Can We Trust Our Finds Distribution Maps?
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Archaeological field surveys, especially of the non-site or off-site kind, aim to produce a detailed, fair and complete record of the archaeological remains detectable on the land surface. However, all practising survey archaeologists agree that many factors conspire to reduce the representativity of the samples collected.

The experimental study of these factors began in the early 1980s, with Stephen Shennan’s attempts in East Hampshire to assess the reliability of his surface collections (Shennan 1985). Two other noteworthy studies, both conducted in the late 1990s, are Robert Schön’s PhD research in Greece (Schön 2002) and Edward Banning’s experimental work on detection curves (Banning 2002).

Unfortunately the lessons of these studies cannot be easily applied to other existing regional field survey databases, such as the ones produced over the past 15 years by the Groningen Institute of Archaeology in central and southern Italy. The main reason for this is that the fact that survey protocols (for both sampling and documentation) are not yet sufficiently standardized to allow a direct comparison across projects.

In order to determine the reliability of our own survey datasets, we felt the need to experimentally test some of the basic assumptions and parameters underlying modern intensive and systematic field walking surveys. We believe that experiments such as these will also contribute towards solving the problem of interregional and international comparability of field walking datasets.

Preliminary Results

Q: What proportion of the surface artefact assemblage is picked up during standard surveys?
A: Between 20 and 35% of Wc 1 and 2 are picked up, despite Wc 4 being much rarer than 1 and 2.

Q: What proportion of the surface artefact assemblage is picked up as a function of the distance to the central line?
A: Contrary to expectation, this proportion is the highest between 25 and 50cm to either side of the central line, possibly as a result of the ‘pen-dulum scan’ used by most walkers.

Q: Does walking more slowly change the composition of the sample?
A: Yes, inexperienced walkers pick up higher proportions of all size classes except the largest (size ≥ 1 cm), probably because they walk slightly slower and their mouth width is too large for the most convenient location of large fragments (~15%). Inexperienced walkers also picked up all fragments smaller than 1 cm, contrary to experimental proof.

Q: How quickly do untrained walkers arrive at efficient recovery rates to be able to take high-quality samples?
A: The graph below shows that an untrained walker learning to recognize and avoid two categories (Wc6 and Wc7) of irrelevant materials within 100m during three weeks of survey.

Q: Do trained and untrained walkers pick up different sizes of artefacts?
A: Yes, untrained walkers pick up higher proportions of all size classes except the largest (size ≥ 1 cm), probably because they walk slightly slower and their mouth width is too large for the most convenient location of large fragments (~15%). Inexperienced walkers also picked up all fragments smaller than 1 cm, contrary to experimental proof.

Q: How much difference is there between the detection curves of experienced walkers?
A: As with untrained walkers, the detection curves of experienced walkers are highest between 25 and 50 cm to either side of the central line, and the lowest at 0 m. Detection curves are steepest and most pronounced if the central line was measured in 25 cm bins and the finds bagged accordingly.

The Experiments of July 2014

In the summer of 2014 the authors have conducted field survey experiments in the Raganello Basin, the Calabrian study area of the Groningen Institute of Archaeology (GIA). Field experiments were conducted to study the variability of standard surface samples in relation to walker abilities and experience (experiment 1), and to determine detection curves for different find categories (experiment 2).

The aim of experiment 1 is to study the variability of recovery rates for individual (experienced and inexperienced) surveyors. The participants were instructed to survey according to the standard GIA sampling strategy (collecting all non-recent artefacts along a 50 m transect at strolling speed). In total, over 280 transects were walked for experiment 1. All finds were processed using a simplified classification that allows us to compare recovery rates of different ware classes, sizes, and colors between the seven participants.

The aim of experiment 2 is to study the detection curve for individual walker transects. Many survey projects assume a minimal swath width of at least 2 m for individual walker transects (e.g. Banning 2002), but we suspected that this estimate was too high. A measuring tape was used to mark the central line of a 50 m length transect, and pegs were used to set out parallel lines of 2 m distance. Walkers first surveyed the transect according to the standard method and marked all artefacts with plastic spoons; then, the distance from each artefact to the central line was measured in 25 cm bins and the finds bagged accordingly.

Further Work

The analysis of the data collected in July 2014 has only just begun. We will present a more thorough analysis at the International Mediterranean Survey Workshop, November 7-8, at Groningen University. A further set of desktop experiments will be carried out on existing GIA survey databases by Ms. Witmer to test assumptions about site detection theory, as well as to evaluate strategies for on-site collection and for measuring the variability of site assemblages.

The results will be submitted for publication in the Journal of Field Archaeology.

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