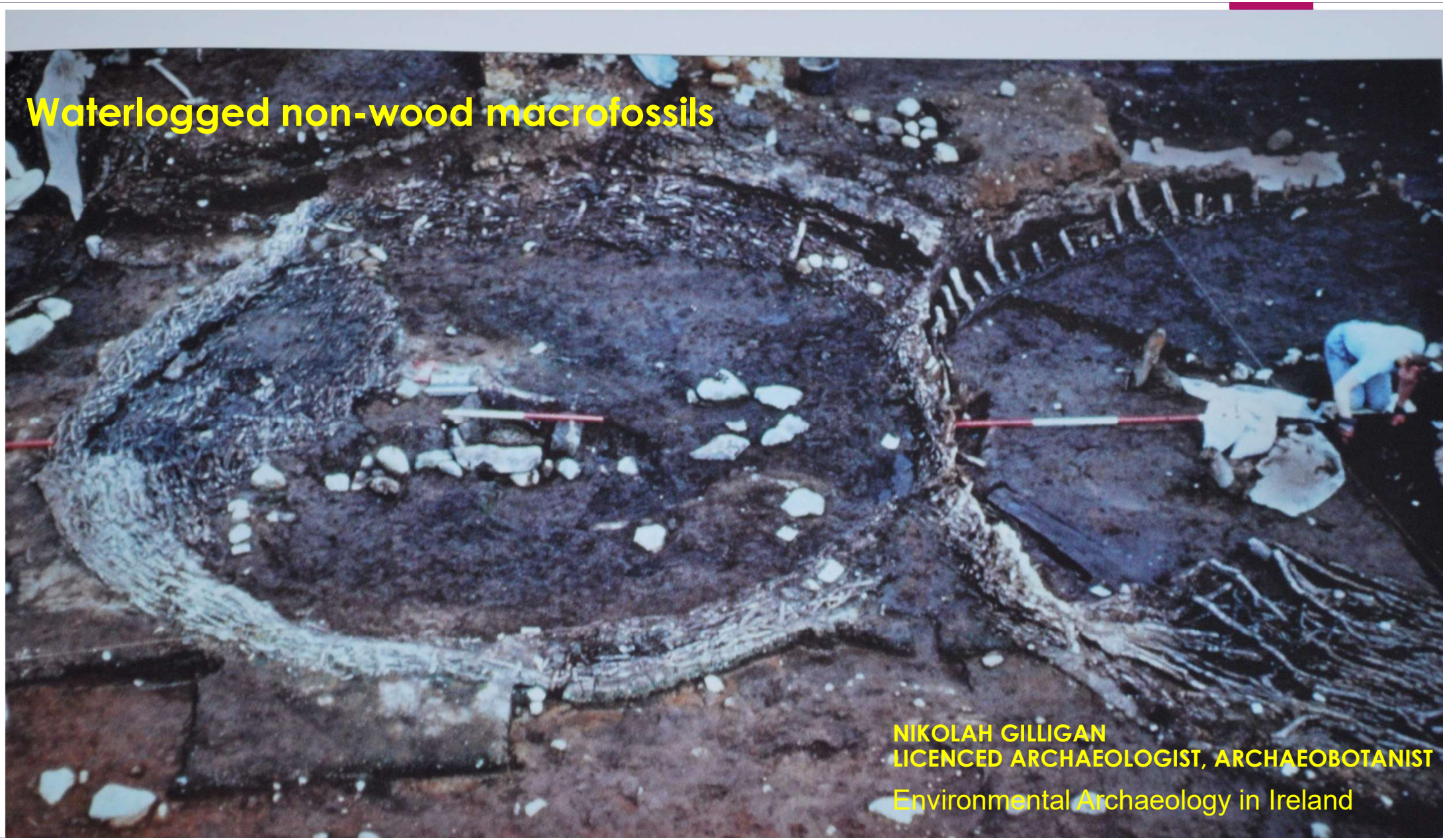
Waterlogged non-wood macrofossils



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Environmental Archaeology in Ireland

- What is a waterlogged deposit?
- What environmental information survives?
- Why do we study environmental remains?
- How are remains sampled?
- How are remains processed?
- How are they identified and presented?
- Examples

What is a waterlogged deposit?

- Anoxic and anaerobic
- Natural waterlogged deposits - bogs, coastlines etc
- Wetland sites with anthropogenic activity - trackways, *fulachta fiadh* etc
- Well-sealed sites and features which have become waterlogged; wells, cess-pits, ditches.

What environmental information survives?

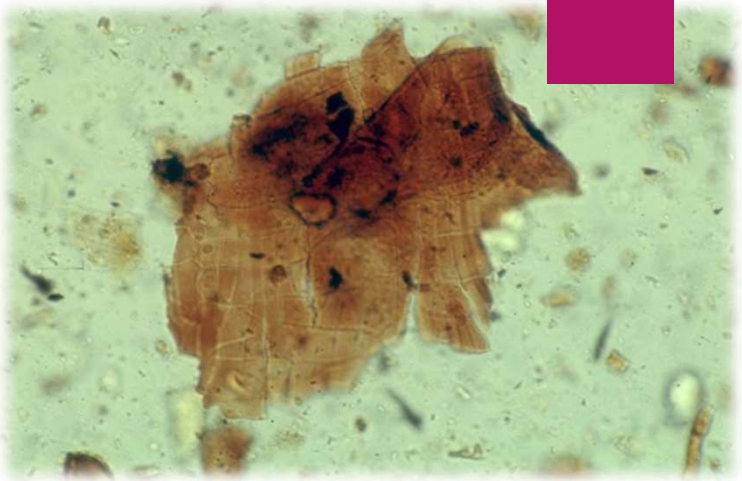
- Plants - seed, achene, caryopsis, capsule, pinnule, frond, fruitstone, nutlet, seed coats, stems, florets,
- Leaves, tubers, mosses, fungi
- Charred botanical remains can also survive.
- Animal and fish bone, molluscs, insects, parasite eggs, spores, diatoms and testate amoeba etc

Why do we study them?

- **Ruderal weeds indicative of environmental conditions**
- **Remains which are the result of cultural and anthropogenic activity.**
- **Dietary**
- **Economic – importation, industry, tillage**
- **Social structure**
- **Use of resources**
- **Changes in landscape**

Dietary

- Coprolites – direct evidence of consumption
- Stomach contents of bog-bodies
- Foods that haven't come into contact with fire
- Processing techniques- whole legumes and cereal bran
- Fruit-pressing and liquids
- Changes in palate – whole sloe stones, rowan berries, apple cores , weed seeds
- Changes in diet throughout time or regional differences
- Proxy evidence using other forms of analysis (pollen)



Reconstruction of local environment

- Reconstruction of palaeolandscapes
- Compliment wood, pollen, charcoal analysis
- Changes in landscape and use

How are remains sampled?

Consultation with the PES before and during excavation

Sampling strategy and research questions

Variety of sampling techniques, including scatter and judgement

Environmental register

10l for waterlogged macrofossils

Stored wet in plastic tubs and double-labelled

How are remains processed?

- Waterlogged/organic samples are processed by wet-sieving
- The moist sample is broken down by gentle hand pressure, soaked in lukewarm water, washed through a bank of sieves (2mm, 1mm, 0.5mm and 0.25mm).
- This method allows for the separation of larger seeds and plant remains from the much smaller plant particles, which can often go unnoticed
- The residual material from the sieve fractions (2mm, 1mm and 0.5mm) separately stored in water, placed in bags/lidded containers

Reporting

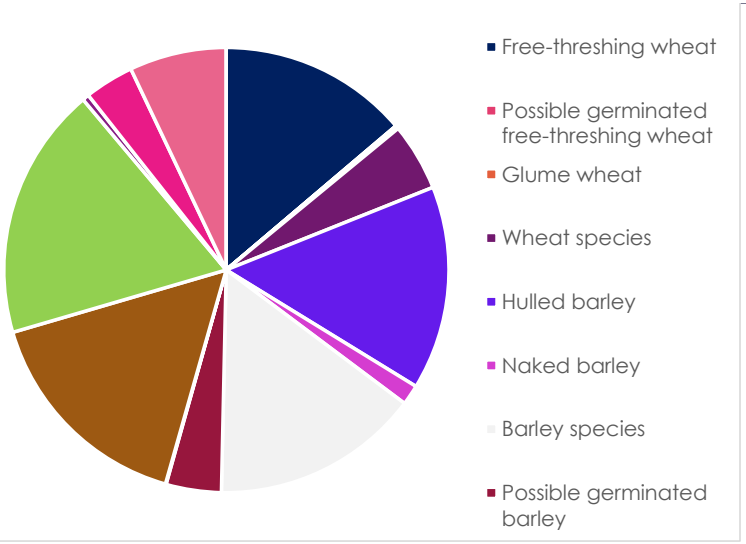
- Stage 3 TII Assessment – during post-excavation
- Stage 4 – Analysis and Interpretation
- Publication

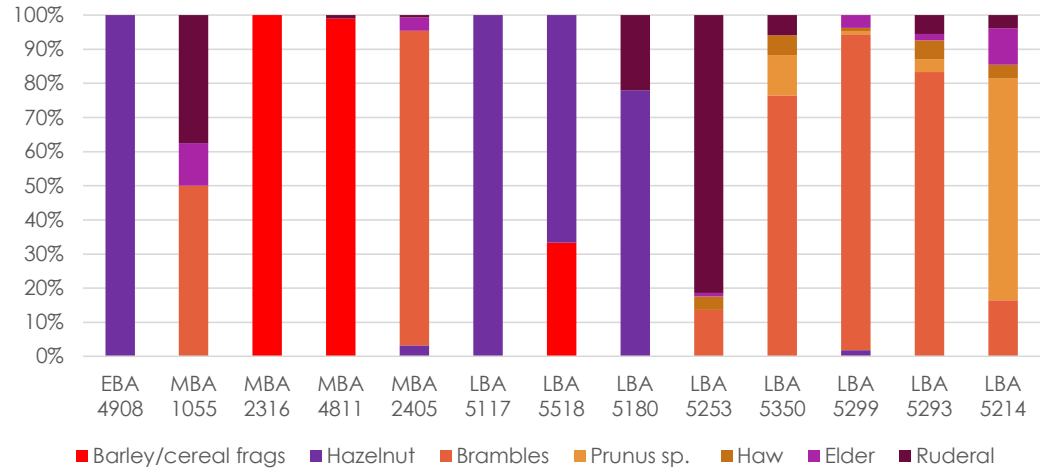
How are remains identified?

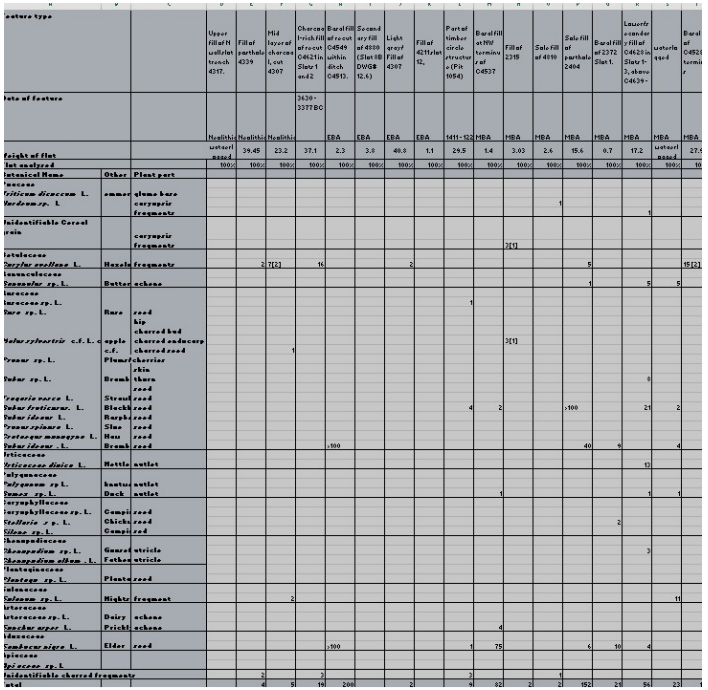
- Scanned wet using a binocular microscope (magnification x4.5 to x10) and recorded and identified where possible
- Residual material remains in a wet state during storage and the identification process as fragile plant remains and smaller plant components can be more visible
- Plant macro-fossils are identified to genus/species level
- Identification may also require the examination of cell patterns and various anatomical characteristics.
- Identifications are enabled by using a comparative collection of modern specimens and seed atlases/illustrations

How are remains presented?

- **Table and charts presented according to accepted nomenclature**
- **Volume analysed; subsampled; total counts etc**
- **Collation with other specialist reports**





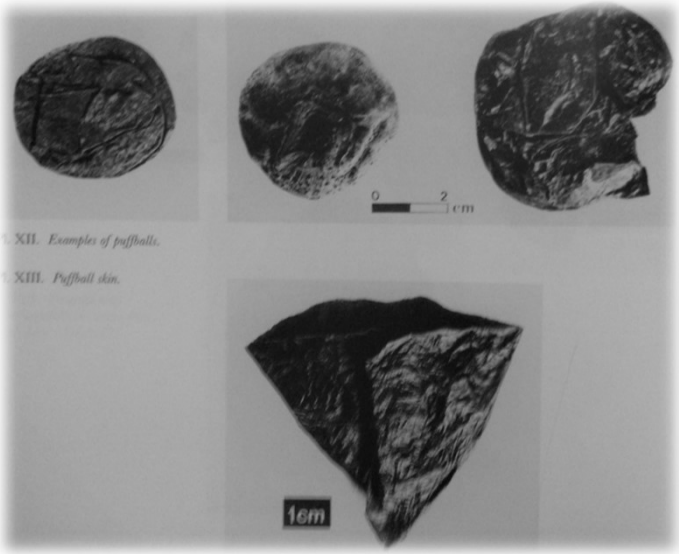


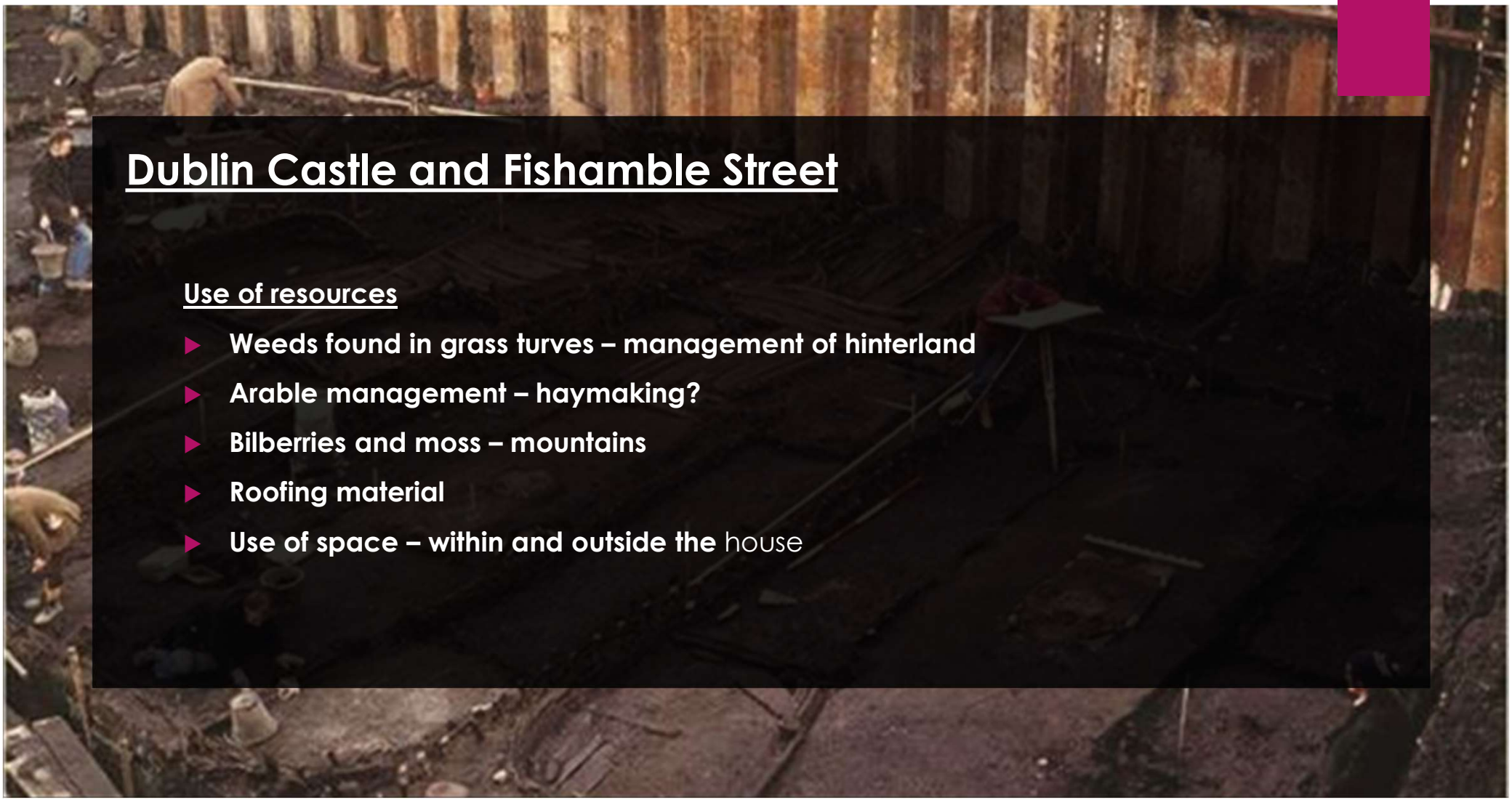
Dublin Excavations

Dublin Castle, Fishamble Street, Winetavern Street

Dietary information

- Hidden ingredients – don't come into contact with fire – legumes, knotweed, docks, fungi etc
- Palates; sloe stones, berries
- Storage information – nut weevils in the hazelnuts
- Processing information – caches of sloes with flesh
  cereal bran
  how foods were accessed





Dublin Castle and Fishamble Street

Use of resources

- Weeds found in grass turves – management of hinterland
- Arable management – haymaking?
- Bilberries and moss – mountains
- Roofing material
- Use of space – within and outside the house


Summary
Sampling strategy with PES/Environmental Consultant
Process and store appropriately
Allow time for analysis and reporting
Multi-proxy analysis