INTRODUCTION

The Ethiopian branch of the East African Rift contains many obsidian sources (Negash et al. 2020) exploited as far back as 1.7 mya (Galliotti & Mussi 2015). It is an ideal region for studying long-term variation in technological organization and especially raw material procurement in contexts of evolutionary, demographic, and environmental change. At deeply stratified, well-dated sites like Mochena Borago rockshelter (Brandt et al. 2012), archaeologists can examine even subtle shifts in obsidian procurement across broad time periods.

The Baantu obsidian quarry was the primary source of toolstone for Mochena Borago, although artifact types on the surface suggest quarrying and tool manufacture began much earlier than this. Initial sourcing of the Mochena Borago obsidians identified some shifts in obsidian selection. However, a thorough survey of the quarry itself was needed to identify the geochemical fingerprint of the Baantu obsidian.

The quarry sits within a large area of eroded quaternary alluvium. Obsidian outcrops appear throughout, and obsidian artifacts cover the surface.

OUTCROPS AND SURFACE MATERIALS

Outcrops and surface materials were likely exploited for toolstone. The goal of this project was to identify any variation in the Baantu obsidian outcrops and where possible identify imported obsidians.

MATERIALS & METHODS

Survey was made possible by the Wolaita Zonal Tourism offices, especially Ato Girma Dubusho. Our goal was to identify obsidian outcrops (Figs. 1, 2) relative to the surface material covering much of ~1km² Baantu surface area. Large flakes were struck from each outcrop. In some areas surface materials were collected along transects at regular intervals. This amounted to 32 sampled outcrops and 45 bags of lithic materials. Some volcanic tuffs and pottery were also collected.

In the limited time available, I recorded 32 spectra at the Ethiopian Authority for Research and Conservation of Cultural Heritage (ARCCH) in Addis Ababa using a Bruker I1EV Tracer + portable XRF spectrometer. These included:

25 obsidian outcrop flakes (Fig. 2, see Fig. 1 for locations).
6 obsidian artifacts collected from the Baantu surface (Fig. 3).
1 obsidian artifact from Mochena Borago.

RESULTS

K-Means cluster analysis (LMP) revealed five clusters within the 32 samples (Fig. 4). Obsidian outcrop flakes clustered together, and most surface artifacts fell within this range of variation.

Artifacts from cluster 1 likely represent another obsidian source and suggest that obsidian was being imported and quarried at Baantu.

CONCLUSIONS AND FUTURE RESEARCH

The Baantu obsidian outcrops appear to cluster well together and this preliminary comparison suggests that they are distinguishable from imported obsidians. More data are needed to (1) evaluate cluster integrity, 2) identify possible sub-sources, and 3) assess the variety of imported obsidians represented on the surface.

Other obsidian sources in the region should also be sampled and compared to the Baantu outcrops using consistent calibration standards.

By identifying obsidians and reduction strategies at quarries and in well-dated archaeological sequences, archaeologists can address questions of temporal and spatial variation in obsidian procurement across major periods of evolutionary, environmental, and social change.

REFERENCES