

# A Romano-British rural site at Eaton Socon, Cambridgeshire

## Specialist Report

Insect remains

*by Mark Robinson*

# THE INSECT REMAINS

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## Introduction

The excavation of a Roman settlement at Eaton Socon discovered two Romano-British wells of probable 3rd century AD date. One contained well-preserved organic-rich sediment at the bottom, the other was more complex and had timbers within it. Their sediments were sampled for the analysis of biological remains, including insects (Table 1).

**Table 1:** The samples

Feature	Context	Sample No.	Volume (l)
Watering hole 81	500	23B	5
	909	46B	5
Watering hole 99	888	42B	5

## Methods and results

Each sample was washed over onto a 0.2mm mesh to separate the organic material from the inorganic fraction. The organic material was then subjected to paraffin flotation to extract insect remains from plant debris. The flot was washed in detergent then scanned in water under a binocular microscope for insect fragments. Sample 42B was found to contain a high concentration of well-preserved insect remains. Sample 23B only contained some small fragments of the beetle *Geotrupes* sp. Sample 46B contained the identifiable remains of about 25 beetles, mostly species of stagnant water such as *Hydrobius fuscipes* and *Ochthebius* sp., although *Silpha atrata* was also noted.

It was decided that Sample 42B was the only one with sufficient potential to provide useful palaeoenvironmental information. The flot from this sample was therefore sorted in full, the insect remains were identified and the results listed in Table 2 (see end) and Table 3. Nomenclature for Coleoptera follows Kloet and Hincks (1977).

**Table 3:** Other insects from Romano-British watering hole 99

	MNI
Date	?3rd c. AD
Context	888
Sample	42B
Sample size (litres)	5
<i>Forficula auricularia</i> L.	4
<i>Coreus marginatus</i> (L.)	1
<i>Heterogaster urticae</i> (F.)	1
<i>Drymus sylvaticus</i> (F.)	1
Anthocorinae indet.	1
<i>Aphrodes flavostriatus</i> (Don.)	1
<i>Stenamma</i> sp. – worker	17
Hymenoptera indet. (not Formicidae)	8
Diptera indet – adult	6

## Interpretation

Sample 42B from watering hole 99 contained very few aquatic insects. Beetles of stagnant water, such as *Hydrobius fuscipes* and *Hydraena testacea*, were present but they were represented by no more than one or two individuals so it is thought unlikely that they were breeding in the watering hole. There were, however, three examples of *Tanysphyrus lemnae*, which feeds on *Lemna* sp. (duckweed). If duckweed was not growing on the surface of the water in the watering hole it is likely to have covered a water-filled feature nearby.

It is thought likely that some beetles were amongst hay that had been deposited in the watering hole but the majority of the insects probably fell in from the surrounding landscape. As is often the case with watering holes, Carabidae (ground beetles) were relatively abundant. *Lesteva longoelytrata*, a beetle of waterside and splashed habitats, was very numerous. It perhaps lived on the side of the watering hole and around the top.

The insects suggested a largely open landscape but some trees and bushes were present. The wood and tree-dependent beetles of Species Group 4 comprised 1% of the terrestrial Coleoptera. They included *Acalles turbatus*, a weevil which bores into dead twigs especially in hedges and scrub, *Leperisinus varius*, a bark beetle mostly of *Fraxinus excelsior* (ash) and the leaf beetle *Chalcoïdes* sp. which feeds on *Populus* and *Salix* spp. (poplars and willows). *Glischrochilus hortensis*, a beetle which sometimes feeds on fermenting sap, was present. However, it also occurs in dumps of old fruit and in decaying toadstools. There was not a full woodland fauna from the sample but it is very plausible that there were trees growing in hedgerows on the site. Some support for this interpretation was given by the occurrence of 17 workers of the ant *Stenamma* sp., suggesting that there was a nest of this ant nearby. *Stenamma* sp. nests amongst the roots of trees in shady woodland or hedgerows (Bolton and Collingwood 1975, 22).

Grassland appears to have been a major component of the landscape around the site. Species Group 11, whose larvae feed on the roots of grassland plants, comprised 3.7% of the terrestrial Coleoptera. Elateridae, particularly species of *Athous*, were the best-represented members of this group but the chafer *Serica brunnea* was also present. *S. brunnea* is characteristic of well-drained sandy or chalk pasture. Another beetle of such a habitats was *Brachinus crepitans*, the bombardier beetle, which defends itself by means of an explosive discharge. Many of the more numerous Carabidae and Staphylinidae, such as *Trechus obtusus* or *quadristriatus*, *Calathus fuscipes* and *Xantholinus linearis*, readily occur in grassland habitats although they are not restricted to them. The occurrence of some domestic animals was suggested by scarabaeoid dung beetles of Species Group 2, which feed on the droppings of domestic animals on pasture. They comprised 6.7% of the terrestrial Coleoptera. *Aphodius contaminatus*, as is often the case with Roman settlements, was the most numerous. However, the percentage for this group was not so high as to suggest that animals were enclosed within the vicinity of the watering hole.

Phytophagous species gave some indication of the composition of the grassland vegetation. *Hydrothassa glabra* feeds on *Ranunculus* spp. (buttercups), while *Mecinus pyraster* feeds on *Plantago lanceolata* (ribwort plantain) and *P. media* (hoary plantain). There were also weevils such as *Sitona hispidulus* and *Hypera punctata* which feed on various species of clover, medick and vetch. *Apion* spp., which feed on the same plants, were particularly abundant. *Apion* spp, together with *Sitona* spp. make up Species Group 3 (beetles which are favoured by hay meadow)

and this group comprised 11.1% of the terrestrial Coleoptera. This is a high value for the group and certainly sufficient to suggest the proximity of hay meadow. However, another explanation is possible. The larvae of the *Apion* species develop in the seed pods of their host plants and the adults emerge from the pods. Some other beetles with a similar life cycle on *Plantago lanceolata*, *Gymnetron labile* and *G. pascuorum* were also well represented. All these beetles can also emerge, or at least be present in the adult form, in hay. The beetles could have entered the watering hole in hay or in sweepings from a building in which hay was stored.

The insects did not give any evidence for arable fields although it is harder to detect cultivated ground than grassland from insects. The occurrence of some nutrient-rich neglected ground in the settlement with *Urtica dioica* (stinging nettle) was suggested by the nettle-feeding beetles *Brachypterus urticae*, *Cidnorhinus quadrimaculatus* and *Ceutorhynchus pollinarius* although they were not abundant. Other weeds of disturbed ground likely to have been growing within the settlement area included Malvaceae (mallows) as suggested by *Apion malvae* and Cruciferae (wild mustard, treacle mustard etc), the hosts of *Phyllotreta vittula*. Some of the large Carabidae (ground beetles), such as *Pterostichus melanarius*, and Staphylinidae (rove beetles) such as *Staphylinus o lens* probably lived on areas of weedy ground with bare patches in the vicinity of the watering hole.

The beetles of Species Group 7 which live in dung and very foul organic material, such as *Megasternum obscurum* and *Anotylus sculpturatus* gp., were, at 6.7% of the terrestrial Coleoptera, at a typical level of abundance for a Roman rural settlement. Their habitat was doubtless present, although there were probably no large dumps of organic refuse near the watering hole. The Lathridiidae of Species Group 8, such as *Lathridius minutus* gp. and *Enicmus transversus*, were quite well represented at 6.0% of the terrestrial Coleoptera. They feed on surface moulds on plant material, such as hay and straw. It is possible that they were associated with the hay which it was suggested could have been dumped in the watering hole. The only general synanthropic beetle of Species Group 9a was *Ptinus fur* which, at 1.0% of the terrestrial Coleoptera, was not particularly abundant for a Roman settlement. It is likely that it was from an indoor habitat. The woodworm beetle *Anobium punctatum* (Species Group 10) was likewise, at 1.3% of the terrestrial Coleoptera, not particularly abundant although this figure does suggest the presence of timber structures. Serious pests of stored grain were absent.

## Conclusions

The results from watering hole 99 suggested that the settlement was situated in a relatively open landscape although there were perhaps some trees growing in hedgerows. Grassland, some of which was grazed by domestic animals, was a significant component of the landscape. There was also evidence for hay but whether this was growing in a meadow nearby or had been brought to the site remains uncertain. The settlement itself had some areas of nettle-covered disturbed ground and it is likely that timber buildings were present.

## References

- Bolton, B. and Collingwood, C.A., 1975, *Hymenoptera: Formicidae*, Royal Entomological Society of London Handbook for the Identification of British Insects 6, pt 3c
- Kloet, G.S. and Hincks, W.D., 1977, A *Check List of British Insects, 2nd edition (revised): Coleoptera and Strepsiptera*, Royal Entomological Society of London Handbook for the Identification of British Insects 11, pt 3
- Robinson, M.A., 1991, The Neolithic and late Bronze Age insect assemblages, in S.P. Needham, *Excavation and Salvage at Runnymede Bridge, 1978: The Late Bronze Age Waterfront Site*, London, British Museum Press, 277-326

**Table 2:** Coleoptera from Romano-British watering hole 99

	<b>MNI</b>	<b>Species group</b>
<b>Date</b>	?3rd c. AD	
<b>Context</b>	888	
<b>Sample</b>	42B	
<b>Sample size</b>	5	
<i>Carabus monilis</i> F.	1	
<i>Nebria brevicollis</i> (F.)	3	
<i>Trechus obtusus</i> Er. or <i>quadristriatus</i> (Schr.)	5	
<i>Bembidion lampros</i> (Hbst.)	1	
<i>B. biguttatum</i> (F.)	1	
<i>B. guttula</i> (F.)	1	
<i>Pterostichus gracilis</i> (Dej.)	2	
<i>P. longicollis</i> (Duft.)	1	
<i>P. madidus</i> (F.)	2	
<i>P. melanarius</i> (Ill.)	1	
<i>P. strenuus</i> (Pz.)	2	
<i>Calathus fuscipes</i> (Gz.)	5	
<i>C. melanocephalus</i> (L.)	2	
<i>Laemostenus terricola</i> (Hbst.)	1	
<i>Amara</i> spp.	3	
<i>Harpalus affinis</i> (Schr.)	1	
<i>Badister bipustulatus</i> (F.)	1	
<i>Chlaenius nigricornis</i> (F.) or <i>nitidulus</i> (Schr.)	1	
<i>Dromius quadrimaculatus</i> (L.)	1	
<i>Brachinus crepitans</i> (L.)	1	
<i>Agabus bipustulatus</i> (L.)	1	1
<i>Helophorus grandis</i> Ill.	1	1
<i>Helophorus</i> sp. (brevipalpis size)	2	1
<i>Cercyon analis</i> (Pk.)	1	7
<i>C. haemorrhoidalis</i> (F.)	4	7
<i>Megasternum obscurum</i> (Marsh.)	9	7
<i>Hydrobius fuscipes</i> (L.)	1	1
<i>Ochthebius</i> cf. <i>bicolon</i> Germ.	1	1
<i>O. minimus</i> (F.)	1	1
<i>O. cf. minimus</i> (F.)	1	1
<i>Hydraena testacea</i> Curt.	1	1
<i>Hydraena</i> sp. (not <i>testacea</i> )	2	1
<i>Choleva</i> or <i>Catops</i> sp.	2	
<i>Metopsia retusa</i> (Step.)	1	
<i>Lesteva longoelytrata</i> (Gz.)	15	
<i>Omalium</i> sp.	2	
<i>Coprophilus striatulus</i> (F.)	1	
<i>Carpelimus</i> sp.	1	
<i>Platystethus cornutus</i> gp.	1	
<i>Anotylus nitidulus</i> (Grav.)	1	
<i>A. rugosus</i> (F.)	2	7
<i>A. sculpturatus</i> gp.	4	7
<i>Stenus</i> sp.	5	
<i>Paederus littoralis</i> Grav.	1	
<i>Lathrobium</i> sp. (not <i>longulum</i> )	6	
<i>Gyrohypnus fracticornis</i> (Müll.) or <i>punctulatus</i> (Pk.)	2	
<i>Xantholinus glabratus</i> Grav.	1	

	<b>MNI</b>	<b>Species group</b>
<b>Date</b>	?3rd c. AD	
<b>Context</b>	888	
<b>Sample</b>	42B	
<b>Sample size</b>	5	
<i>X. linearis</i> (Ol.)	7	
<i>X. longiventris</i> Heer	3	
<i>X. linearis</i> (Ol.) or <i>longiventris</i> Heer	3	
<i>Philonthus</i> spp.	5	
<i>Gabrius</i> sp.	2	
<i>Staphylinus aeneocephalus</i> Deg. or <i>fortunatarum</i> (Wol.)	2	
<i>S. olens</i> Müll.	1	
<i>Tachyporus</i> spp.	4	
<i>Tachinus</i> sp.	3	
Aleocharinae indet.	11	
<i>Geotrupes</i> sp.	1	2
<i>Colobopterus fassor</i> (L.)	1	2
<i>Aphodius ater</i> (Deg.)	2	2
<i>A. contaminatus</i> (Hbst.)	8	2
<i>A. foetens</i> (F.)	1	2
<i>A. granarius</i> (L.)	1	2
<i>A. rufipes</i> (L.)	1	2
<i>A. cf. sphacelatus</i> (Pz.)	3	2
<i>Oxyomus sylvestris</i> (Scop.)	2	
<i>Onthophagus ovatus</i> (L.)	1	2
<i>O. cf. similis</i> (Scrib.)	1	2
<i>Serica brunnea</i> (L.)	1	11
<i>Cetonia aurata</i> (L.)	1	
cf. <i>Cyphon</i> sp.	1	
<i>Byrrhus</i> sp.	1	
<i>Agrypnus murinus</i> (L.)	1	11
<i>Athous bicolor</i> (Gz.)	1	11
<i>A. haemorrhoidalis</i> (F.)	4	11
<i>A. hirtus</i> (Hbst.)	2	11
<i>Agriotes sputator</i> (L.)	2	11
<i>Cantharis</i> sp.	1	
<i>Rhagonycha</i> sp.	1	
<i>Anobium punctatum</i> (Deg.)	4	10
<i>Ptinus fur</i> (L.)	3	9a
<i>Malachius</i> sp.	1	
<i>Brachypterus urticae</i> (F.)	2	
<i>Epuraea</i> sp.	1	
<i>Glischrochilus hortensis</i> (Fouc.)	3	
<i>Rhizophagus</i> sp.	2	
<i>Atomaria</i> sp.	6	
<i>Stilbus</i> sp.	1	
<i>Corylophus cassidoides</i> (Marsh.)	1	
<i>Stethorus punctillum</i> Weise	1	
<i>Lathridius minutus</i> gp.	11	8
<i>Enicmus transversus</i> (Ol.)	3	8
Corticariinae indet.	4	8
<i>Bruchus</i> or <i>Bruchidius</i> sp.	1	
<i>Chrysolina polita</i> (L.)	1	
<i>Hydrothassa glabra</i> (Hbst.)	1	

	<b>MNI</b>	<b>Species group</b>
<b>Date</b>	?3rd c. AD	
<b>Context</b>	888	
<b>Sample</b>	42B	
<b>Sample size</b>	5	
<i>Phyllotreta atra</i> (F.)	1	
<i>P. nigripes</i> F.	4	
<i>P. vittula</i> Redt.	1	
<i>Longitarsus</i> sp.	3	
<i>Chalcoïdes</i> sp.	1	4
<i>Epitrix pubescens</i> (Koch)	1	
<i>Chaetocnema concinna</i> (Marsh.)	3	
<i>Psylliodes</i> sp.	1	
<i>Apion malvae</i> (F.)	1	
<i>A. rufirostre</i> (F.)	1	
<i>Apion</i> spp. (not above)	27	3
<i>Otiorhynchus raucus</i> (F.)	1	
<i>Phyllobius pomaceus</i> Gyl.	1	
<i>Barypeithes araneiformis</i> (Schr.)	1	
<i>Sciaphilus asperatus</i> (Bons.)	1	
<i>Sitona</i> cf. <i>hispidulus</i> (F.)	3	3
<i>S. cf. lineatus</i> (L.)	1	3
<i>S. cf. suturalis</i> Step.	2	3
<i>Hypera punctata</i> (F.)	2	
<i>Alophus triguttatus</i> (F.)	1	
<i>Tanysphyrus lemnae</i> (Pk.)	3	5
<i>Acalles turbatus</i> Boh.	1	4
<i>Cidnorhinus quadrimaculatus</i> (L.)	1	
<i>Ceuthorhynchus pollinarius</i> (Forst.)	1	
<i>Ceuthorhynchinae</i> indet.	3	
<i>Tychius</i> sp.	1	
<i>Mecinus pyraster</i> (Hbst.)	2	
<i>Gymnetron labile</i> (Hbst.)	5	
<i>G. pascuorum</i> (Gyl.)	3	
<i>Leperisinus varius</i> (F.)	1	4
<b>Total</b>	<b>309</b>	



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