Rural Settlement in Roman Britain Project

Preliminary overview of agriculture and wider land-use practices in the Roman north

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Environmental archaeology in the Roman north, or ‘feeding the Roman army’

- Previous research has focussed heavily upon the impact of the Roman military on the landscape and on local/regional economies

- High proportions of cattle commonly recovered; suggested to be a regular supply for meat, but also traction and transport, dairy products, wool, skins and textiles

- Local economy may not have been sufficient to sustain the army

- Raises the possibility of a more widespread and organised supply network; Stallibrass (2008) suggests a system of livestock-droving
Impact of the army (and their animals!) on land requirements

- Huntley (2013) raises the issue of local land-use requirements for sustaining large numbers of horses e.g. grazing and foddering

- To meet the foddering needs of a full cavalry cohort (including personnel), over 1000ha of land are potentially required, including arable, grazing pastures, and hay meadows

- Analysis of sedges and other plant remains from Vindolanda indicates the scale and variety of habitats used to provide grazing, fodder and grain feed for the soldiers’ horses (Huntley 2013)

Indicative plan of the scale and diversity of land requirements surrounding a Roman fort (Huntley 2013, 44)
Questions and problems ...

- What patterns of cereal and animal husbandry can be discerned from local rural farming settlements?

- Do these patterns change over time, i.e. before and after the arrival of the army?

- Can the environmental data be integrated with other forms of evidence, i.e. field-systems or material culture, to increase understanding of regional agricultural economies?

- Is there wider evidence for other forms of land-use or for non-local foodstuffs in the form of hunted fauna or imported ‘exotica’?

- Environmental assemblages predominantly from military sites in the north

- Farming settlements are under-represented compared to vici settlements
  - Deeper stratigraphy?
  - More intensive activity?
  - Presence of features more conducive for preservation, i.e. wells?

- Differential soil pH causes sub-regional variations in preservation

Reconstruction of vicus life outside Housesteads fort ©English Heritage (by Peter Urmston)
Impact of soil acidity on the recovery of environmental remains in the northern region

- Low pH values prevalent in the Pennine upland region
- ‘Neutral’ pH values in the eastern low-land, and in the southern part of the North-West region
- Regional soil acidity variation has significant effect upon the preservation and recovery of faunal and floral assemblages
Distribution of sites with faunal assemblages
>50 identified specimens

- Limited number of assemblages from the northern region
- Concentration of sites located in the east – preferential preservation
- Most assemblages in the west are from vici settlements – deeper stratigraphy?
Distribution of northern sites with cereal assemblages

- Greater number of assemblages with cereal remains than animal bone, but very variable in quality and quantity of remains
- Concentration of assemblages around the Tees valley, with a sparser spread elsewhere
Land-use and arable agriculture
Distribution of excavated fields

- Distribution of excavated field-systems is generally sparse
- Concentration in the Eden Valley up to the Solway Firth, Cumbria
- Site visibility enhanced by cropmarks e.g. Yanwath Wood, near Penrith

Higham 1983
Field systems and agricultural land-use

NMP data are enlightening, but perennial dating issues restrict interpretation

Cropmark field boundaries south of Hadrian’s Wall, near Carlisle (Boutwood 2005)
Arable land-use south of Hadrian’s Wall

Cumbria Institute of the Arts Campus, Stanwix, Carlisle

- Series of plough-marks, a buried turf line and a probably contemporary ditch

- Part of a system of arable fields, pre-dating the construction of the Hadrian's Wall frontier system in the AD120s, including Stanwix fort

- Remains sealed by a thick deposit of earth and clay, possibly associated with the construction of Hadrian's Wall or the fort

- Evidence at odds with the pollen data which suggested pastoral landscape – arable farming perhaps not intensive

Fig. 2. Plan of Phase 1 plough-marks (3) and ditch 30. The location of Phase 3 ditch 42 is also shown.

Zant and Town 2013
Arable agriculture - finds evidence

- Brampton, Cumbria – tilery
  - likely part of a larger nucleated settlement possibly associated with the military

- Hoard of ironwork included a plough share, a hoe, a rake prong, and two scythes found as part of a larger group of iron tools and other objects – 2ndC AD

- Agricultural tools very valuable; little evidence for loss – recycling?

![Map showing agricultural tools and sites](http://www.villa.culture.fr)

![Graph showing number of sites with agricultural tools](http://www.villa.culture.fr)

Roman plough share
http://www.villa.culture.fr
Presence of cereal taxa by site type

Enclosed farms (n=13)

Vicus settlements (n=12)

Complex farms (n=10)

Unenclosed/unclassified farms (n=18)
Distribution of flax, fruits, pulses and rye

- Rye more commonly recovered in the southern part of the north-west region
- Follows a number of sites around Wroxeter and Wall which have produced rye – regional West Midlands distribution
- Flax only identified at two sites: the vicus at Kirkby Thore, Cumbria, and the villa at Ingleby Barwick, Co. Durham
- Apparent low diversity of cultivated plants in eastern assemblages
Distribution of corn-driers in the north

- Evidence for corn-driers is comparatively rare

- Three sites in the Tees valley appear to form the northern tip of the Yorkshire distribution

- Only isolated examples appear elsewhere
Other cultivated crops and imported foods

- Imported foods generally restricted to vici settlements
- Locally-cultivated/gathered foods also present in other rural settlements
Livestock husbandry and wild animal exploitation
Relative frequencies of major domestic mammals from vici and other rural settlement assemblages from the Northern region

Vici assemblages

Other rural settlement assemblages

* Ingleby Barwick = villa
** Kingsley Fields, Nantwich = roadside settlement
Lack of standardisation in ageing methodologies

Different methods of livestock ageing data cannot be directly compared

dental wear ≠ dental eruption ≠ epiphyseal fusion

We are reliant upon anecdotal interpretations of data

Evidence for selective slaughter at most site types, plus evidence for breeding animals at farms and vici settlements

<table>
<thead>
<tr>
<th>Site type</th>
<th>Ageing evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>farms</td>
<td>remains of prime beef animals at Ingleby Barwick villa</td>
</tr>
<tr>
<td></td>
<td>evidence for neonatal cattle and juvenile horses at Faverdale (2ndC AD)</td>
</tr>
<tr>
<td></td>
<td>60% cattle killed at sub-adult at late Iron Age Thorpe Thewles; also juvenile horse</td>
</tr>
<tr>
<td>vici</td>
<td>sub-adult and mature cattle at Binchester (2nd-4thAD)</td>
</tr>
<tr>
<td></td>
<td>emphasis on cattle slaughter in 2nd and 3rd years, plus calves, and a heavy slaughter of yearling and two year old lambs at Piercebridge</td>
</tr>
<tr>
<td>roadside settlement</td>
<td>neonatal cattle and sheep found at Watercrook vicus - breeding livestock</td>
</tr>
<tr>
<td></td>
<td>neonatal cattle remains recovered from brine tank at Kingsley Fields, Nantwich</td>
</tr>
</tbody>
</table>
Intensive livestock husbandry regimes
– Faverdale, Darlington

- Extensive complex settlement develops from open settlement from the 2ndC AD
- Complex of enclosures and trackways appear to demonstrate intensive livestock management
- Faunal assemblage dominated by cattle remains in each phase (55%-67%)
- Cattle neonatal bones reflect on-site breeding, whilst juvenile equid bones reflect horse rearing
**Animal processing at Kingsley Fields, Nantwich**

- Brine tanks: evidence for salt-production or processing of carcass joints?
- Hook-damaged cattle scapulae suggest hung beef shoulders, perhaps brined and dried
- Cattle mandibles burned and holed, possibly for removal of marrow; similar to urban sites
- Skulls of cattle, sheep and red deer present – skinned?

**Cattle cull profile**

- % ageable specimens (n=17)

**Graph with data points**

- Arrowsmith and Power 2012

**Legend**

- % mandibles
- Cull profile
Domestic fowl husbandry

- Chickens very rare in assemblages from the Northern regions: only 10 sites have produced bones from domestic fowl, mostly nucleated settlement

- Proportions of domestic fowl also very low: only Piercebridge and Ribchester have produced more than 5 bones

- Piercebridge vici assemblage produced 352 bones, but this only equated to 1.5% against the main livestock mammals

- Were chickens just kept for meat? Did they have a religious context? Were they used for cock-fighting?

<table>
<thead>
<tr>
<th>site name</th>
<th>site type</th>
<th>NISP dom. fowl</th>
<th>% dom. fowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piercebridge</td>
<td>vicus</td>
<td>352</td>
<td>1.5</td>
</tr>
<tr>
<td>Ribchester</td>
<td>vicus</td>
<td>18</td>
<td>0.7</td>
</tr>
<tr>
<td>Lancaster vicus</td>
<td>vicus</td>
<td>2</td>
<td>0.3</td>
</tr>
<tr>
<td>Watercrook (Potter Excavations)</td>
<td>vicus</td>
<td>5</td>
<td>0.1</td>
</tr>
<tr>
<td>Watercrook (pipeline watching brief)</td>
<td>vicus</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Kingsley Fields, Nantwich</td>
<td>roadside settlement</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Thorpe Thewles</td>
<td>farm</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Faverdale, Darlington</td>
<td>farm</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Kennel Hall Knowe, North Tynedale</td>
<td>farm</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Ochre Brook/Tarbock Roundabout, Junction 6, M62</td>
<td>farm</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>
Working with wild resources

Conclusive evidence for antler working only derives from *vici* settlements:
- Piercebridge (up to 245 specimens)
- Watercrook (49 specimens)
- Ribchester (25 specimens)
- Lancaster (18 specimens)

Antler represent between 1.0% and 2.2% against cattle, sheep/goat and pig remains, but assemblages are formed through different processing and disposal practices.

Antler-working not necessarily evidence for deer hunting: most vici assemblages produced shed antler, collected from the countryside.

At what scale antler-working undertaken, and what does it imply about exploitation of local resources?
## Hunting and wildfowling

Presence of wild fauna by taxa at vici and other rural settlements in the northern region (n = no. specimens)*

<table>
<thead>
<tr>
<th>Wild taxa</th>
<th>Vici</th>
<th>Rural settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Piercebridge (n=226)</td>
<td>Watercrook (n=5)</td>
</tr>
<tr>
<td>red deer</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>roe deer</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>hare</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>wild boar</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>fox</td>
<td></td>
<td></td>
</tr>
<tr>
<td>badger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>polecat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Wildfowl           |                         |                         |                     |                   | x x x x x x x |
| goose              | X                         |                         |                     |                   | x x x x x x x |
| duck               | X                         |                         |                     |                   | x x x x x x x |
| swan               | X                         |                         |                     |                   | x x x x x x x |
| black grouse       | X                         |                         |                     |                   | x x x x x x x |
| pigeon/dove        | X                         |                         |                     |                   | x x x x x x x |
| golden plover      | X                         |                         |                     |                   | x x x x x x x |
| wader sp.          | X                         |                         |                     |                   | x x x x x x x |
| raven              |                           |                         |                     |                   | x x x x x x x |
| crow/rook          | X                         |                         |                     |                   | x x x x x x x |
| herring gull       |                           |                         |                     |                   | x x x x x x x |
| barn owl           |                           |                         |                     |                   | x x x x x x x |
| barn owl           |                           |                         |                     |                   | x x x x x x x |
| sparrowhawk        |                           |                         |                     |                   | x x x x x x x |
| buzzard            |                           |                         |                     |                   | x x x x x x x |
| kite               |                           |                         |                     |                   | x x x x x x x |

*counts do not include antler specimens
Summary of regional patterning

• Continued high proportion of cattle bones at farming settlements beyond forts and vici

• Impacted by preservation, but most likely a local/regional pattern – local husbandry could be supplemented by long-distance droving, but more conclusive evidence required

• Some sites set up for intensive livestock management (Faverdale); some for processing carcasses and preserving joints of meat (Nantwich)

• Pastoralism important, but local arable farming clearly being undertaken, as seen by cereal remains and field-system evidence – important for local food production and foddering requirements

• However, little evidence for intensive arable production and processing – very few corndriers

• Possible regional West Midlands/Cheshire pattern of rye production

• Imported foods largely restricted to vici, as is evidence for wild animal exploitation
Continued problems and future work

• Clear and well-known preservation and retrieval bias

• Continued focus upon sampling strategies and radiocarbon dating to increase the usable dataset

• An emphasis placed upon secure and well-dated contexts which might yield environmental remains (e.g. Huntley 2013 study of sedges at Vindolanda)

• Standardisation of recording methodologies and accessibility to raw datasets, i.e. livestock ageing and biometric data

• Integration of form and distribution of field-systems with settlement patterns – again, focus upon dating where possible

• Large cattle study required (Stallibrass 2008), focussed upon multi-site analyses incorporating age profiles, biometrics, and isotope analyses to investigate issues supply (long vs. short distance) and local management