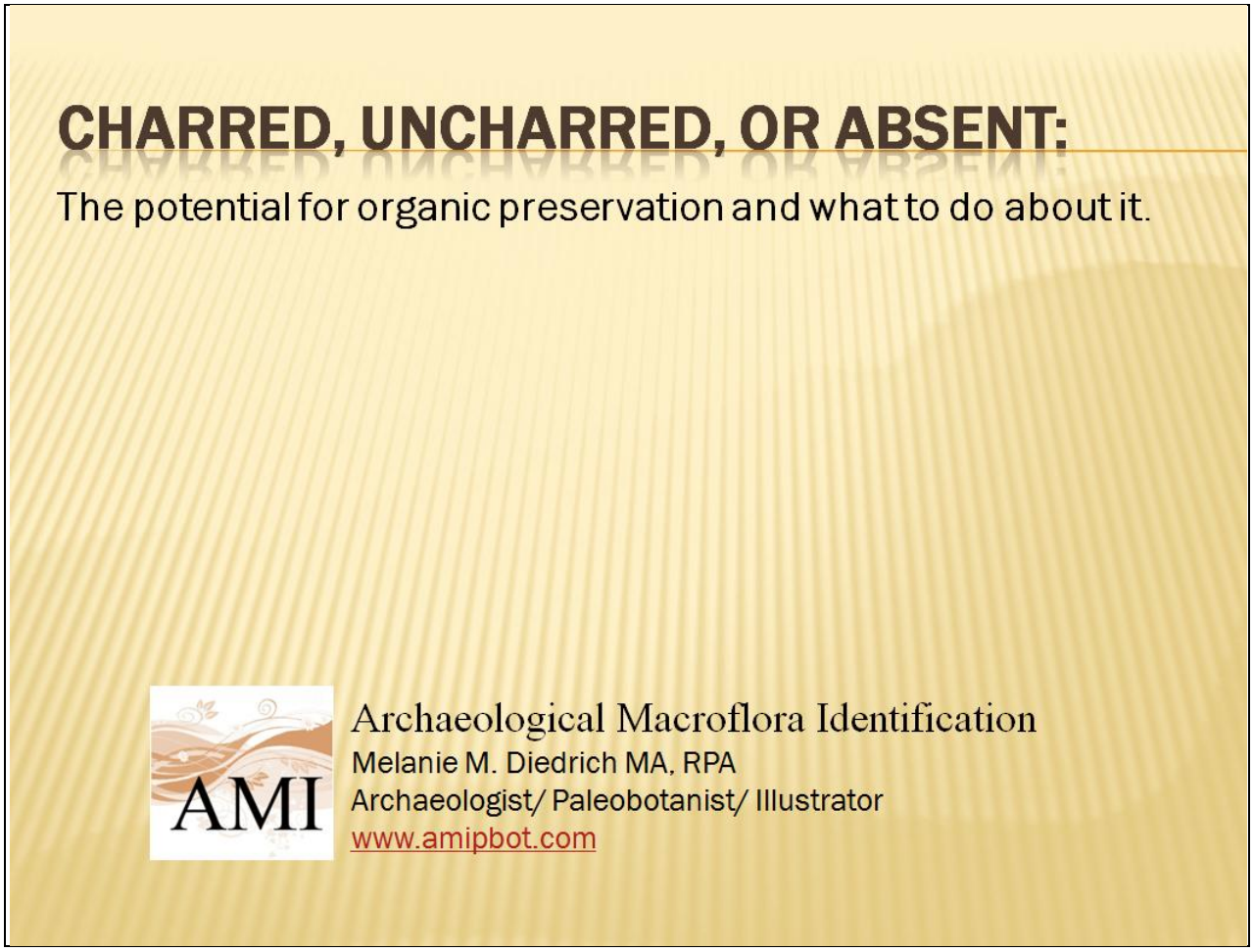
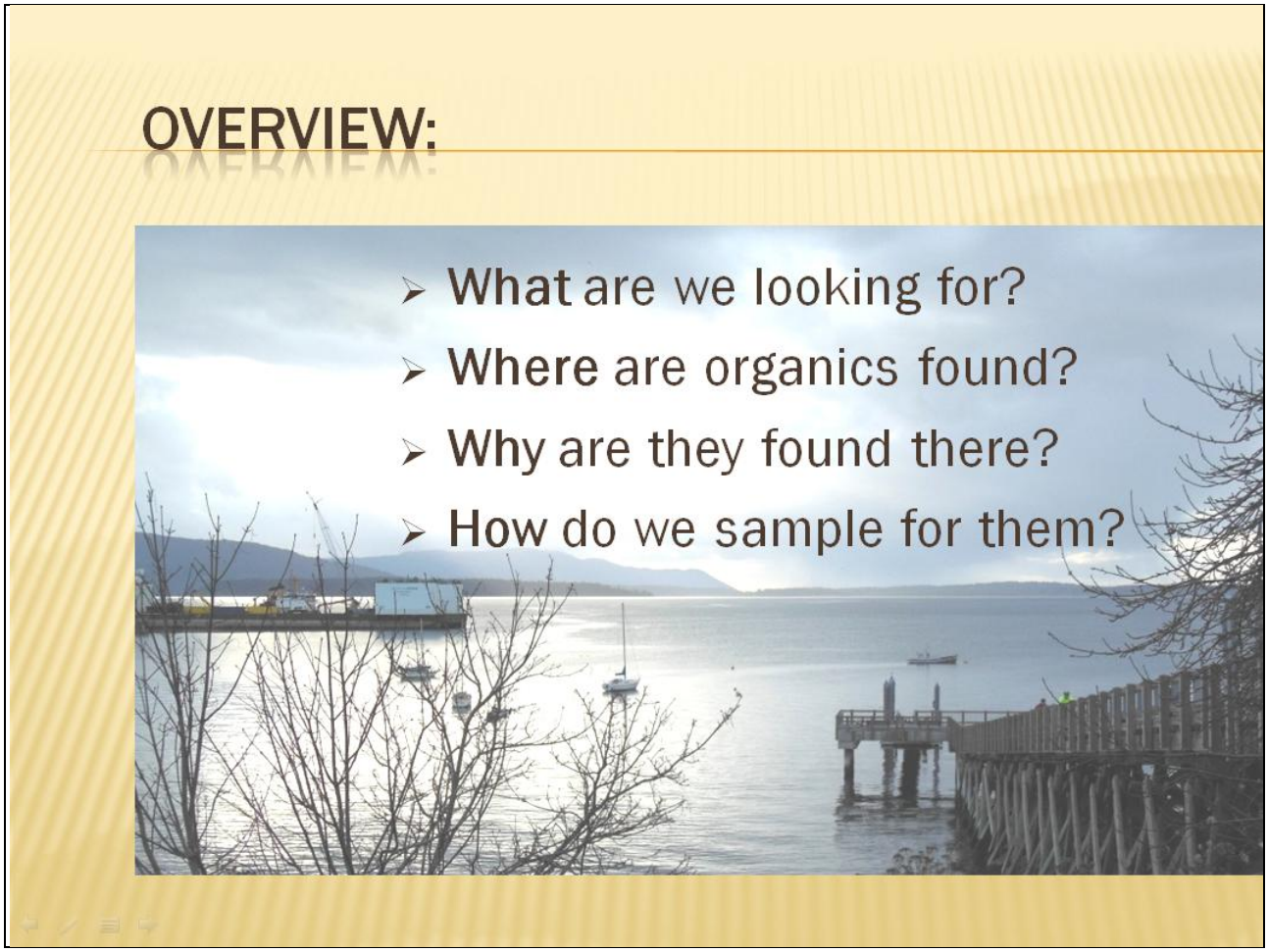


1. I am Melanie Diedrich, of Archaeological Macroflora Identification (AMI) based in Olympia, WA. I provide soil processing services, identification of seeds and other plant remains, as well as artifact illustration.



2. I'd like to provide a general overview of organic preservation potential and sampling methodology. **I'll be answering these questions:** What are we looking for? Where are they found? Why are they found there? And how do we sample for them?

3. **What are we looking for?**
   Charred (or carbonized) material: most archaeologists are familiar with this and routinely collect for C14 dating.
   Uncharred preserved organics: Not so commonly sampled for, this category can be divided into two:
   - Naturally deposited material, which can show environmental change.
   - Culturally deposited material, which can tell us a lot about the people who lived there; however, cultural deposition can sometimes be difficult to nail down unless associated with other cultural material.

WHERE ARE THEY FOUND?

- *DRY SITES*:
  - Primarily carbonized material, associated with hearth features, steaming ovens, & house-floors or structures.
  - Rock shelters
  - Sealed storage pits

Keatley Creek, House Pit (HP) 7
(Hayden 2003: Vol III CDROM)

4. **Where are they found?**
   - *Dry sites* – Charred is most common, and Uncharred in the right environments.
   - Here is an example from Keatley Creek, in British Columbia. This shows a charred support pole found in House Pit 7.

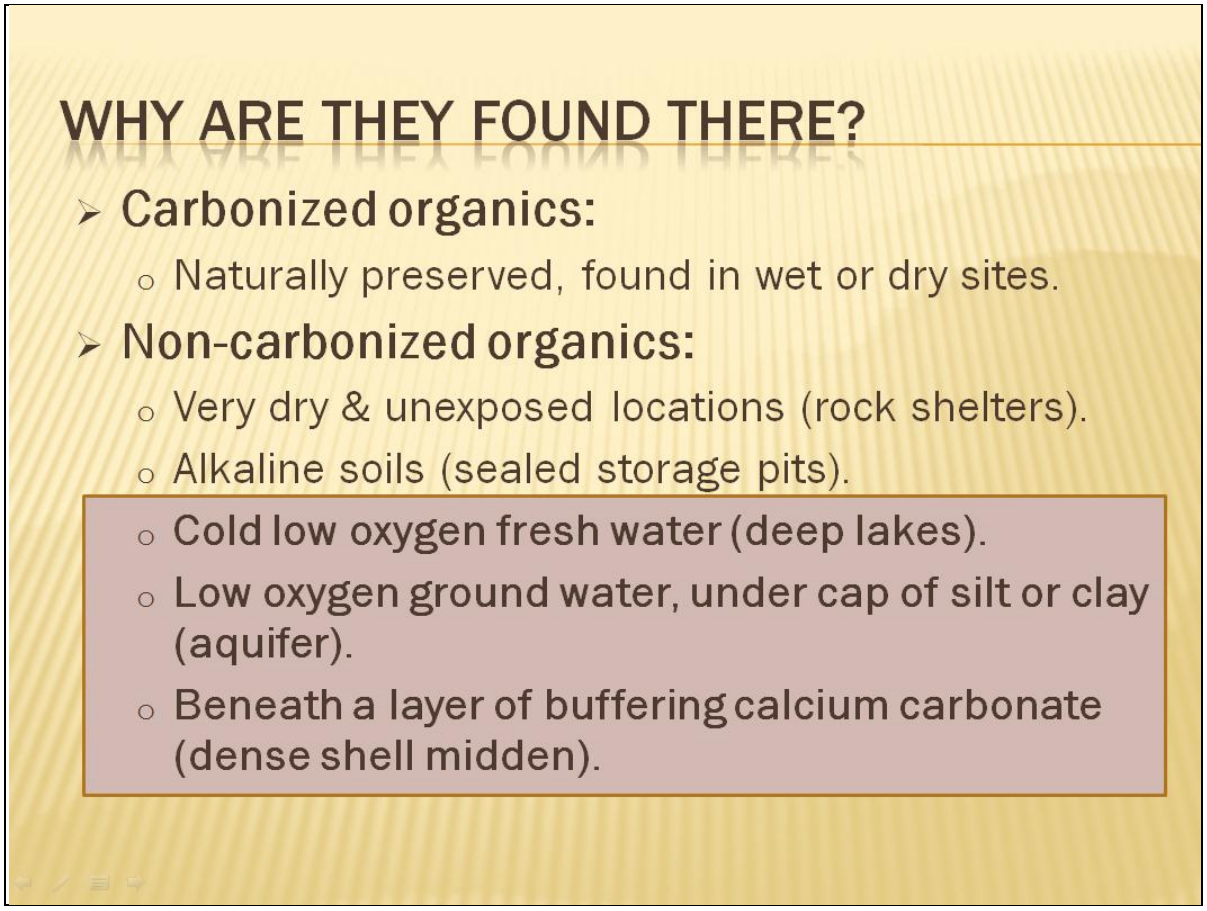
WHERE ARE THEY FOUND?

- *WET SITES*:
  - Both carbonized and non-carbonized material
  - Preserved material associated with middens, sealed storage pits, food- and materials-processing, housing and hearths.

Hoko River Archaeological Site Complex
(Barclay, Malmin, and Croes 2005)

Qwu?gwes / Mud Bay
(Basketry photo courtesy Dale Croes)

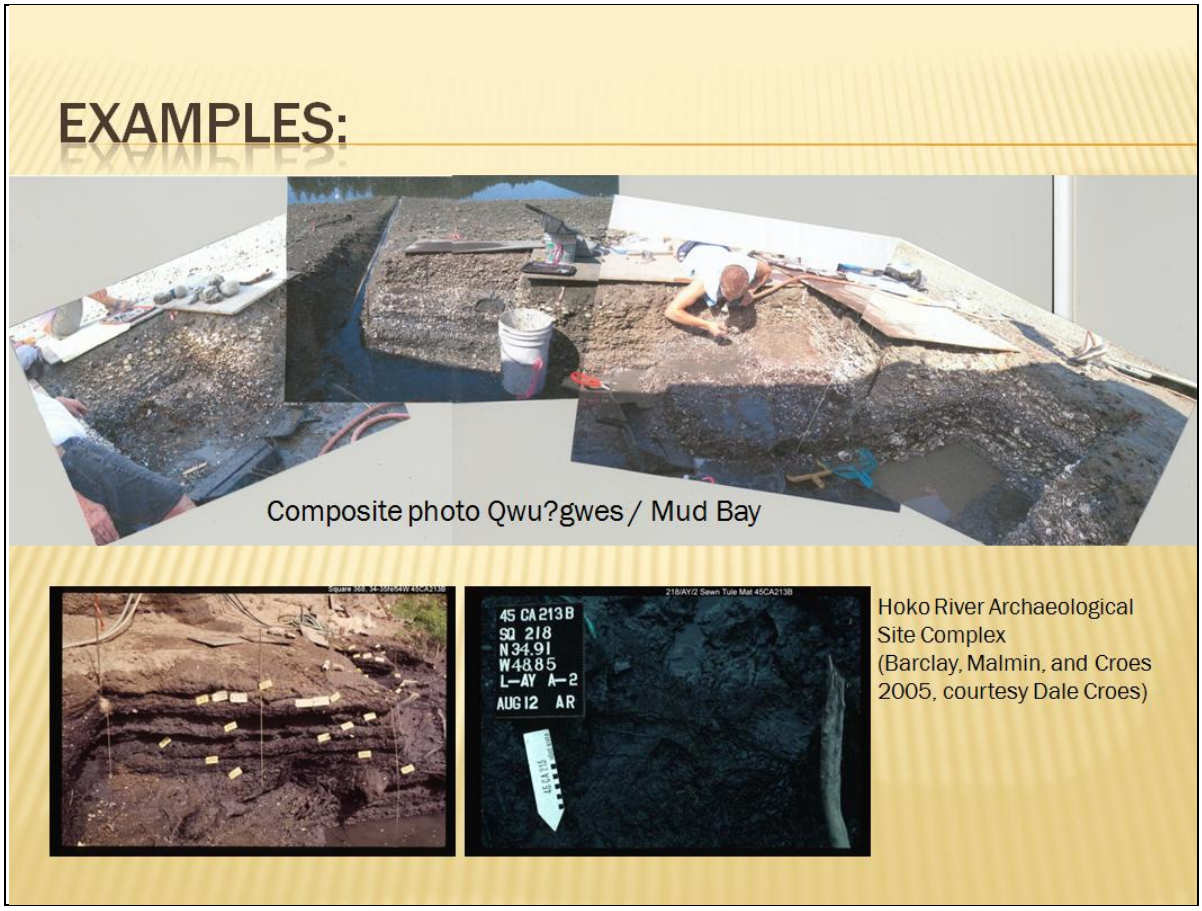
5. Where are they found?
   - *Wet sites:* within the right environments, many seeds, nuts and nutshells, basketry, and wood material can remain well-preserved.
   - On the left, a unit at the Hoko River Site, which shows the house floor of packed charred material; On the right a preserved basket fragment, hazelnut shells, and small seeds from Qwu?gwes.
   - **Some well-known sites** from both wet and dry include: Keatley Creek, Marmes Rock Shelter, Avey's Orchard, Chief Joseph Dam Project, Ozette, Hoko, Cathlopotle, Qu?gwes, and Sauvie Island.
   - All of these sites and others have shown that, with proper sampling, charred and preserved organics can potentially provide invaluable archaeological data, such as:
     - Resource use
     - Social status
     - Landscape modification
     - Environmental change



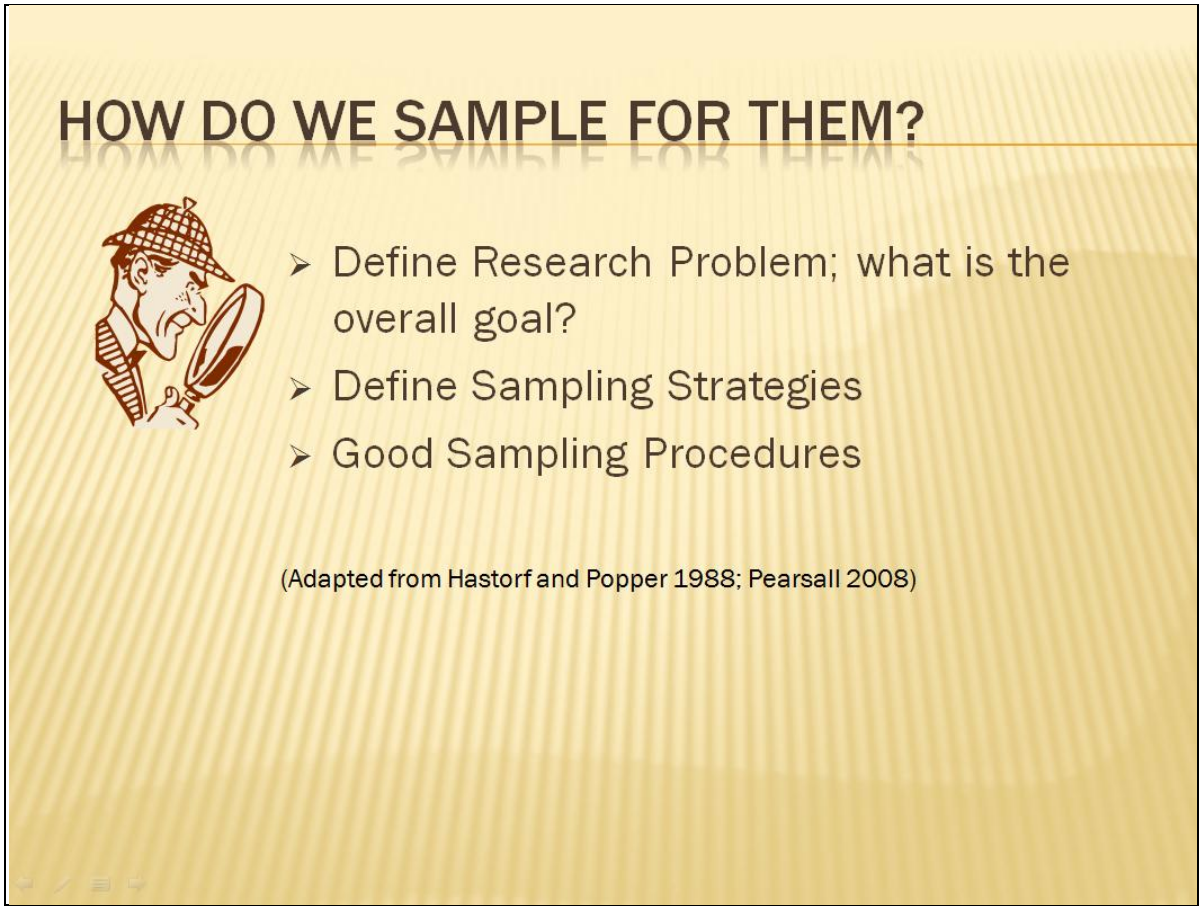
6. **Why are they found there? Chemistry.**
   - Charred material is naturally preserved, found in both wet and dry sites.
   - Uncharred organics require environments that limit decomposition. I've listed them here: (read aloud) **The highlighted bottom three** shown here are more commonly found west of the Cascades.

   If a site lacks at least one of these environments, preserved uncharred organics are unlikely to be present. Also important to note: when bioturbation from insects, roots, or rodents is evident, age and stratigraphic origin may be difficult to establish.

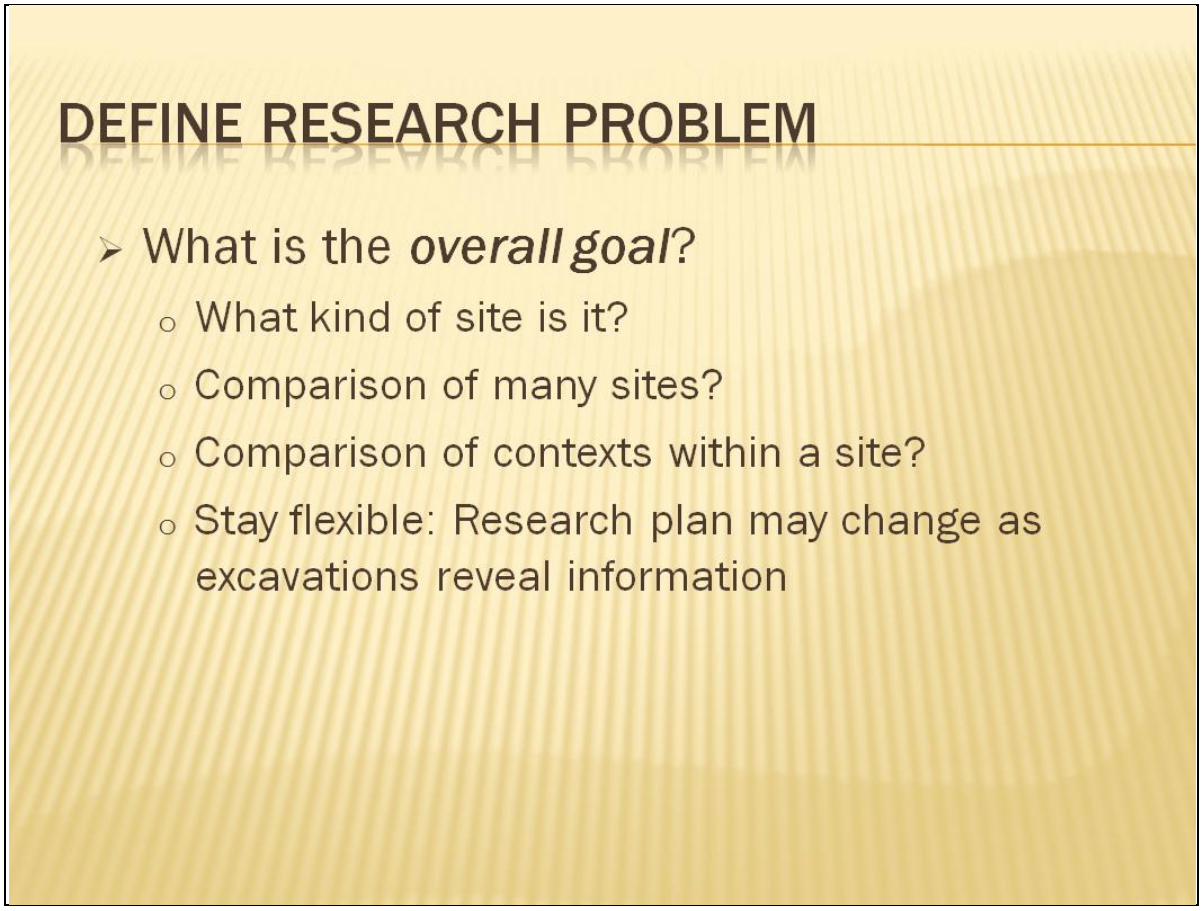
   Bogs. You may have noticed I've left bogs off this list: Bogs are another type of wet site for archaeology, but they have a completely different type of chemistry and with entirely different preservation. Maybe there's a presentation on bogs next year, or down the road...



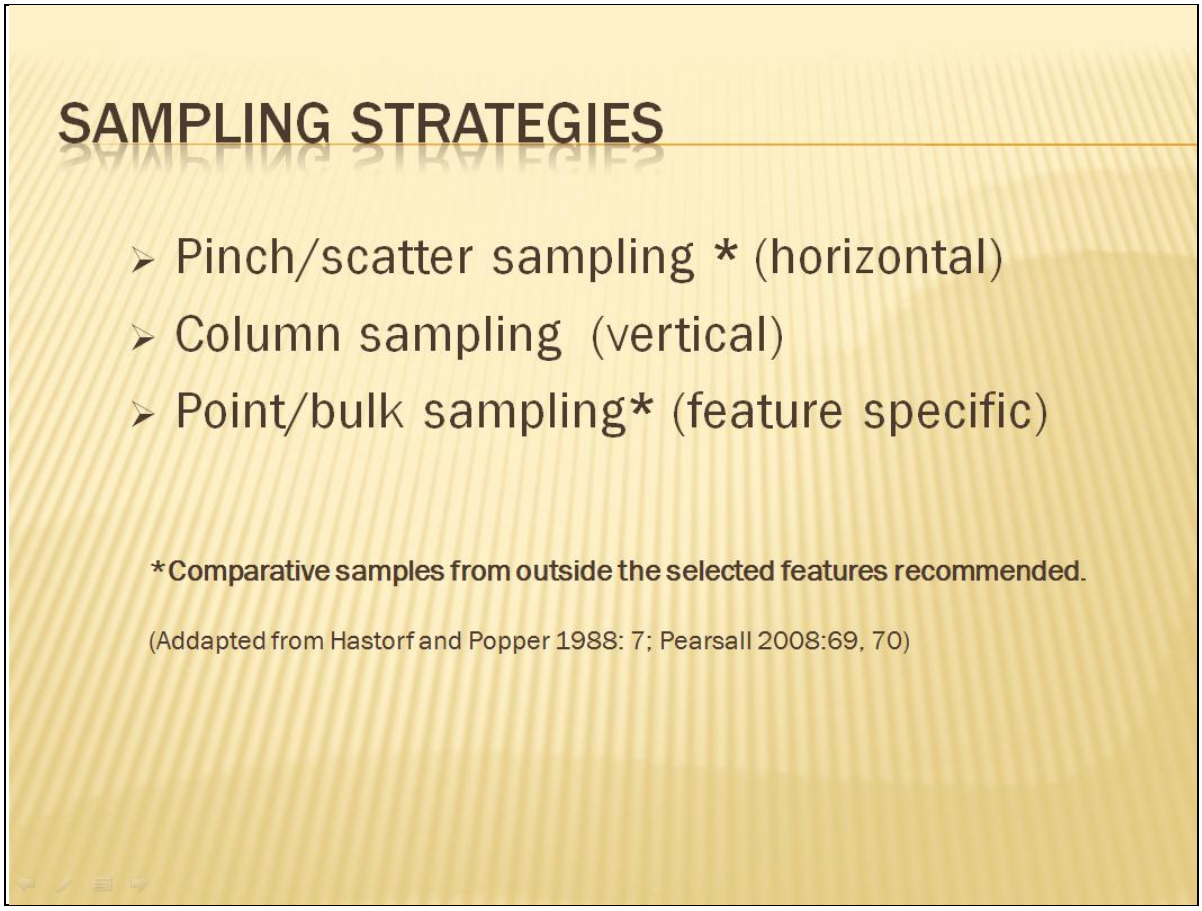
7. **Examples, Sites with Preserved Uncharred Materal:**
   - At top is a composite view of the wet site at Qwu?gwes, showing the vegetation layer, a darker layer located below the dense shell midden & sediment cap. This site included an aquifer, providing cold low oxygen water thru the base, increasing preservation. The vegetation layer is seen all across the site as shown.
   - At the bottom left is a view of a unit wall at the Hoko site, showing the many silt layers laid down by many flood events; and to the right a sewn tule mat found in the mud below.



8. **Okay, so this half of the presentation will cover the 4th and last question: How do we sample for them?** I'll do this by covering these three points.

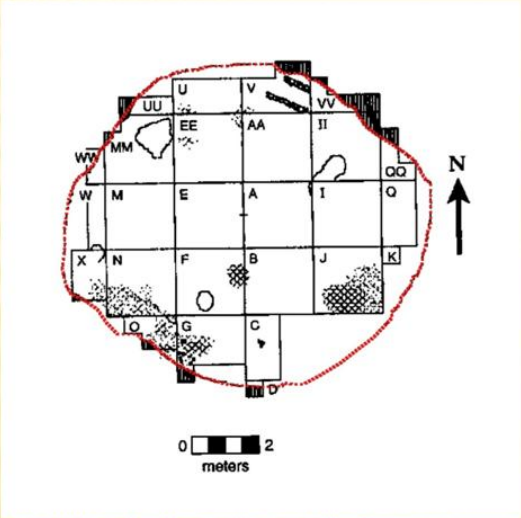


9. **Define Research Problem** – All good PIs do this prior to excavation, but here I want to present ideas with a bent toward organic preservation sampling.
    - Good to know **what kind of site** you have – requires preliminary testing, such as auger testing, cores or 50xs. If you do have preservation environments, then consider the next few points.
    - **Comparison of many sites** – Requires research into the sampling methods used at other sites in the region.
    - **Comparison of contexts within a site** – Requires prior and ongoing evaluation of:
        - On-site preservation potential,
        - The number of contexts within a site, and
        - Possible disturbance.
    - **Stay flexible**. *If* sampling is processed apace with field work, the research plan could change… a different sampling strategy, or a combination of more than one, might be a better approach.



10. **Sampling Strategies** – These 3 strategies will affect the overall picture of a site in different ways.
    - Pinch/scatter (horizontal aspect)
    - Column (vertical aspect)
    - Point/Bulk (feature-specific)

PINCH/SCATTER SAMPLING



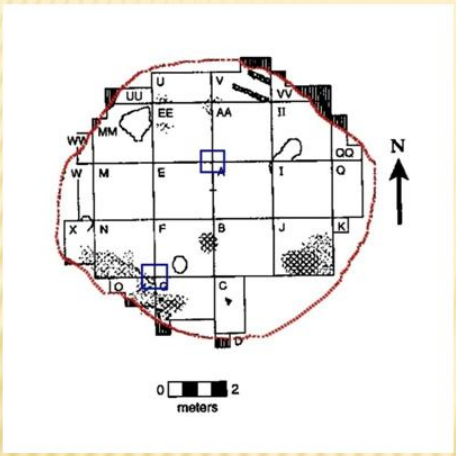
Adapted from Keatley Creek, House Pit (HP) 3
(By Permission, Hayden 2003: Vol. III CDROM)

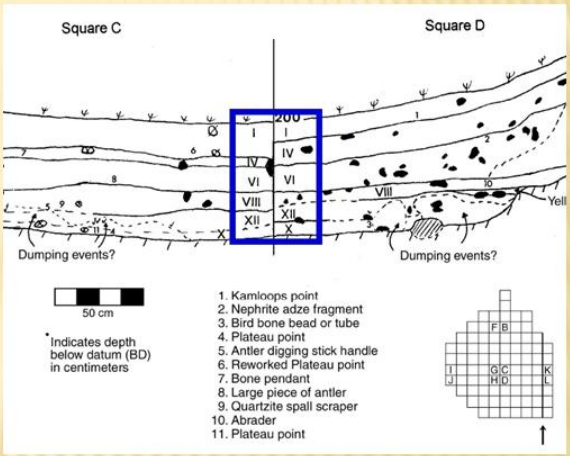
Horizontal: Samples taken from each unit (A-WW) at specific horizontal contexts.

11. **Pinch/scatter sampling** – Small amounts of soil (pinch samples) are gathered from across the expanse of each floor level. Each sample bag is made up of the horizontal context of **a unit** and combined, creating what Pearsall refers to as a composite sample. In a large house floor, as shown here, each unit, here labeled A – WW, can be considered a separate context.

    - This sampling strategy creates **standardized soil volumes**, aiding statistical comparisons.
    - AND the Grid can be placed to include a sample from outside the activity area for comparison. This is important to accurately establish cultural deposition & a statistical baseline.

COLUMN SAMPLING



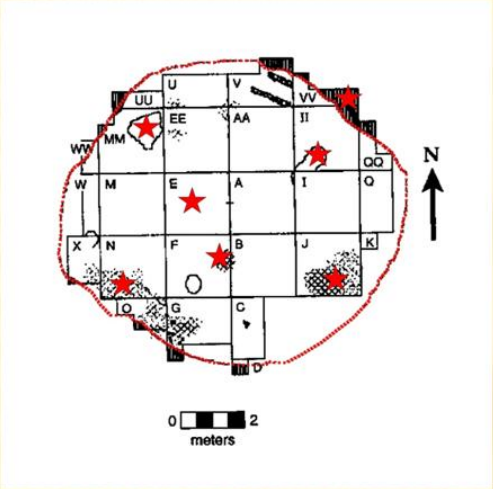


Vertical: Samples taken from unit corners/balks, specific to each stratigraphic layer.

Adapted from Keatley Creek, left HP3, right HP9
(By Permission, Hayden 2003: Chapters 4, 7, Vol. III CDROM)

12. **Column sampling** – a unit corner 'balk' left in place until the entire excavation unit is complete, then extracted at discrete floor level changes, when these changes clearly visible, rather than arbitrary 10 cm level. This type most often used; however, because of variation in strat depth, it may be difficult to extract standard soil volumes.

POINT/BULK SAMPLING



Adapted from Keatley Creek, House Pit (HP) 3
(By Permission, Hayden 2003: Vol. III CDROM)

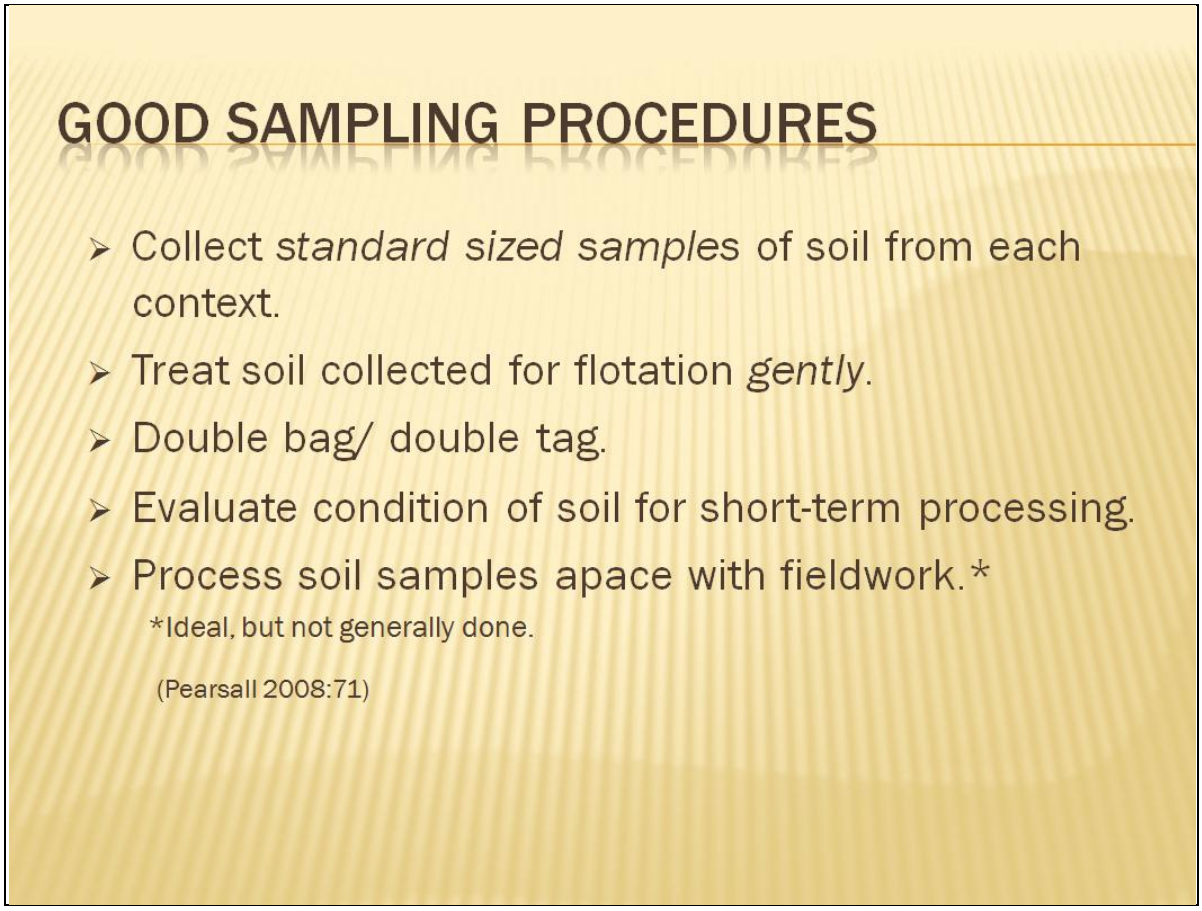
Feature-specific sampling. *

Ideal: Many features within a house-feature, many house-features within a site.

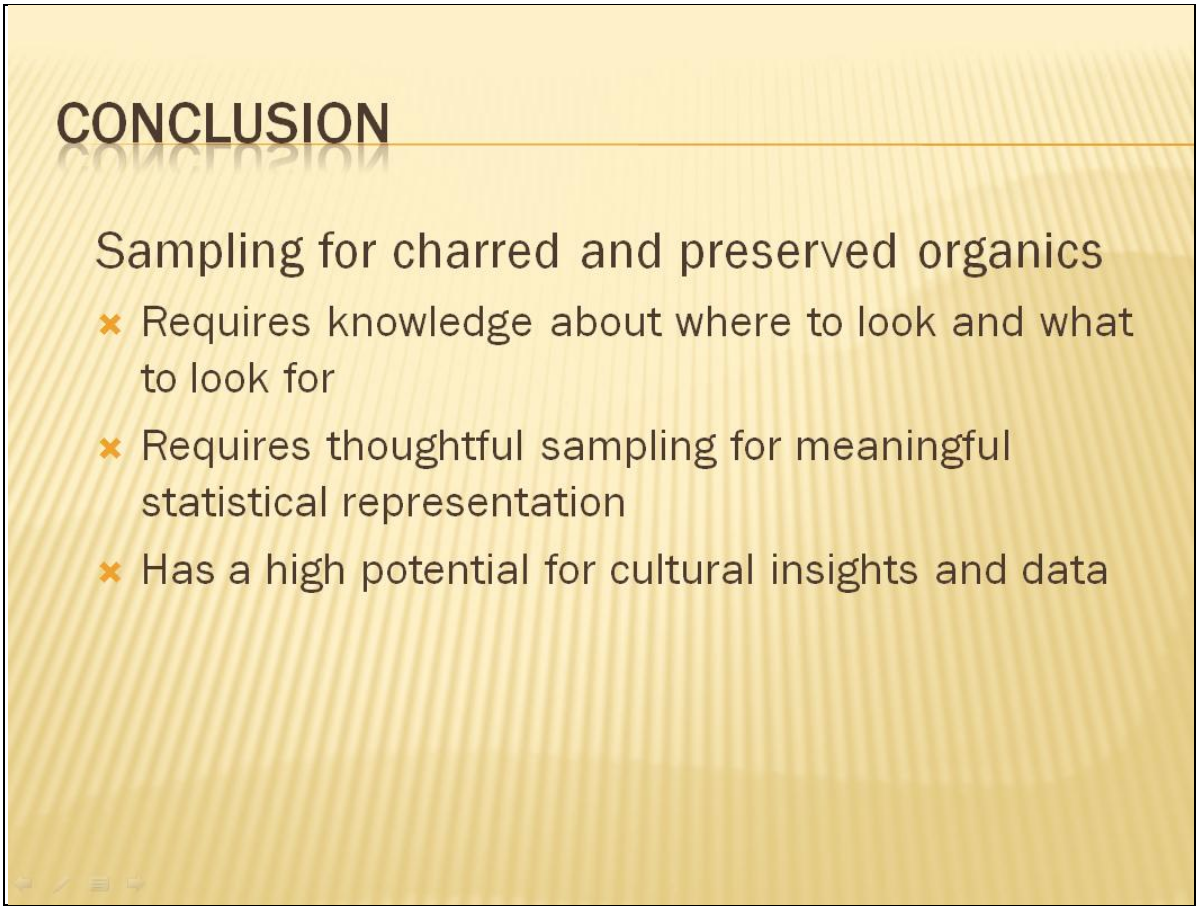
Reality: One or two isolated features within a site.

*Sample outside feature for comparison.

13. **Point/bulk sampling** – specific samples are taken at each level to obtain detailed information on activity areas, small features, or inside/under vessels.
    - Again, it is a good idea to include a sample from somewhere outside the feature or features, for statistical comparison.
    - Ideal/ Reality. With little to compare to, you would be looking at a presence/absence analysis here.



14. **Good Sampling Procedures** (Pearsall 2008:71)
    - Standard sized samples – 1 Liter is a good workable size, not always possible when working stratigraphically.
    - Treat samples gently – both charred and uncharred material is fragile.
    - Double bag/ double tag – permanent sharpie ink on Ziplocs is not so very permanent.
    - Evaluate condition of soil:
        - Dry flotation, open bags or spread on trays for drying.
        - Wet-sieving, keep bags sealed.
        - Keep from mold; process soon after collection.
    - Ideally, it's good to process soil samples apace with fieldwork; this allows feedback on recovery to guide size and location of sampling. Unfortunately, this is not generally done.



15. Conclusion

Sampling for charred and preserved organics

- Requires some knowledge of where to look on the landscape, and what you're looking for,
- AND thoughtful sampling strategies for meaningful statistical presentation.

With that in mind, it as a *high* potential for cultural insights and archaeological data – It's worth doing!

REFERENCES

Barclay, Matt, Audin Malmin, and Dale Croes

2005 *Hoko River Archaeological Site Complex Digital Image Archive.* Digital CD, Version 1.0. WSU Press. (Permission to use courtesy Dale Croes).

Croes, Dale R.

1995 *The Hoko River Archaeological Site Complex: The Wet/Dry Site (45CA213), 3,000-1,700 B.P.* WSU Press, Pullman.

Hastorf, C. A., and V. S. Popper (editors)

1988 *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains.* University of Chicago Press, Chicago.

Hayden, Brian (Ed.)

2003 *The Ancient Past of Keatley Creek, Volume III: Excavations & Artifacts.* Digital CD ROM. Simon Fraser University, Burnaby. (Permission to use courtesy Brian Hayden)

Lepofsky, D., M. Moss, and N. Lyons

2001 The Unrealized Potential fo Paleoethnobotany in Archaeology of Northwestern North America: Perspectives from Cape Addington, Alaska. *Arctic Anthropology*. 38 (1), 48-59.

Moss, M. L.

2004 *Archaeological Investigation of Cape Addington Rockshelter: Human Occupation of the Rugged Seacoast on the Outer Prince of Wales Archipelago, Alaska.* University of Oregon Anthropological Paper No. 63. Department of Anthropology and the Museum of Natural History, University of Oregon, Eugene.

Pearsall, D. M.

2008 *Paleoethnobotany: A Handbook of Procedures, Second Edition*. Emerald Group Publishing Limited, Bingley.