Large-scale Perspectives on Subsistence Stability Across the Northern Great Basin

Andrew Ugan and Laura Harold
Far Western Anthropological Research Group, Inc.

1. Zoological studies in the western U.S. often emphasize variability in the record, with changes in faunal composition shifting human population size, social context, and environmental productivity. The logic has been abundance indices, which measure relative frequencies of larger versus smaller animals such as the Artiodactyl Index (AI), with analyses focusing on collections from one or a few sites (Figure 1). Here we ask what a more inclusive, regional analysis reveals.

2. To develop a regional picture, we calculate abundance indices for 289 dated components across the northern and western Great Basin and surrounding areas. We use data from the Ruby Pipeline project as a basis and complement it with zoological data from other sites throughout the region (Figure 2: Table 1).

3. Looking at the regional data, we see that small mammals dominate early Holocene components (Paleoarchaic/pre-Mazama). Large animals then increase, but abundance indices vary little from the Early Archaic period onward (Figure 3).

4. These changes broadly mirror climate models emphasizing dramatic shifts in Terminal Pleistocene and early Holocene climate, such as mean annual temperature reconstruction from Homestake Cave (Figure 4a) and at least one measure of northern Great Basin demographic change from the Ruby Pipeline project (Figure 4b). The shift coincides with other major transitions, such as the widespread use of ground stone.

5. Trends in Great Basin abundance indices mask massive underlying variability (Figure 5). Similar trends and variability characterize another regional dataset from the Wyoming Basin (Figure 5b).

6. OBSERVATIONS

Regional trends are inconsistent with models of human overhunting and resource depression, particularly those emphasizing peak human population size late in time. Large game frequency increases or remains steady rather than declining.

The predominance of small game in the Paleoarchaic runs counter to common expectations of high energetic returns and a big-game focus during that period.

The influence of climate is hard to assess given the coarse chronology. That warming and drying of the mid-late Holocene would lead to increased reliance on larger animals seems counterintuitive.

Variation within periods readily encompasses local patterns in abundance indices values, whether driven by local environmental changes, overhunting, or other causes. That is, nothing here necessarily refutes local models or interpretations.

Local changes are not seen regionally, with low frequencies of large game in some times and places balanced by greater availability elsewhere. If populations were sufficiently mobile, localized declines in big games may not have had substantial consequences.

REFERENCES

