has an established presence in the UK; Fowler (1891) recorded it from Dorset and Devon. This and related cossonine weevils such as *Hexarthrum exiguum* (Boheman, 1838) (Cebeci, Hellrigl & Whitehead, 2011; Whitehead, 2006) and *Conarthrus littoralis* (Broun, 1880) (Whitehead, 2016), although known to be capable of flight, may benefit from passive dispersal.

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Images

01. *Porcellio dilatatus* Brandt, 1833. Left, Dumbleton, Gloucestershire, 5 June 1987, habitus. Right, Broadway, Worcestershire, 17 June 1987, telson. Paul Whitehead.
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