Dynamic Diets: New insights into faunal resource use at Monticello Plantation.

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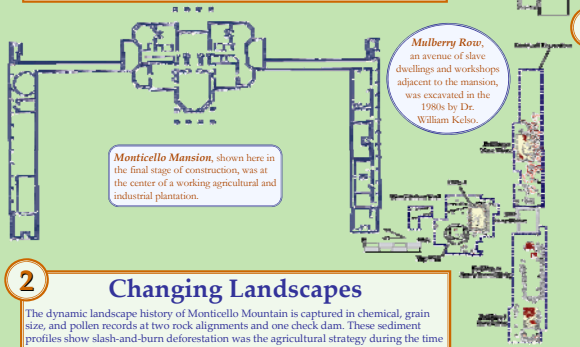
1 Overview

Between the third quarter of the 18th century and the second quarter of the 19th century, Monticello was home to Thomas Jefferson and over two hundred enslaved field hands, craftspeople, and domestics.

Monticello slaves used hoe-based swidden methods to grow tobacco for Atlantic markets until the 1790s, when Jefferson shifted to the plow-based cultivation of wheat. Changes in the cash crop and planting regimes led to alterations in agricultural ecology, slave work routines, and settlement organization. In this poster, we investigate Monticello's domestic faunal assemblages with the following questions in mind:

- **Does the consumption of different fauna change through time?**
- **If so, are the trends linked to the late 18th century shift in agricultural practices and corresponding changes in the plantation landscape?**



Mulberry Row, an avenue of slave dwellings and workshops adjacent to the mansion, was excavated in the 1980s by Dr. William Kelso.

Monticello Mansion, shown here in the final stage of construction, was at the center of a working agricultural and industrial plantation.

2 Changing Landscapes

The dynamic landscape history of Monticello Mountain is captured in chemical, grain size, and pollen records at two rock alignments and one check dam. These sediment profiles show slash-and-burn deforestation was the agricultural strategy during the time when tobacco was the staple crop (**Phases 1 and 2**). The most significant change came with the move to a more diversified agriculture scheme centered around wheat (**Phase 3**), which resulted in permanent fields, rotation of crops, and the total loss of forest along Monticello's eastern and southern slopes.[1]

Phase	Date Range	Dynamics
5	1900-present	Reforestation complete. Tourists replace crops.
4	1830-1900	Spatial extent of plow cultivation declines. Heavy erosion continues.
3	1795-1830	Extensive permanent fields. Crop diversification. Heavy erosion as a result of deeper plowing.
2	1770-1790	Deforestation in progress. Hoe cultivation leads to modest erosion.
1	1740-1770	Minimal forest disturbance. Limited cultivation of tobacco using swidden methods.

3 The Assemblages

Assemblages from five Mulberry Row slave dwellings (Buildings *l*, *o*, *r*, *s*, and *t*, shaded at left) and from the Western Kitchen Yard adjacent to the main house were analyzed in light of artifactual and contextual data generated by the Digital Archaeological Archive of Comparative Slavery (DAACS).

Each site is divided into "phases," which are groups of assemblages that are inferred to be broadly contemporary. Only assemblages with mean ceramic dates from the period of the Jefferson family's occupation of the mountain (c. 1770-1826) were included in this analysis. Since screens were not used during excavations, very few fish remains were recovered and therefore fish were not included in this analysis. All faunal material was catalogued by The Colonial Williamsburg Faunal Laboratory and then integrated into DAACS.

4 Methods

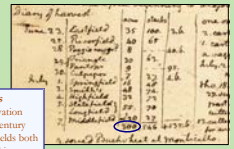
Measuring Taxonomic Abundance

Our analysis uses abundance indices, computed using numbers of identified specimens (NISP). We use pig NISP as the denominator value for the index because zooarchaeological and documentary evidence agree that salt pork was the meat staple of the slave diet in the Chesapeake beginning in the late seventeenth century.[3,4] Hence, for a given taxon, the index is:

$$TaxonIndex_p = \frac{TaxonNISP}{TaxonNISP + PigNISP}$$

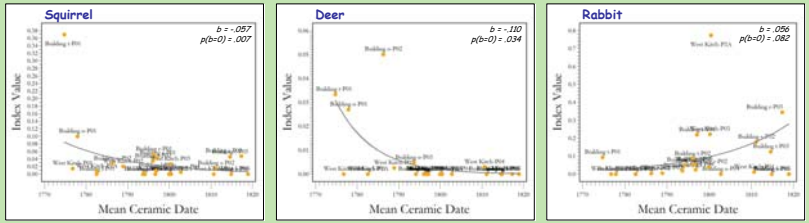
Generalized Linear Model

In order to identify temporal trends in index values, we plot them against mean ceramic dates. Change, or lack thereof, is evaluated statistically by fitting generalized linear models with negative-binomial errors and a log link function. We use pig NISP values as the offset in the models. To plot the fitted trends, we re-express the predicted counts as index values.



Historical Documents

Although the shift to wheat cultivation was gradual, the end of the 18th century marked a significant increase in fields both cleared for and sown in wheat. This excerpt from Thomas Jefferson's Farm Book records details about the 1796 wheat harvest at Monticello. Note the large number of fields sown in wheat, totaling 300 acres.[2]



5 Emerging Patterns

Squirrel

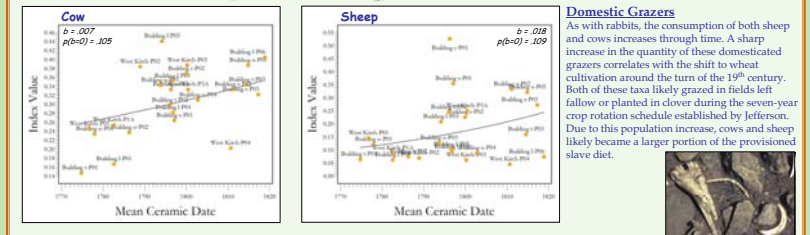
The squirrel index graph illustrates a decline in the consumption of squirrels on the mountaintop through time and correlates with the gradual deforestation of the plantation.

Deer

Similar to the squirrel index, the consumption of deer declines through time. While never a large component of diet, this trend suggests a relationship with habitat or population depletion.

Rabbit

Unlike other wildlife on the mountain, rabbit consumption increases through time. As fields were cleared and periodically left fallow, land hospitable to rabbits, and therefore rabbit hunting, increased. However, a former slave recounts how rabbits were raised as food for Monticello residents. Whether rabbits in the assemblages above were trapped or raised or both will be a focus of future research.



Domestic Grazers

As with rabbits, the consumption of both sheep and cows increases through time. A sharp increase in the quantity of these domesticated grazers correlates with the shift to wheat cultivation around the turn of the 19th century. Both of these taxa likely grazed in fields left fallow or planted in clover during the seven-year crop rotation schedule established by Jefferson. Due to this population increase, cows and sheep likely became a larger portion of the provisioned slave diet.

Other Trends

Although the consumption of chickens varies between sites, our analysis does not show a significant change in chicken quantities through time. Since chickens were likely raised in the yards along Mulberry Row, their populations were not impacted by changes to the greater plantation landscape and therefore were a reliable source of food.

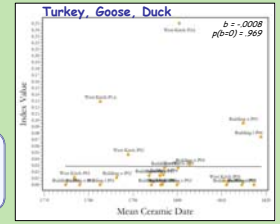
The presence of opossums is also relatively constant through time. Able to adapt to a variety of habitats, opossums, like chickens, were likely a fairly reliable food source. Furthermore, opossums are a natural chicken predator, so their frequency may reflect a correlation with the stable chicken population.

6 The West Kitchen Yard

Recent analysis of the features and deposits in the West Kitchen Yard area suggests that those assemblages are predominantly Jefferson household deposits.[6] However, as seen in this faunal analysis, the taxonomic abundances of the West Kitchen Yard assemblages are comparable to those of the Mulberry Row slave dwellings. This may indicate that the West Kitchen Yard deposits are comprised of a mixture of Jefferson household and enslaved worker refuse.

One subtle difference between the West Kitchen Yard and Mulberry Row deposits is visible in the relatively large proportion of turkeys, geese, and ducks found in the West Kitchen Yard. Historical documents indicate that these taxa were purchased and consumed by the Jefferson family, a trend which appears to captured in this faunal analysis.

"Old Master had a great many rabbits...Had a rabbit house (a warren) – a long rock house...used to eat 'em at Monticello."[5]
-Isaac, tinsmith



7 Discussion

The taxonomic abundance data suggests answers to both of our research questions. There is a marked change through time in the abundance of most of the taxa we investigated and that shift does appear to correlate with our understanding of the elaborate landscape modifications necessary for the production of wheat.

In Short

- Changes in slave diet correlate with the shift from tobacco to wheat cultivation and the accompanying changes to animal habitats.
- The West Kitchen Yard includes Jefferson household deposits, yet only subtly differs from the Mulberry Row assemblages.

Future Research

Future analysis made possible by NEH funding will incorporate deposits and assemblages from the remaining structures along Mulberry Row. We also plan to estimate changes in body size of domestic mammals to increase our understanding of the impact of a changing ecology on the diet quality of large grazers. Finally, we hope to evaluate the impact of provision diet quality and taphonomic processes on anatomical part frequencies.

References

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[2]Jefferson, Thomas. Farm Book 1766-1824 [electronic edition]. *Thomas Jefferson Papers: An Electronic Archive*. Boston, Mass.: Massachusetts Historical Society, 2003, p.54. Available http://www.thomasjeffersonpapers.org/

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[4]Graham, W., C. L. Hudgins, C. R. Lounsbury, F. D. Neiman, and J. P. Whittenburg. Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake. *William and Mary Quarterly* 64:451–522. 2007.

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[6]Clites, Elizabeth and Lynsey Bates. Whose Trash is This? Unraveling Ethnostratigraphy on Monticello Mountain. Poster presented at the Annual Meeting of the Society for American Archaeology, 2008.

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