An assessment of the insect remains from the Suffolk River Valleys Project.
Emma Tetlow

Introduction
A series of ten samples were recovered for palaeoentomological analysis as part of the Suffolk River Valley's Project. The samples were recovered from the modern floodplains of the River Waveney (Beccles 1 and 2), the River Blackbourn (Ixworth) and the River Lark (Hengrave). The objective was to establish the palaeoentomological potential of peat deposits and depositional regime associated with the floodplain of all three rivers. The nomenclature for each sample will be as follows.

The River Waveney:
Beccles 1 – 200-260cm/480-540cm
Beccles 2 – 200-230cm/320-380cm

The River Blackbourn
Ixworth – 50-90cm/192-230cm/270-310cm

The River Lark
Hengrave – 60-100cm/140-180cm/260-300cm

It was hoped that an assessment of the insect remains from these samples would provide information on the following:

1. Are any insect remains of interpretative value?
2. Do any of the insects present suggest the nature of the environment and land use of the area around the ditch at the time of the deposits formation?
3. Would the insects present provide information on how these deposits formed?

Methods.
Eight samples were processed using the standard method of paraffin flotation as outlined in Kenward *et al.* (1980), weight and volume of the processed material may be found in table 1. This paraffin flot was then sorted and identified where possible under a binocular microscope. The system for "scanning" faunas as outlined by Kenward *et al.* (1985) was followed in this assessment.

When discussing the faunas recovered, two considerations should be taken into account:

1) The identifications of the insects present are provisional. In addition, many of the taxa present could be identified down to species level during a full analysis, producing more detailed information. As a result, the data presented here should be regarded as preliminary.

2) The various proportions of insects are subjective assessments. Minimum numbers of individuals can be obtained through a full sample analysis.

Results.
The insect taxa recovered from the flots are listed in Table 1. The taxonomy used for the Coleoptera (beetles) follows that of Lucht (1987). A number of Dipterous (fly) puparia remains were found. The numbers of individuals present is estimated using the following scale: * = 1-2 individuals ** = 2-5 individuals *** = 5-10 individuals **** = 10+ individuals. The taxonomy used for the Coleoptera (beetles) follows that of Lucht (1987).

1. *Interpretative value*

Beccles 1
480-540cm
Coleopteran remains were not found in this sample.

200-260cm
A restricted assemblage of well-preserved and identifiable coleopteran remains was recovered from this sample, the limited nature of this assemblage precluding any interpretation.

Beccles 2
320-380cm
A small but well preserved and interpretable assemblage was recovered from this sample.

200-230cm
A restricted assemblage of well-preserved and identifiable coleopteran remains was recovered from this sample, the limited nature of this assemblage precluding any interpretation.

Ixworth
270-310cm
A single sclerite was recovered from this sample, precluding interpretation.

192-230cm
A restricted assemblage of well-preserved and identifiable coleopteran remains was recovered from this sample, the limited nature of this assemblage precluding any interpretation.

50-90cm
A restricted assemblage of well-preserved and identifiable coleopteran remains was recovered from this sample, the limited nature of this assemblage precluding any interpretation.

Hengrave
60-100cm/140-180cm/260-300cm
Small but well-preserved and readily interpretable assemblages were recovered from all three samples.

2. *Do any of the insects present suggest the nature of the environment and land use of the area around the ditch at the time of the deposits formation?*

Beccles 2
320-380cm
The insect remains from this sample suggest well vegetated, standing water surrounded by grassland. The carabid, *Elaphrus cupreus,* is found at the muddy margins of standing waters in reedy swamps and bogs (Lindroth 1974). The aquatic members of the hydrophilid family, *Cercyon* spp., are a found amongst wet, decaying organic material at the margins of standing and slow moving waters (Hansen 1987).

Hengrave
260-300cm
This assemblage from this sample is primarily composed of aquatic and hygrophilous taxa which suggest a pool or stream filled with slow moving water fringed by tall reed swamp.

The Hydrophilidae, *Hydrobius fuscipes,* and *Chaetarthria seminulum,* are both found with standing stagnant waters. *Hydrobius fuscipes* is a distinctly aquatic taxa found at the margins of standing water amongst dense vegetation (Hansen 1987), whilst *Chaetarthria seminulum,* prefers the muddy periphery of standing water, particularly in bogs and Fens (Friday 1988). A further indicator of Fen-type vegetation is the chrysomelid, *Plateumaris braccata*, a monophagous taxa exclusively associated with the common reed (*Phragmites australis*) (Menzies and Cox 1996). Vegetation in the wider environment is also suggested by the presence of the curculionid, *Apion* spp., a family of

weevils associated with a variety of plants commonly found in both meadows and disturbed ground such as vetches (*Vicia* spp.) and mallows (Malvaceae) (Koch 1992).

140-180cm
Whilst similar to those in the previous sample, conditions at Hengrave appear to becoming drier, aquatic taxa are absent and are replaced by the Hydraenidae, a family of hygrophilous taxa associated with muddy, ephemeral pools (Hansen 1987). The chrysomelid, *Plateumaris braccata*, which feeds exclusively upon the common reed increases in abundance (Menzies and Cox 1996), suggesting the spread of tall herb fen across the site.

A single specimen of the Scarabaeidae or 'dung beetle' family was also recovered from this sample, *Geotrupes* spp. or the 'Dor' beetle, is found amongst the dung of large herbivores (Jessop 1986).

60-100cm
Subsequently, conditions become increasingly wet, distinct aquatic species such as the hydrophilid, *Hydrobius fuscipes*, and the dytiscid, *Noterus* spp., both found in standing, stagnant water were recovered (Nilsson and Holmen 1995), whilst the Hydraenidae, found in more ephemeral, muddy pools have decreased significantly.

Vegetation at the site has also changed subtly, indicators of tall reed have decreased and are replaced by species associated with lower growing and aquatic vegetation. The chrysomelid, *Plateumaris sericea*, is found on sedges (*Carex* spp.), water-lily (*Nuphar* spp.) and yellow flag (*Iris pseudocorus*) (Menzies and Cox 1996). Increased numbers of the curculionid, *Apion* spp., suggest drier grassland close by.

3. *Would the insects present provide information on how these deposits formed?*

Beccles 2
320-380cm
The insects from this sample clearly suggest the deposit formed in a relatively shallow pool or slow moving stream fringed by aquatic and emergent vegetation.

Hengrave
60-100cm/140-180cm/260-300cm
Conditions during deposit formation had Hengrave fluctuate throughout the profile, initially deposition occurs in a Fen-like environment, relatively deep

water with dense, emergent vegetation composed tall reeds. The coleopteran evidence then suggests a drier period, with muddy, seasonal pools and extensive swathes of tall reeds. This drier period finally giving way to wetter conditions and pools of permanent, standing water once again.

Conclusions

Coleopteran evidence has provided little information on floodplain development of either the River Waveney or the River Blackbourn, considering the restricted size of the assemblages and the limited information to be gleaned from the these assemblages, no further work on this material is recommended.

The assemblages from Hengrave produced a limited picture of floodplain evolution associated with the River Lark. Whilst small, the assemblages were readily interpretable and the insect remains, well preserved they have yielded as much information as their potential will allow and once again, no further work on this material is recommended.

References

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