Ancient agriculture of the Perry Mesa Tradition in Central Arizona: interpreting ancient land-use and modern landscapes

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Abstract:
Recent survey of large segments of Perry Mesa in the Agua Fria National Monument revealed a previously undocumented agricultural system. The newly discovered fields are associated with archeological sites of the Perry Mesa Tradition and span hundreds of acres, incorporating many dry-land water and soil control features. These features are represented by a range of types including terraces, check-dams and areas cleared of stones to grow a variety crops from native and imported agave species, to calicheures such as maize and squash. The existence of these features has implications for our understanding of the human use of the landscape, as well as the immediate prehistoric community and their interactions with the surrounding cultural groups. Our ongoing research is focused on structures, rather than on a landscape scale approach. This has resulted in a biased view of the human use of the landscape, as well as a biased view of the human impact on landscapes.

The findings resulting from the surveys of 2007 have important implications for interpretations of the social structure and interaction of the interactions between the population of Perry Mesa and neighboring populations.

Wilcox propose that agricultural success on the mesa was limited, creating the need to raid the Hohokam to the south to augment their subsistence (Wilcox 2007).

Wilcox suggest that the configuration of aggregated villages were a defensive strategy to defend retaliatory attacks by offended Hohokam.

Our findings suggest that a large portion of the population was living in scattered single family homes around central villages with extensive field systems surrounding them.

At La Plata there are as many rooms in the isolated structures as there are in the pueblo itself. At Pato, there are at least as many rooms in the isolated structures as in the pueblo. Many of the isolated structures had well developed middens suggesting substantial growth and long-term use. Additionally, ceramics found at these sites is similar to that found around the village, suggesting that the isolated structures were inhabited contemporaneously with the pueblos.

The discovery of landscape-scale manipulations has important implications for the modern landscape of Perry Mesa. Our initial studies have shown that some anthropogenic changes have left legacies at some scales and may not have been limited to a third as many rooms in the isolated structures as in the pueblo. Many of the isolated structures had well developed middens suggesting substantial growth and long-term use. Additionally, ceramics found at these sites is similar to that found around the village, suggesting that the isolated structures were inhabited contemporaneously with the pueblos.

Herbaceous communities compared between areas cleared of stones for agriculture and areas naturally clear of stones do not seem to have been altered.

Woody communities have responded to clearing of stones.

Terraces, however, appear to have created a legacy in the herbaceous communities.

Our archaeological surveys conducted over the past year began by following the traditional pattern; we initially surveyed La Plata Mesa since we figured that was where people had been. Control Mesa was assumed to be relatively free of human constructs. Survey found that though there was no village, there were houses and fields covering the surface. So much for a control area free of human influence!!

The number of woody individuals increases with the amount of rock cleared. The relationship between the amount of rock cleared and the number of woody individuals is significant (p = 0.01).

Figure shows the relationship between the amount of rock cover and the number of woody individuals for the first 400 meters of transects originating from areas cleared of stone. The number of woody individuals increases with the amount of rock cover.

Implications of this study for landscape management include, but are not limited to:
1) the necessity of recognizing anthropogenic cultural landscapes
2) determining management strategies to take them into account
3) Exploring ways to integrate modern ecology with past and present human actions

Survey areas

Archaeological maps such as those of Pueblo La Plata suggest that human activities were limited to the structures and their immediate environs. Our archaeological surveys conducted over the past year began by following the traditional pattern; we initially surveyed La Plata Mesa since we figured that was where people had been. Control Mesa was assumed to be relatively free of human constructs. Survey found that though there was no village, there were houses and fields covering the surface. So much for a control area free of human influence!!

Total area surveyed around Pueblo La Plata (including Control Mesa): 200 hectares

Results on La Plata Mesa
89 hectares surveyed:
49 loci including:
44 structures
15 multi-roomed structures
26 single-room structures
3 three walled "carport" structures
10 extensive agricultural fields
5 ephemeral structures
6 ca. 100 terrace feature
4 agave fields
2 reef living agave populations

Results on Control Mesa
110 hectares surveyed:
15 structures
2 multi-room structures
8 single-room structures
5 ephemeral structures
3 extensive agricultural fields

Results on Pueblo Pato
95 hectares surveyed:
42 loci including:
38 structures
21 multi-room structures
11 single-room structures
8 unidentified structures
3 rock rings
22 terrace features
14 extensive agricultural fields
10 ca. 200 terrace feature
8 agave fields
5 reef living agave population

RESULTS: Non-metric Multidimensional Scaling Ordination

TERRACES

NATURAL TERRACES ANTHROPOGENIC TERRACES

NATURAL TERRACES

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