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ARTICLE

A Report on Recent Archaeological Excavations at Three Island Crossing (10-EL-294), Southwest Idaho

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Abstract

This paper reports on test excavations at 10-EL-294 that were conducted in 2013, 2018 and 2019. Findings support the general conclusions of the original investigations (1986-87) and Eastman's 2010 explorations at Three Island Crossing.

KEYWORDS: Three Island Crossing, Glenns Ferry, Middle Snake River, Mobility, Fishing

Introduction

Three Island Crossing (10-EL-294) is a Late Archaic site located near Glenns Ferry, Idaho – a site that has remained of interest in the archaeology of southern Idaho following the excavations conducted in 1986 and 1987. The range of archaeological data collected during those field projects has been useful in addressing the major research questions that are central to archaeology of the Middle Snake River, namely the scale of anadromous fish use and whether the archaeological record matches the ethnographic model of local subsistence described by Steward (1938, see Gould and Plew 2001). Recent excavations in 2013, 2018, and 2019 have continued these investigations and are formally reported here.

Three Island (10-EL-294) is situated on the north river terrace of the Snake River approximately two miles southwest of Glenns Ferry, Idaho within the westernmost edge of the Hagerman Valley (Figure 1). An area of approximately 100 square meters is located near the center of the terrace some 170 meters west of the Three Island State Park access trail and 10 meters south a fence line separating private

from state park lands. The importance of salmon to the diet of prehistoric foragers on the western Snake River Plain is based upon the accounts of Steward (1938) and Murphy and Murphy (1960). One explicit goal of the initial inquiry of the archaeological site at Three Island Crossing was to assess whether the data supported this economic model as some archaeologists have relied heavily upon historical and ethnographic records (Meatte 1990; Pavesic 1978; Pavesic and Meatte 1980), with little consideration of the limitations of such sources (see Gould and Plew 2001; Kelly 1996). Use of this location occurred over a 400 or 500-year period. Three radiocarbon dates were obtained ranging from 580 ± 180 B.P. (TX 5724) to 970 ± 60 B.P. (TX 5722) (Gould and Plew 2001). The radiocarbon dates and presence of pottery and projectile point types such as the Desert Side-Notched suggest a series of occupations throughout the Late Archaic.

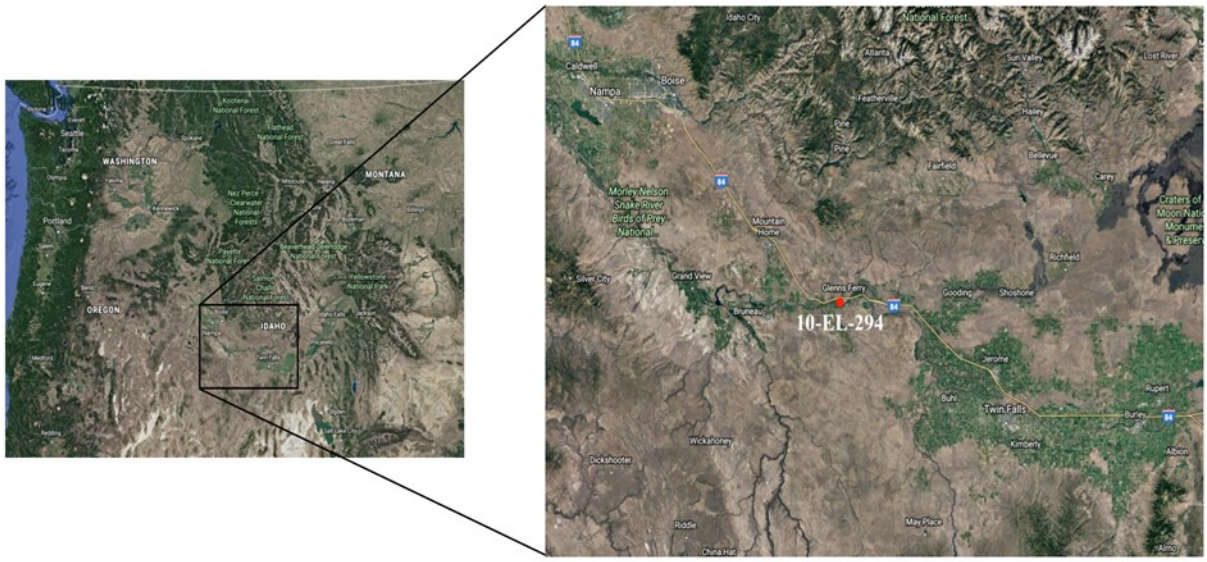

Figure 1. Map of site location within southwest Idaho.

Previous Excavations

1986-1987

Following the discovery of Three Island Crossing (10-EL-294) by Mrs. Esther Pusey, Boise State University excavated two 1 x 2-meter test units in March, 1986. These revealed a dark-stained cultural lens at a depth of 20-30 centimeters (Gould and Plew 2001). Late Archaic projectile points, pottery sherds, and fish remains were recovered. What followed were extensive excavations during the summers of 1986 and 1987. The investigations sought the age and nature of the occupations; the depositional and post-depositional history of the site; the function of the site and whether that changed over time, and whether it was a fishing site (Gould and Plew 2001).

The post-depositional history of the site is characterized by significant disturbance. First, the crossing of the Oregon Trail during the 19th century may have had an impact on the site. Travelers historically crossed at Three Island west of the site and there are records of interactions with native communities. During the early 20th century, some mining occurred west of the site area. While the mining had

no direct effect on the site, a road was extended running through the site from east to west. The excess sediment from the road may have been turned over onto the top of the original surface of 10-EL-294. This might explain the density of cultural material recovered in the area of the 1986-1987 excavation (Gould and Plew 2001). Potato farming occurred at the site until 1983.

Faunal remains recorded during 1986 and 1987 included 19,000+ individual fish remains that consisted of highly fragmented remains of head parts and ribs. Based on a calculation of the minimum number of individuals (MNI), only 300-400 fish are represented. These were associated with three radiocarbon dated occupations. Although a sampling bias is possible, the prospect of preservation of remains is better than often proposed (Gould and Plew 2001).

Analyses of the 1986-1987 excavations also concluded that the total nutritional value of the quantity of fish at Three Island Crossing (10-EL-294) is half of what a typical domestic unit would need to subsist through the winter period from December to March (a minimum of 1,270 kg) (Gould and Plew 2001; Plew 1990). Gould and Plew (1996, 2001) have argued that the costs of harvesting, processing, and storing salmon for winter (Plew 1990) made bulk procurement less optimal. The MNI of deer (n=30) would have undoubtedly provided greater nutritional value than a few hundred fish (Gould and Plew 2001:95).

An additional inquiry relates to the degree to which site function can be inferred and how this site compares to nearby sites. Long-term caches or residential bases are notably under-represented along the river (Plew 2003). Feature No. 7, an apparent occupational surface with extensive fire-cracked rock and mussel shell fragments, was recorded ca. 10 meters south of the fence and contained two attached storage pits measuring ca. one meter in diameter. Fish remains, including partially complete remains of a salmon, were associated with the feature (Gould and Plew 2001). At no other site adjacent to the Middle Snake River is there a storage feature with associated fish remains. The second storage pit was of similar dimensions and contained fewer cultural items than the first. This suggests that any storage was short-term and not consistent with decreased residential mobility typical of the mobility pattern proposed by the ethnographic record. A housing structure, Feature 5, was 2.5 m in diameter and 25-30 cm in depth, similar to other housing structures excavated at Hagerman (Pavesic and Meatte 1980) and Givens Hot Springs (Green 1982).

A total of 1,413 artifacts were recovered during the first two excavation seasons. Using Winters' (1969) functional classification, the site produced 947 domestic items, composed mostly of pottery sherds (N=935), 245 weapons, 129 general utility items, 49 fabricating tools, and 21 decorative items (Gould and Plew 2001). While the assemblages of sites in southwest Idaho are relatively homogenous, the number of general utility items at Three Island Crossing was relatively higher than expected. Lithic debitage analysis also suggests retooling rather than production, with a majority of flakes less than 1 cm in diameter. Of the 13,885 lithic flakes recovered, 53.2% were consisted of basalt (Eastman 2011). This raw material frequency is similar to that of nearby sites and reflects the possibility of initial production at the nearby Bell Mare basalt quarry. Diversity among toolkits and use-wear analyses suggest generalized and expedient use (Gould and Plew 1996; 2001).

The data collected during the first two summers of excavation at Three Island Crossing (10-EL-294) were utilized in the analyses of publications and presentations throughout the 1990's (e.g., Gould and Plew 1994; Plew 1997). A monograph that comprehensively described and analyzed the data was published in 2001 (Gould and Plew 2001).

Subsequent excavations in 2008 and 2010 continued to address the research questions that guided the first excavations. In addition, these later excavations investigated the horizontal extent of the site,

the spatial distribution of cultural material, additional evidence of the post-depositional history of the site, and the relative importance of fishing, hunting and gathering (Eastman 2011).

2008 Excavations

The Boise State University Archaeological Field School conducted an excavation in the summer of 2008 that was located east of the 1986-1987 excavation. A datum was established relative to the most eastward unit from the 1986-1987 excavation, accurate to within approximately 20 cm (Eastman 2011). A total of 17 1 x 1 m units were excavated to a depth of 40-60 cm and the entire site area was augured at one-meter intervals to a depth of 100 cm (Eastman 2011).

Additional observations about the post-depositional history of the site were made in 2008. Considerable undulation was noted across the terrace where the site is situated. The site area may have been levelled at some point. A berm extending east to west is believed to have been part of the original surface. A shallow, 50-cm wide water diversion ditch runs east to west through the center of the site.

The 2008 excavation concluded that cultural deposits extended approximately 40 m east of the original excavation. The conclusion that the site was occupied multiple times over the Late Archaic was supported by data recorded during the excavation. The site function reflected activities such as retooling (70% of flakes were <1 cm in length) (Wilson and Plew 2008). No features were recorded, but the site produced 17 artifacts (3 weapons, 9 general utility tools, and 5 domestic items).

Of particular interest was the faunal evidence produced. A total of 86 vertebrate faunal remains was recovered. Most were unidentifiable, though likely from mammals such as rodents or rabbits. One deer bone fragment was recorded. No fish remains were documented in any of the excavation units or auger probes.

2010 Excavations

The 2010 excavation, conducted by the Boise State University Archaeological Field School, had a number of objectives: 1) delineate site boundaries and the geomorphic and stratigraphic nature of the site; 2) identify the age of cultural deposits and the number of occupations; 3) describe the technological organization of the artifact assemblage; 4) describe the diet breadth based on faunal evidence; and 5) investigate levels of residential mobility (Eastman 2011). The excavation included thirty-three 1 x 1 m units across the western portion of the terrace, constituting a 3,750 m^2 portion of the site. An additional 14 auger tests were conducted to a depth of 50 cm around the peripheral margins of the excavation (Eastman 2010).

The excavation produced ten features and 155 prehistoric artifacts. The functional classification scheme indicated that 52% of artifacts were domestic, 21% weapons, 17% fabricating, 7% general utility, and 3% decorative. Similar to the 1986-1987 excavation, there was a relatively even distribution of artifact types. This is the pattern expected among relatively more mobile groups with a generalized toolkit (Gould and Plew 1996). A total of 1,454 lithic flakes were recovered during the 2010 excavation. Basalt was the predominant raw material type among lithic flakes and the majority of flakes were less than 3 cm in length. This is similar to the characteristics of the lithic debitage produced during the 1986-1987 excavation. Of the five objectives of the 2010 excavation, two are of significant importance in understanding the history of research at Three Island Crossing— diet breadth and level of residential mobility.

Zooarchaeological evidence from the 2010 excavation included 985 specimens of fish (MNI=45), 102 small-sized mammal bones, and 347 medium-sized mammal bones (Eastman 2011). A comparison

of the caloric return of deer and salmon was conducted for the one deer and 45 salmon produced. Each salmon was estimated to consist of approximately 5 lbs (2,265 g) of edible meat and 176 kilocalories/100 g; the one deer was estimated to consist of approximately 100 lbs (45,300 g) of edible meat and 126 kilocalories/100 g (Eastman 2010: 104-105). The results suggest that a far greater proportion of the diet would have been composed of fish at this location: 179,388 kcal of fish versus 57,078 kcal of deer (Eastman 2010). The same calculation revealed that the faunal assemblage of the 1986-1987 excavation represented 1.59 million kcal of fish and 1.43 million kcal of deer, a more even distribution (Eastman 2010).

It is reasonable, when considered with other lines of evidence, to expect that fishing comprised a significant proportion of the subsistence activity at Three Island Crossing. However, the amount of fish recovered could not support significant village-level populations through the winter period. Of note are the results of Eastman's (2010) study that fail to account for faunal uses beyond deer and salmon. If "the mechanism forcing population shifts and determining village size were the anadromous fish runs" (Pavesic and Meatte 1980: 21), then one would expect more specialized toolkits, more evidence of long-term storage, and lower levels of residential mobility than are present at Three Island.

The question of what level of mobility the site represents has been a central question in previous analyses of 10-EL-294. It was also central to the question of whether the assemblages of the area excavated in 2010 reflect high or lower levels of residential mobility. This question was hastily answered by those proponents of the fishing village hypothesis (Pavesic and Meatte 1980) with minimal skepticism toward the ethnographic model and no consideration of the archaeological variables that could be used to infer levels of mobility.

Although it is a simplification, the utility of Binford's (1980) forager-collector continuum has proven useful in differentiating organizational strategies for resource procurement and the varying products of the behaviors that result from these strategies, which often leave traces in the archaeological record. A foraging pattern of economic organization moves people to resources where residential mobility is high and storage is low, while a collector pattern of economic organization moves resources to people through logistically organized task groups (Binford 1980). The former is characterized by a variety of activities and low-visibility locations left in the archaeological record, and the latter is characterized by reused locations with high-visibility, field camps created by logistical task groups, and caches of bulk resources (Binford 1980). The archaeological data from 2010 suggests a mobile foraging pattern. Eastman (2010) utilized Kelly's (2001) index that infers levels of residential mobility from variability in 14 lithic criteria. Eastman (2011) found that 10 of 14 criteria from the 2010 excavation suggested high residential mobility (Table 1). This number of criteria suggesting high residential mobility is similar to that of nearby sites: 10/14 for Swenson (10-EL-1417), 10/14 for 10-EL-215, 12/14 for King Hill Creek (10-EL-110), and 13/14 for 10-EL-216 (VanWassenhove et al. 2018).

In summary, previous excavations (1986-1987, 2008, and 2010) indicate high levels of residential mobility, some evidence of short-term storage, a relatively higher frequency of fish remains than nearby sites, generalized toolkits, and retooling reduction strategies. The site represents the activity of highly mobile hunter-gatherers engaged in a foraging mobility pattern that moved people to an array of seasonally available resources.

Table 1. Kelly's (2001) Index of Residential Mobility applied by Eastman (2011).

	High Residential Mobility	Low Residential Mobility	10-EL-294-2010
Lithic Raw Material	CCS/Volcanic Glass	Siltstone, Tuff, Rhyolite	Even
Bifaces as Cores	Common	Rare	Rare
Bifaces as Bi-products	Rare	Common	Rare
Bipolar Knapping/Scavenging	Rare	Medium to Common	Rare
Flake Tools	Rare to Medium	Common	Rare/Medium
Fire-Cracked Rock	Rare	Common	Rare
Site Size/Density	Small/Low	Large/High	Small/Low
Tool/Debitage Ratio	High	Low	Low
Biface/Flake Tool Ratio	High	Low	Low
Complete Flakes	Rare	Common	Rare
Proximal Flake Fragments	Common	Rare	Common
Distal Flake Fragments	Common	Rare	Common
Angular Debris	Rare	Common	Rare
Assemblage Size/Diversity	Low Slope	High Slope	Low Slope

Recent Excavations in 2013, 2018, and 2019

Recent excavation conducted by the Boise State University Archaeological Field School during May and June of 2013, 2018 and 2019 sought to further document the spatial distribution of cultural material throughout the site, reassess the original research questions with new data when possible, and create a comprehensive map displaying the locations of excavation units from the more recent excavations. The data collected from these excavations suggest that the cultural materials at Three Island Crossing are spatially concentrated in only a few areas, primarily the location of the original excavations in the late 1980's. Data from these three excavations support the most important conclusions of previous excavations (e.g., Eastman 2011; Gould and Plew 1996) that the site represents fishing activity and storage but only within the overall economic strategy of high residential mobility and generalized foraging (Gould and Plew 2001).

As stated in the report of the 1986 and 1987 excavations, a continual reevaluation of conjectures about the past is a fundamental part of archaeological investigations (Gould and Plew 2001:2). With that in mind, we report data recorded from the three most recent excavations in an attempt to readdress the extent of fishing, site function, and mobility. In addition, we produce a map showing the location of the different excavations.

Methods

A datum was established in 2013 ca. 14 meters south of a fence and ca. 45 meters north of the river (Figure 2). The 2018 datum was placed as near as possible to the bulk of 2013 units 50 meters east of the 2013 datum based on surface evidence of 2013 excavation test units. A baseline from a previously excavated unit was visible in the floor and north wall of 2018 unit 12N-11E, likely a unit from 1986 or 2010. The 2019 units were placed centrally between the original excavation and the area explored during 2008 (see Figures 2 and 3).

A standard 1 x 1 m grid was superimposed onto the surface with a central Y-axis running north to south and an X-axis running east to west, eight meters north of the datum. Test units were placed along this X-axis, other than one unit placed within a clearing to the southwest of the datum. A standard transit was used to take elevation and distance measurements from the datum.

Figure 2. Overview of 2018 excavation looking west.

The locations of 2013 units visible on the surface were flagged. A map was made featuring the 2013, 2018 and 2019 units (Figure 3). The topography of the 2018 excavation area is highly uniform. A standard transit/theodolite and handheld GPS were used to measure the east to west length of the river terrace upon which the site is situated—encompassing the original excavations at its eastern edge and the 2010 excavation units at its western edge. An overview map was created of the extent of the entire site.

Units were excavated in arbitrary 10-cm levels by shovel shaving, hand troweling, and brushing. Each unit was designated by the distance of its NW corner from the datum. The first level began at the top of metal stakes 5 cm above the surface at the NW corner of the unit. The sediment removed from each unit was screened through 1/8th inch hardware mesh. Each level floor was photographed and drawn. Once excavation of a unit ceased, a final profile of each wall was drawn. Artifacts were sorted in

the field by morphological or descriptive type and assigned a catalog number. Lithic debitage was analyzed by size range and raw material type. Thermally altered rock and freshwater mussel shell fragments were noted on level records, but not collected.

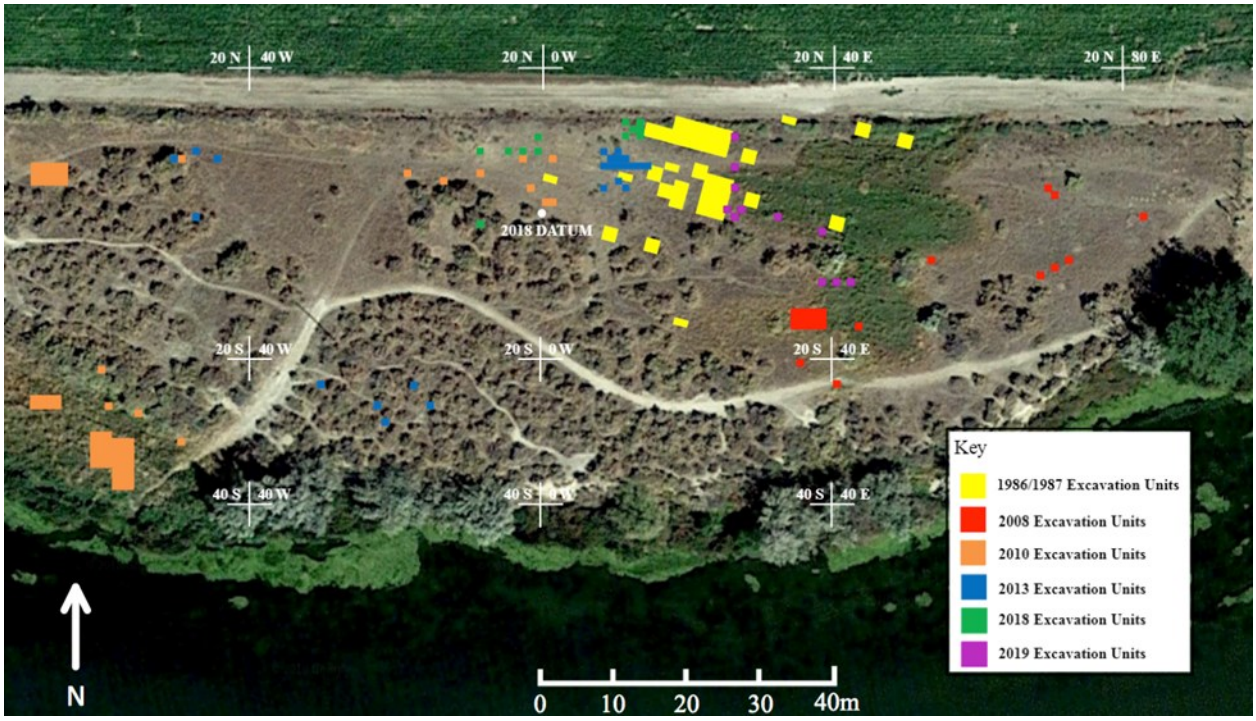

Figure 3. Plan map Showing Locations of all Excavations including of the 2013, 2018, and 2019 excavations.

Sediments and Stratigraphy

No sediment samples were taken due to extensive sediment analyses conducted during previous projects. Sediments in the area are mostly aeolian deposits that consist of 75-85% sand and 12-18% clay/silt mixed with small gravels (Bentley 1981). Previous excavations have found higher than normal levels of phosphorus in sediments near areas of significant cultural activity (Gould and Plew 2001).

Sediments observed in 2018 excavation units (Figure 4) ranged from dark grayish brown (10YR 4/3) to a light sandy color (10YR 5/3), similar to Munsell (2009) readings from 1986/87 excavation units 10-20 meters to the east (Gould and Plew 2001). Within the upper 20 cm of the sediment deposit there is significant disturbance which is likely due to agricultural or mining activity. Post-depositional impacts include farming that occurred into the 1970's. It appears that a portion of the site may have been leveled at some point, as evident from a large swale in the eastern end of the site (Eastman 2010). It is also likely that an access roadway ran east to west just south of the fence, within 10 meters of ca. 70% of the surface area of total excavations conducted over the years.

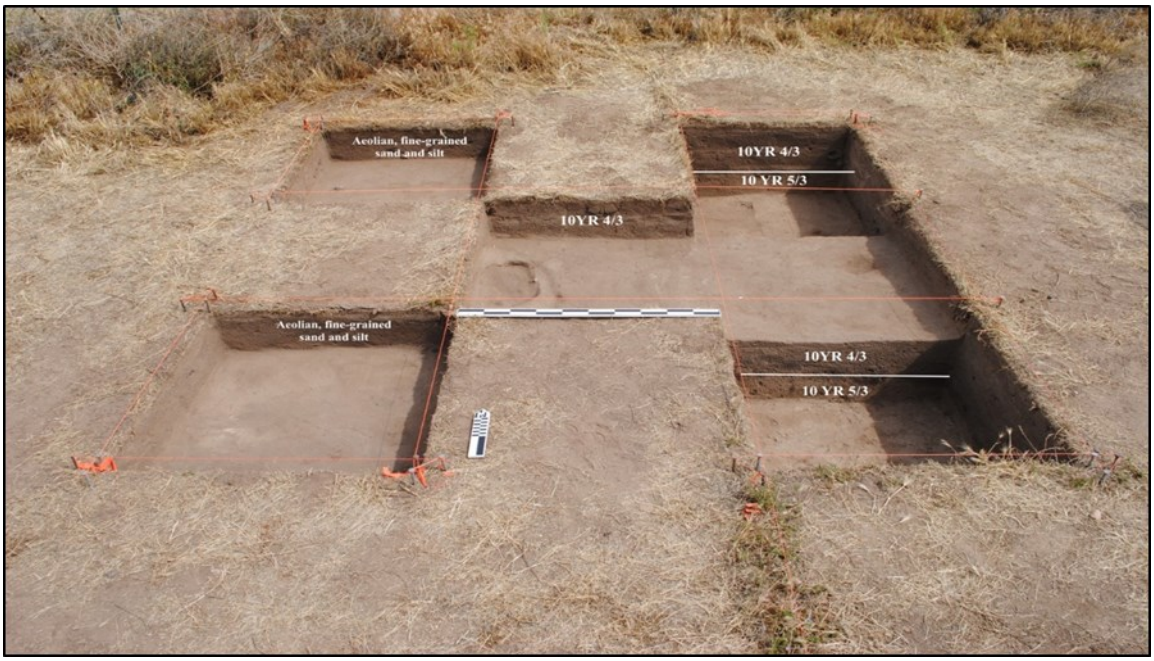

Figure 4. Stratigraphic profile of excavation units 13N-10E, 11N-10E, 12N-11E, 13N-12E, and 11N-12E, which had 11N-12E, which had relatively uniform stratigraphy and evidence of disturbance.

Material Culture

Cultural materials from both the 2013 and 2018 excavations were typed and functionally classified based on Winters' (1969) classification scheme. The categories include weapons (e.g., projectile points), domestic tools (groundstone, ceramics), fabricating tools (cores, drills), general utility tools (knives, bifaces, worked flakes, hammerstones), and decorative items. The site also produced historic 19th century items. A typology for each excavation is presented. Description of general morphology, size ranges, and material types are included. Measurement in centimeters are given as length, width and thickness.

Typology of Material Items Recovered From 2013 Excavations

A. Projectile Points and Point Fragments

1. Desert Side-Notched Points

Number of Specimens: 3

Form: Small triangular points with straight to concave margins and convex base. The points are biconvex in cross-section.

Size Range: 1.9-2.1L x 1.1-1.2W x 0.2-0.3T cm

2. Eastgate Points

Number of Specimens: 4

Form: Triangular points with blades ranging from a mixture of straight to concave to convex. Corner notches are generally deep, creating prominent tangs. All stems are expanding with basal elements.

Size Range: 2.7L x 1.8-2.0W x 0.3-0.4T cm

Material: Basalt (n=2), Obsidian (n=2)

3. Rose Spring Point

Number of Specimens: 4

Form: Narrow triangular points with slight corner notches and a convex cross-section. Two specimens are broken at the base at a 30-degree angle. One specimen is broken just above the base and at the tip.

Size Range: 2.3L x 1.1-1.4 W x 0.3-0.4T cm

Material: Obsidian

4. Small Stemmed Point

Number of Specimens: 1

Form: Triangular mid-section fragment with straight lateral margins and a biconvex cross-section. The specimen is thinner in cross-section on one side.

Size Range: 2.1L x 1.1W x 0.2T cm

Material: Cryptocrystalline

5. Large Stemmed Point

Number of Specimens: 1

Form: Large point with a slightly convex base and concave margins. The point is broken laterally across the body of the point.

Size Range: 3.5L x 2.3W x 0.8T cm

Material: Basalt

6. Point Tips

Number of Specimens: 7

Form: Triangular point tips which are broken between approximately one and two centimeters below the distal end of the specimens.

Size Range: 1.1-2.0L x 0.6-1.1W x 0.1-0.5T cm

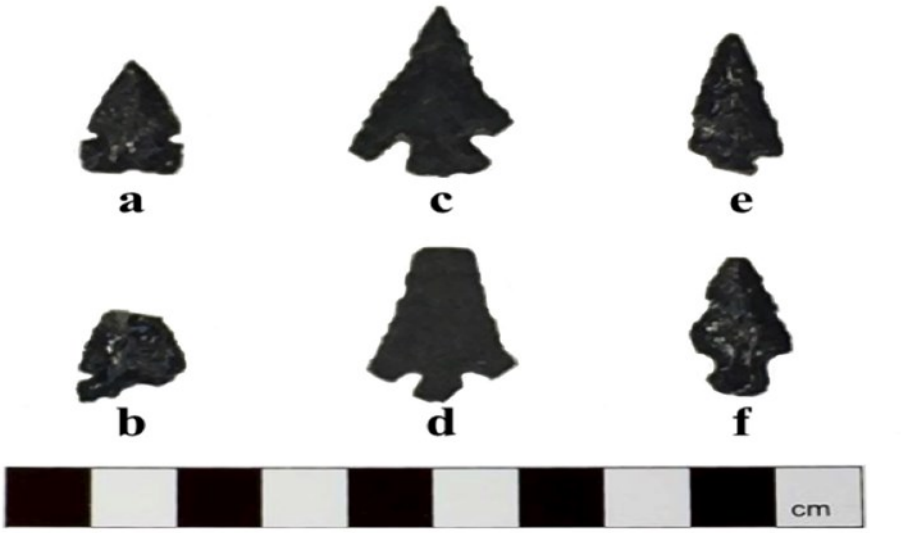

Figure 5. Desert Side-Notched; a-b, Eastgate; c-d, Rose Spring; e-f.

B. Domestic Tools

1. Pottery Sherds

Number of Specimens: 81

Form: Ceramic sherds are sand-tempered brownish-gray surface and core color. Some sherds have a distinctive reddish surface color, while some small sherds have a light yellow color. All are body sherds except for a single rim fragment which is flaring and well-made. One sherd exhibits two parallel lines as decoration. Most appear to belong to what is commonly described as Intermountain or Shoshoni Ware.

Size Range: 0.9-6.1L x 0.9-6.1W x 0.2-1.2T cm

Material: Sand tempered clay.

2. Pestles

Number of Specimens: 2

Form: Two specimens of pestle fragments one cylindrical and one triangular shaped.

Size Range: 3.3-9.9L x 3.4-6.1W x 3.4-5.2T cm

Material: Quartzite

C. Fabricating Tools

1. Cores

Number of Specimens: 9

Form: Cores are irregularly shaped, angular, and vary in size. One cryptocrystalline specimen is a dark yellow color.

Size Range: 2.9-12.6L x 2.1-8.6W x 1.1-5.9T cm

Material: Basalt (n=7), Obsidian (n=1), and Cryptocrystalline (n=1)

2. Awls

Number of Specimens: 1

Form: Distal end fragment of an awl.

Size Range: 2.0L x 0.3W x 0.3T cm

Material: Bone

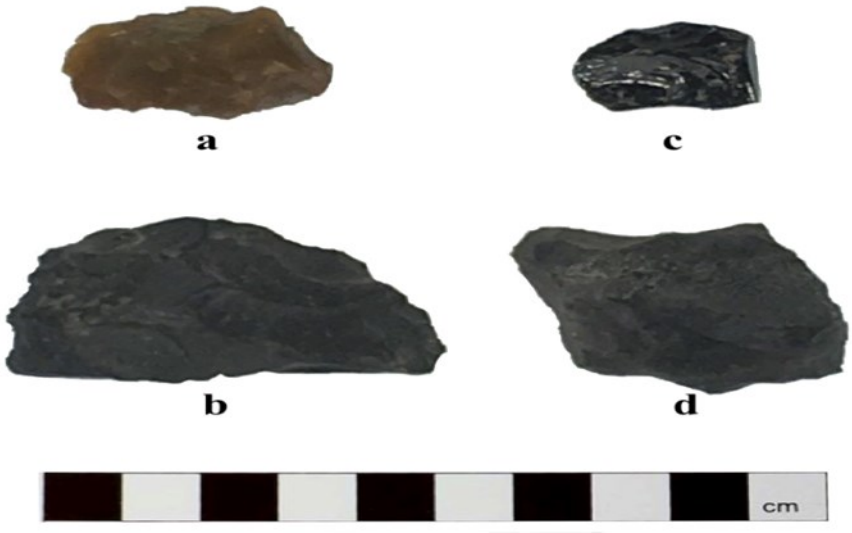

Figure 6. Cores; a-d.

D. General Utility Tools

1. Hammerstones

Number of Specimens: 1

Form: Cobble with proximal and distal end damage.

Size Range: 8.5L x 7.0W x 5.3T cm

Material: Quartzite

2. Biface Fragments

Number of Specimens: 1

Form: The specimen is white, biconvex in cross-section, and exhibits evidence of bifacial reduction along one lateral margin.

Size Range: 2.8L x 1.9W x 0.4T cm

Material: Cryptocrystalline

3. Abrader

Number of Specimens: 1

Form: A double-sided abrader with 0.2-0.4 mm diameter grooves.

Size Range: 7.3L x 4.5W x 2.5T cm

Material: Pumice

Figure 7. Hammerstones; a-b, Abrader; c.

E. Decorative Items

1. Polished Bone

Number of Specimens: 5

Form: Specimens are cylindrical-to-flat bone fragments which show evidence of modification and polishing.

Size Range: 2.5L x 1.5W x 0.1T cm

Material: Bone

F. Historic Items

1. 19th Century Historic Items

Number of Specimens: 23

Description: Glass "seed" beads measuring 1-2 mm in diameter. There are nine red beads, six yellow beads, six aqua beads, and one blue bead.

2. Recent Historic Items

Number of Specimens: 13

Description: Eight .22 caliber shell casings, 2twosmall metal balls measuring 0.3-1.2 cm in diameter; one bottle cap, one piece of inexpensive jewelry, and one recent reddish colored button with cloth overlay.

Typology of Material Items Recovered From 2018 Excavations

A. Projectile Points and Point Fragments

1. Eastgate Points

Number of Specimens: 2

Form: Both specimens are flat on one side and convex on the other in cross-section. Both are corner-notched with wide barbs that extend to the base of the point. One specimen is complete while the other is broken horizontally at the mid-section and vertically on one side just at the edge of the stem.
Size Range: 1.4-1.8L x 1.3-1.6W x 0.3T cm

Material: Obsidian

2. Irregular-Shaped Point

Number of Specimens: 1

Form: A triangular, plano-convex point with corner and side notches is broken at distal end with a second side notch on one margin at the distal end. Base is also fractured and flares at 45-degree angles.

Size Range: 2.9L x 2.2W x 0.6T cm

Material: Obsidian

3. Mid-Sections

Number of Specimens: 2

Form: Both specimens are bifacially worked and triangular with biconvex cross-sections.

Size Range: 0.7-0.9L x 1.0-1.2W x 0.3T cm

Material: Basalt and Obsidian

Figure 8. Eastgate; a-b, projectile fragment; c, projectile tip; d-f.

4. Tips

Number of Specimens: 8

Form: One specimen is ovate at the distal end, while all others are triangular. All specimens have bicon-vex cross-sections and are broken laterally across the mid-section. Flaking patterns are variable and random.

Size Range: 0.8-2.5L x 0.6-1.1W x 0.2-0.4T cm

Material: Obsidian (n=4), Cryptocrystalline (n=3), and Basalt (n=1)

B. Domestic Tools

1. Pottery Sherds

Number of Specimens: 14

Form: Ceramic sherds are sand-tempered brownish-gray surface and core color. Some sherds have a distinctive reddish surface color. One specimen is a rim. Most appear to belong to what is commonly described as Intermountain or Shoshoni Ware.

Size Range: 1.1-4.1L x 0.7-3.0W x 0.5-0.9T cm

Material: Sand-tempered clay.

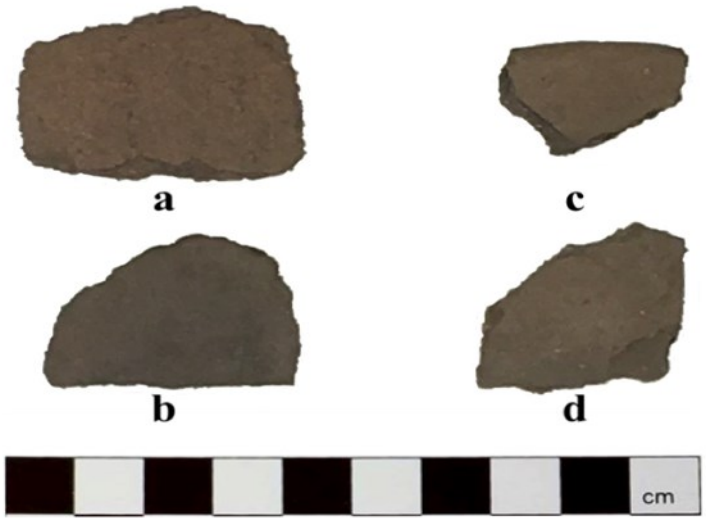

Figure 9. Pottery sherds; a-d, rim; c.

C. Fabricating Tools

1. Cores

Number of Specimens: 4

Form: Specimens are relatively the same size with irregular shapes. They are angular, with flaking on all sides.

Size Range: 3.2-4.9L x 3.1-3.6W x 1.5-2.1T cm

Material: Basalt

D. General Utility Tools

1. Worked Flakes

Number of Specimens: 1

Form: The specimen is plano-convex with flaking on lateral margins.

Size Range: 3.4L x 2.7W x 0.6T cm

Material: Obsidian

2. Biface Fragments

Number of Specimens: 2

Form: The specimens are mid-sections, bifacially worked, and biconvex in cross-section.

Size Range: 1.6-1.7L x 1.9-2.3W x 0.5-0.7T cm

Material: Basalt and Obsidian

3. Scrapers

Number of Specimens: 3

Form: The specimens are plano-convex with flaking on the distal end.

Size Range: 1.9-4.0L x 1.4-4.8W x 0.5-1.5T cm

Material: Basalt (n=1) and Cryptocrystalline (n=2)

E. Decorative Items (No decorative items were recorded in 2018.)

F. Historic Items

Number of Specimens: 13

Description: Specimens include 19th century can fragments, nails, and white opaque glass bottle fragments.

Typology of Material Items Recovered From 2019 Excavations

A. Projectile Points and Point Fragments

1. Desert Sierra Side-Notch Point

Number of Specimens: 1

Form: A small triangular point with straight to concave margins and convex base that is biconvex in cross-section.

Size: 2.8L x 1.4W x 0.3T cm

Material: Cryptocrystalline

2. Rose Spring Point

Number of Specimens: 1

Form: Narrow triangular points with slight corner notches and a convex cross-section.

Size: 2.2L x 1.2W x 0.2T cm

Material: Obsidian

3. Lanceolate Point

Number of Specimens: 1

Form: Biconvex point having concave base.

Size: 4.6L x 1.8W x 0.4T cm

Material: Basalt

B. Domestic Tools

1. Pottery Sherds

Number of Specimens: 34

Form: Ceramic sherds are sand-tempered brownish-gray surface and core color. Some sherds have a distinctive reddish surface color, while some small sherds have a light yellow color. All are body sherds except for a single rim fragment which is flaring and well-made. One sherd exhibits two parallel lines as decoration. Most appear to belong to what is commonly described as Intermountain or Shoshoni Ware.

Size Range: 1.4-4.6L x 1-3.6W x 0.6-1.2T cm

Material: Sand-tempered clay.

C. Fabricating Tools

1. Cores

Number of Specimens: 1

Form: Cores are irregularly shaped, angular, and vary in size.

Size Range: 7.1-3.7L x 3.7W x 3.0-1.9 cm

Material: Basalt, Cryptocrystalline

D. General Utility Tools

1. Worked Flake-Uniface

Number of Specimens: 1

Form: Flake exhibits minor retouch on one lateral margin.

Size Range: 3.4-5L x 2.4-3.4W x 0.5-1T cm

Material: Cryptocrystalline and Basalt

2. Biface Fragments

Number of Specimens: 2

Form: Bifacial reduction on angular stone fragments

Size Range: 3.4-1.5L x 2W x 0.7-0.8T cm

Material: Cryptocrystalline

3. Scraper

Number of Specimens: 2

Form: Specimens exhibits retouch on distal end of thick flakes that are plano-convex in cross-section.

Size Range: 6.6-2.8L x 7.0-3.7W x 2.6- 1.5T cm

Material: Basalt, Cryptocrystalline

E. Decorative Items

1. Polished Bone

Number of Specimens: 2

Form: Specimens are cylindrical-to-flat bone fragments which show evidence of modification and polishing.

Size Range: 1.3-1.8L x 1.3-1.8W x 0.2T cm

Material: Bone

F. Historic Items

1. 19th Century Historical Items-Euro-American Trade Beads

Number of Specimens: 2

Description: White glass beads

Size Range: 1 mm in diameter

2. Recent Historical Items

Number of Specimens: 37

Description: Glass and metal fragments, bolt and nut, nail, metal can fragment, glazed pottery fragment.

Functional Analysis

An analysis of functional categories of artifacts from recent 10-EL-294 excavations reveals that weapons and domestic items make up a larger portion of the total assemblage. Weapons constitute 17% of the 2013 total assemblage, 35% of the 2018 total assemblage, and 7% of the 2019 total assemblage, or 18% of all the assemblages. General Utility items constitute 2% of the 2013 total assemblage, 16% of the 2018 total assemblage, and 11% of the 2019 total assemblage, or 7% of all the assemblages. Domestic items constitute 69% of the 2013 total assemblage, 38% of the 2018 total assemblage, and 76% of the 2019 total assemblage, or 65% of all the assemblages. The domestic category is comprised mostly of pottery sherds in both cases (n=81, n=14, n=34).

Fabricating items, mostly cores, make up 8% of the 2013 total assemblage, 11% of the 2018 total assemblage, and 2% of the 2019 total assemblage, or 7% of all the assemblages. Finally, decorative items, while absent from the 2018 total assemblage, represent 3% of all items recovered in 2013 and 2019. There is little evenness between artifact types. (Figure 10). In general and reflecting the frequency distribution of artifacts from major excavations in 1986/87 and 2010, most items consist of weapons and domestic tool (largely pottery and groundstone).

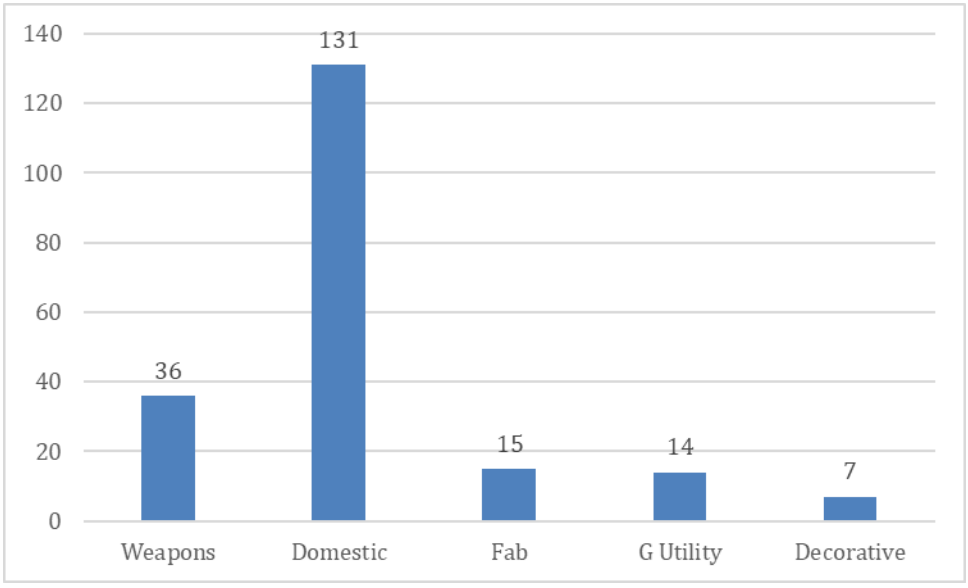

Figure 10. Functional distribution of Weapons, General Utility Items, Domestic, Fabricating and Decorative Items based on Winter's (1969) categories of artifacts from 2008, 2013 and 2019.

Lithic Debitage Analysis

Raw Material Type

A total of 3,662 lithic flakes were recovered and recorded during the 2013, 2018 and 2019 excavations. This included 2,270 recorded during 2013, 1,392 recorded during 2018, and 571 recorded during 2019. Basalt accounts for 47% of the total lithic flakes recorded during 2013, 46% of the total lithic flakes recorded during 2018. Obsidian constituted 35% of the 2013 total of lithic flakes, and 36% of the total in 2018. Cryptocrystalline materials account for the remaining 18% of 2013 lithic flakes and remaining 18% of 2018 lithic flakes (Figure 11). The prevalence of basalt as raw material is likely due to the nearby Bell Mare quarry, although lithic flakes recovered during the 2019 excavation were relatively even among the three raw material types.

The relatively high frequency of basalt is similar to that in 1986-1987 excavations and 2010 excavations, but not as high relative to excavations at other nearby sites (70% at 10-EL-1417, 80.4% at 10-EL-110) (VanWassenhove et al. 2018; Willson and Plew 2007).

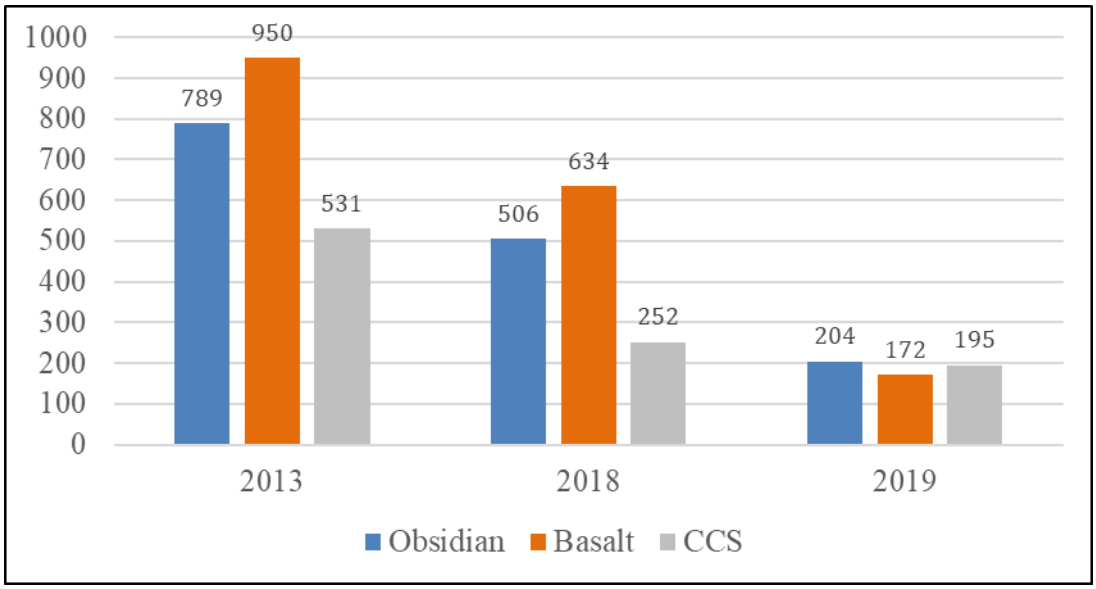

Figure 11. Frequency distribution of lithic debris by raw material type.

Size Range

An analysis of the size range of lithic flakes suggests late stage reduction or retooling, as well as high residential mobility. The lithic flakes from 2013 were mostly less than 1 cm long (67%). Similarly, 57% of lithic flakes from 2018 were less than 1 cm long. Less than 1% of flakes from 2013 and ca. 1% of flakes from 2018 were greater than 5 cm (Figure 12). The size range of lithic flakes from the 2019 excavation was dominated by smaller flakes, including 67% measuring less than 1 cm long with 23%

between 1 and 2 cm long. This high frequency of smaller flakes is also similar to frequencies recorded in nearby sites (80% of flakes at 10-EL-216 are less than 1 cm long and 46% of flakes at 10-EL-1417 are less than 1 cm long. (VanWassenhove et al. 2018). This could reflect materials being retooled or small locally derived nodules reflecting small flake sizes that would normally represent late stage reduction (Willson and Plew 2007).

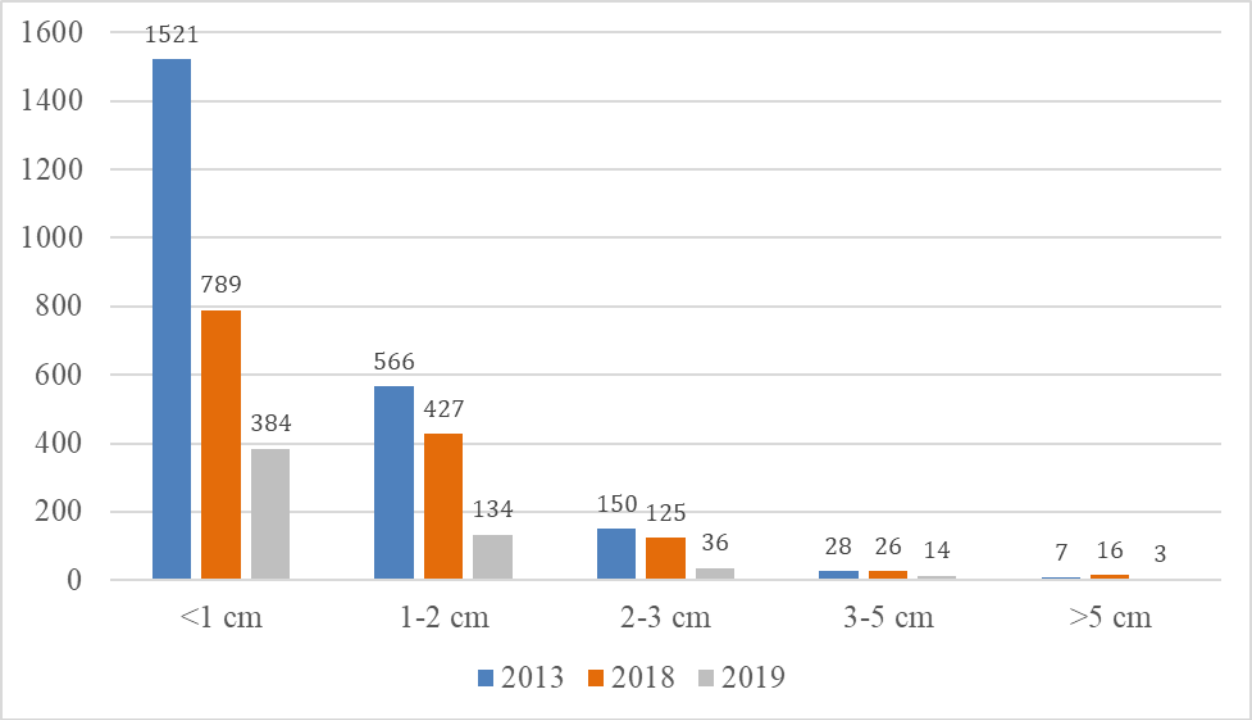

Figure 12. Frequency distribution of lithic debris by size.

Faunal Analysis

A total of 2,970 faunal remains was recovered from the previously unreported excavations. Of those, a total of 2,457 were recorded in 2013, a total of 412 were recorded in 2018, and a total of 101 were recorded in 2019. Of those recovered, only 3.1% were identifiable (n=92). Identifiable faunal specimens were classified as either fish, small mammal, or medium mammal and placed in a vertical provenience. Fish remains constitute 52% of the identifiable faunal specimens and are found within the up 30 cm. of the deposit. Unidentifiable skeletal remains consisted of 37.5% green fragments and 62.5% charred fragments (Figure 13). There was no evidence of cut marks or modification to any of the bone fragments. The frequency of faunal remains recovered during the 2013 excavation was second only to those of 1986-1987 excavation (Figure 14). Invertebrate faunal remains included fragments of freshwater mussel shells found across the site.

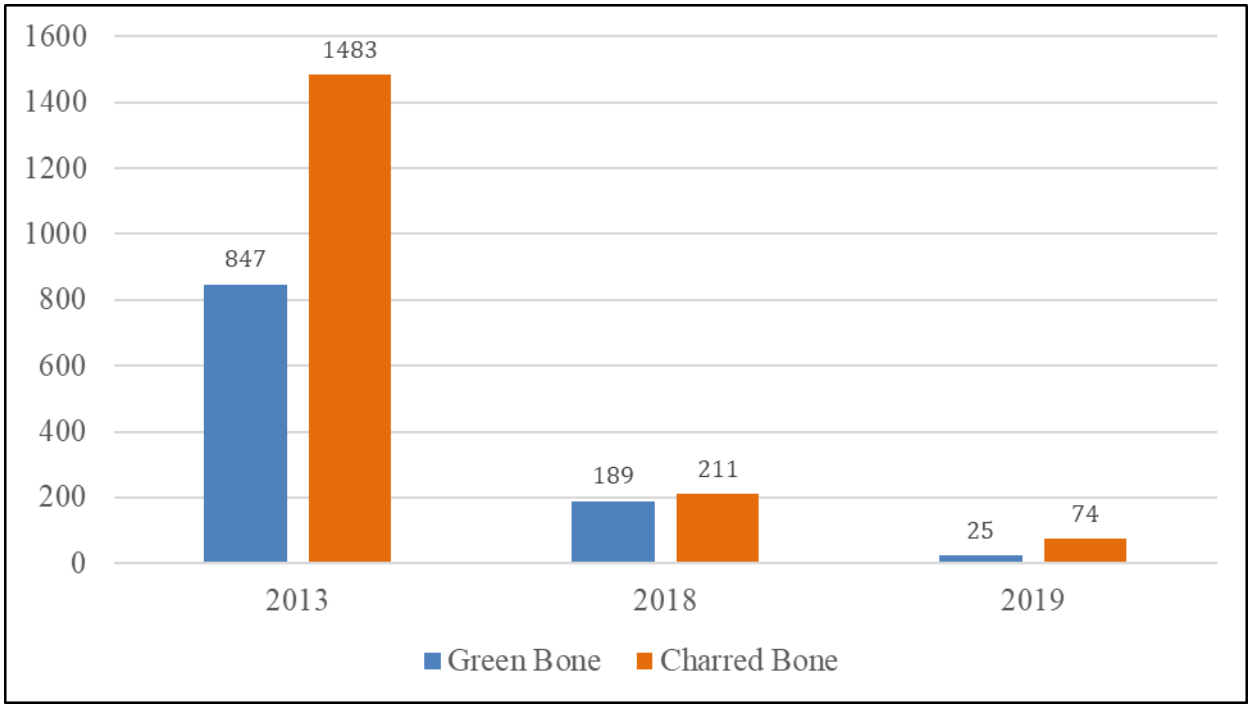

Figure 13. The frequency of green and charred bone (2013, 2018, 2019).

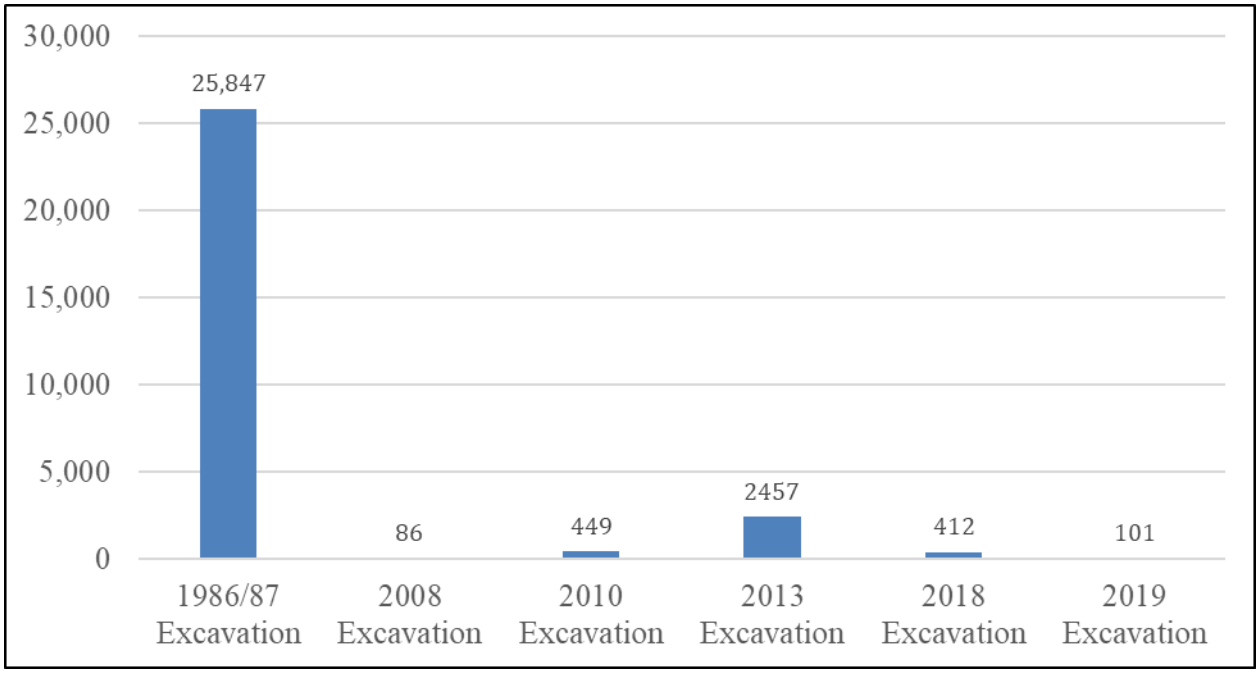

Figure 14. Frequency of individual faunal specimens across excavations.

Summary

Test Excavations reported here address a number of questions relating to 10-EL-294. It is clear that the extent of the primary site area is as determined by the original excavations, limited to an area of approximately 100 square meters. Although materials are reported, as in 2010, from areas several meters distant from the 1986/87 excavation, these areas including the testing in 2013, 2018 and 2019 have produced only limited material assemblages. The testing reported here demonstrates varying degrees of post-depositional alteration of the terrace by agricultural activity that extend to the east and south beyond the original excavation. Sediments taken from the recent investigations are highly uniform and characteristic of those previously reported (Bentley 1989).

Functionally, a range of activities are associated with use of the area. These include manufacturing and retooling, short-term use for fishing and hunting and associated processing—though considerably less extensive. Tool types consist predominately of weapons and domestic items consisting of pottery and a few groundstone items—assemblages exhibiting little evenness and generally like those recovered in the original excavations. Weapons include Desert-Side Notched, Eastgate, Rose Spring and Bliss series points. The dominant presence of these series with pottery re-inforce the Late Archaic age of the site. Of some note is the recovery of a significant number of historic Euro-American trade-beads though fewer than recovered originally and in the 2010 excavation. Analysis of the assemblage using Kelly's Mobility Index supports Eastman's (2010) assertion that it reflects a high degree of residential mobility.

The recent excavations reported no formal features and faunal evidence supporting the earlier demonstration that fish, rabbits and deer are the primary species in the diet breadth. Fish remains are limited and appear to represent salmonids—by size most likely trout or whitefish. The recent investigations at Three Island are confirming that activities occurred at locations across the greater terrace area though in varying degrees of intensity. There is no basis for determining whether these areas are associated with the earlier radiocarbon-dated components or that they date to other uses of the site area.

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