The Analysis of Archaeological Ceramics from Four Sites in the Cañada Alamosa, New Mexico (Part 3 of 3)

By

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Cover Photo: Mimbres Classic Middle Style III from a gopher hole at the Montoya Site (LA 88891)

DEDICATION

Dedicated to the great pioneers in the field of Southwestern ceramic studies. These individuals were among the very best.

Anna O. Shepherd,

Florence H. Ellis,

Emma Lou Davis,

Linda S. Cordell.

Dedication Photo: Magdalena Black-on-white. A virtual rendition created from a single sherd from the Gallinas Springs Pueblo, LA 1178. Courtesy Phil Yost.

A NOTE FROM THE SERIES EDITOR

Ordinarily the Maxwell Museum Technical Series does not include reports not edited and reformatted by the museum. In this case the authors have done such a careful job of preparing the report that the museum will publish the report as submitted. To do any more would be to seriously delay publication of the report. That would be a disservice to the many researchers who will find it to be an essential research reference.

David A. Phillips, Jr.

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SECO CORRUGATED

(MOGOLLON BROWN WARE)

Key Attributes. Smeared, indented corrugations are laid-out vertically (not obliquely) and typically over the entire exterior surface of bowls and jars. Bowls have smudged interiors. Rims are of the fillet style with everted rims on jars and direct rims on bowls.

Dates. Accepted: circa A.D. 1300 – 1400. CAP Period/Phase dates: Late Pueblo Period, Early Glaze Phase, A.D. 1300 – 1400. The majority of Seco Corrugated sherds were recovered from the Pinnacle Glaze-mixed temporal context. However, 122 sherds were in the earlier Magdalena Phase (A.D. 1250 – 1290) at Pinnacle and forty-two of the sixty-eight sherds of the type at the Victorio Site (A.D. 1200 – 1290) were in the Tularosa Phase contexts. Radiocarbon and archeo-magnetic dates from late Tularosa Phase contexts indicate that Seco Corrugated may have been first produced in the canyon in the late 1200s (circa A.D. 1280).

Basis of the Present Description. 2,379 sherds of Seco Corrugated were analyzed for the project (Table 56); three sherds from the Kelly Canyon Site (LA 1125), 2,304 sherds from the Pinnacle (LA 2292), sixty-eight sherds, one incomplete bowl and two complete bowls from the Victorio Site, and four sherds from the Montoya Site. See also Wilson and Warren (1973), and Laumbach and Laumbach (2013). Figures 396-399 show the distribution of sherds on the four sites. Figures 400-405 present representative samples of the sherd and vessels.

Table 56. Count of Seco Corrugated by Site.

Type	1125	2292	88889	88891	Grand Total
Seco Corrugated	3	2304	68	4	2379

Construction. Hand coiling and scraping.

Paste. Color is usually variable and typically graduates from the brown surface colors to gray and dark gray interior. Temper material is prepared detritus in combination with angular quartz grains and other lithic fragments.

Surface Color. Color on jars and bowls ranges from reddish brown, medium to dark brown, to gray and dark gray. Sooting and fire clouds on exterior surfaces are common. The interior surfaces of bowls are smudged and polished. Unintentional smudging may occur on the interiors of jar necks.

Surface Finish. Interior surfaces of jars range from smooth to somewhat rough and may exhibit intermittent polishing stria. Interior surfaces of bowls are well smoothed, smudged black, and polished often to a luster. Exterior surfaces of jars have smeared indented corrugation from the base of the fillet rim to the vessel bottom. Although rare, jar forms may have smeared indented corrugation on the neck and shoulder with the lower unindented body portions scraped smooth and polished. Bowl exteriors are similar to jars in that indented corrugation begins at the base of a fillet rim and extends downward to the vessel bottom.

Vessel Forms. Jars and bowls. Jars are wide-mouthed with everted fillet rims. Bowls have straight or slightly out-flaring side walls and direct fillet rims.

Decoration. Finger or tool indented corrugations are laid-over the entire exterior surface of bowls and jars. After the corrugations were indented, they were smoothed to the point of smearing, but not complete obliteration. The smearing process was likely accomplished by scraping the clay while it was dry but not yet fired. Intermittent polishing occurs on the high points of the smeared indentations. Smeared indentations are laid out vertically (an indentation appears to be on top of the one below and directly under the one above). For reference, indentations on Reserve Indented Corrugated are laid out obliquely on the vessel. The vertical indentations on Seco Corrugated were smoothed after drying, but before firing, and not completely obliterated. Patterned corrugation, groups of plain coils alternating with groups of smeared Seco-style indented corrugation, is rare but does occur.

Paint. No painted decoration.

Neutron Activation Analysis. Two production areas for Seco Corrugated were defined (Ferguson et al. 2024). One of these is Cañada Alamosa where all thirty-eight samples from Pinnacle match either Creel's (2022) Mimbres Group 25 or Mimbres 28, both confidently assigned to Cañada Alamosa production. The second production area is located on Animas Creek, a tributary to the Rio Grande south of Truth or Consequences, New Mexico. Seco Corrugated produced on the Animas was traded to Cottonwood Springs Pueblo in the San Andres Mountains and are classified as Creel's (2022) Seco Group 9b2 which is not published in Creel's (2022) volume. A lesser amount of Seco Corrugated produced at Cañada Alamosa made its way to both Animas Creek and Cottonwood Springs Pueblo. Curiously Seco Corrugated from Animas Creek was not identified in the Cañada Alamosa assemblage.

Remarks. Seco Corrugated was described by John P. Wilson and Helene Warren in 1973 (1973:12-13). The geographic name "Seco" was taken from a Black Range drainage adjacent to the Las Animas Creek. Their observations were derived from sherds associated with LA 3949 (Las Animas Village, ca. 1300-1400; El Paso Phase?). Prior to Wilson and Warren's naming of Seco Corrugated, the term "obliterated corrugated" was commonly used and that practice has continued (Miller and Graves 2009:569; O'Leary 1987:214-220).

The Cañada Alamosa project tested four sites located on the upper end of the Rio Alamosa north and west of Truth or Consequences. Seco Corrugated was found in quantity (N=2,304) at the Pinnacle (LA2292) in the Cañada Alamosa. The second most abundant utility ware at the Pinnacle was Reserve Indented Corrugated (N=2,249). Seco Corrugated is present in the carbon paint contexts of the Pinnacle (ca. A.D. 1250-1290), but it dominates the corrugated ware category for the post A.D. 1300 glaze period component.

Corrugation style is the primary attribute that differentiates Reserve Indented Corrugated from Seco Corrugated. In a comparative analysis of these two types from the Pinnacle done by Schleher and Ruth (2005:2-14), it was found that that some sherds were easy to separate based on corrugation style but others proved to be more difficult. They concluded that the technological styles of the two styles overlap. They suggested that this pattern of overlapping could represent an evolution of one ware into another while being manufactured by the same group, or it may represent a blending of technological styles between two groups. In conclusion, Schleher and Ruth found that the technological styles of Seco Corrugated and Reserve Indented Corrugated are similar, but not identical, and that there were "some differences in the potting groups producing utilitarian wares at the site" (2005:12).

Varieties of obliterated corrugated wares were common across a broad region after A.D. 1300. The first of these were produced in northeastern and central Arizona by at least A.D. 1200 (Mills 2007: 229). Mills has also suggested that the southward spread of the style into the Mogollon Rim may be related to 13th century movements from the north. The obliterated corrugated style first appears in the Cañada Alamosa in the late 1200s where NAA data suggest it was locally produced. Specifically, radiocarbon and archaeomagnetic dates from two rooms at the Victorio Site indicate that Seco Corrugated was present by circa A.D. 1280 (Laumbach and Laumbach 2013:90-91). By the 1300s, obliterated corrugated styles appear to have been produced at Salado sites on the Gila, San Francisco and

Mimbres drainages as well as on El Paso Phase and Magdalena Phase sites in the Black Range tributaries of the Rio Grande.

Based on the available data, it seems likely that obliterated corrugated styles, including Seco Corrugated, became very popular across the traditional Mogollon area beginning about A.D. 1300. Obliterated corrugated types spread from west to east, emulated by potters who had been producing Reserve Indented Corrugated and Tularosa Patterned Corrugated, resulting in slight differences from production area to production area. However, its production stopped at the Rio Grande with the easternmost of the traditional Mogollon potters. From there it was extensively traded, particularly to the east into El Paso Phase, Jornada Mogollon sites of south-central New Mexico. Seco Corrugated was the corrugated style of the 14th century; however, it was also the end game for almost 800 years of corrugated ceramic production in the Mogollon area.

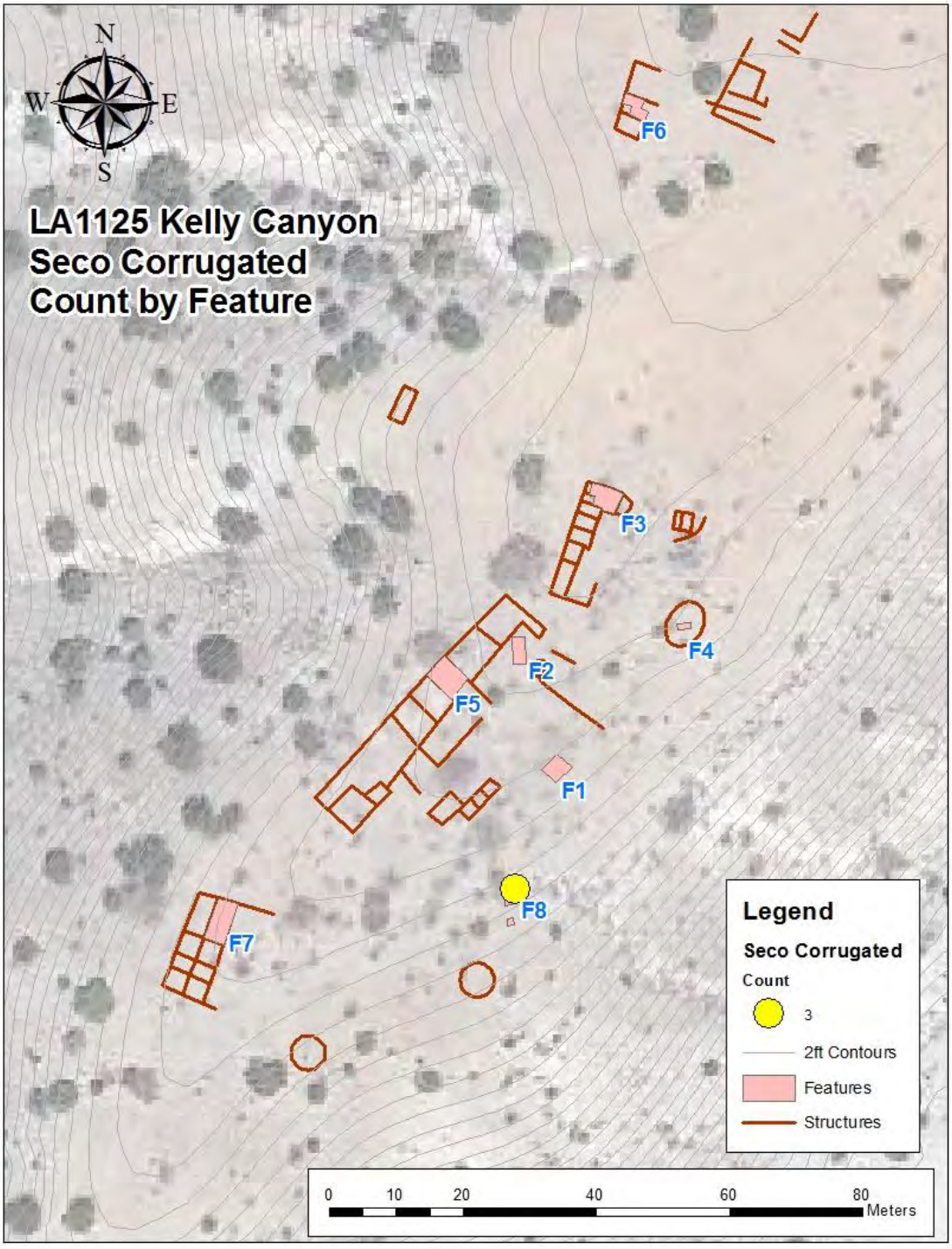

Figure 396. Distribution of Seco Corrugated on the Kelly Canyon Site.

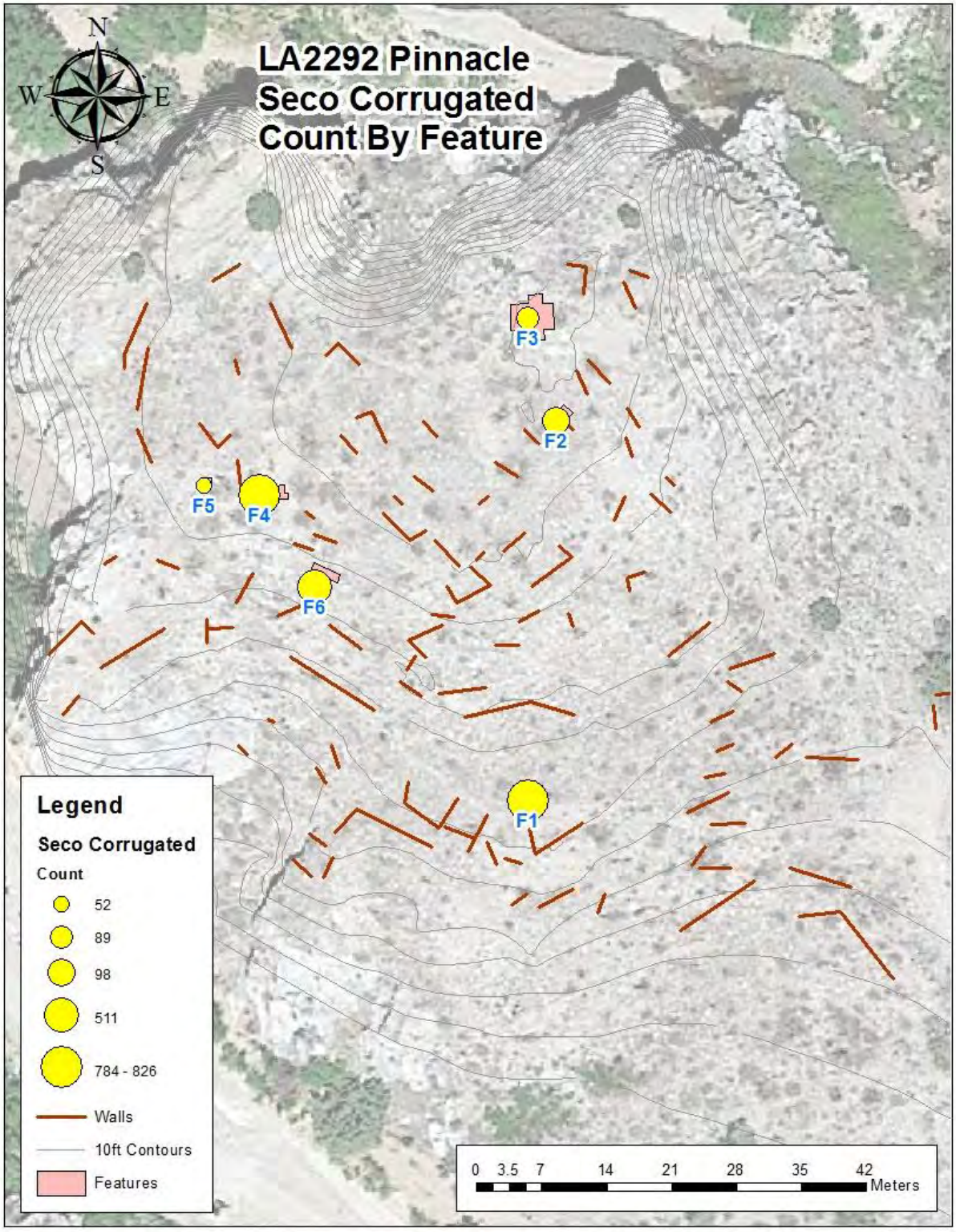

Figure 397. Distribution of Seco Corrugated on the Pinnacle.

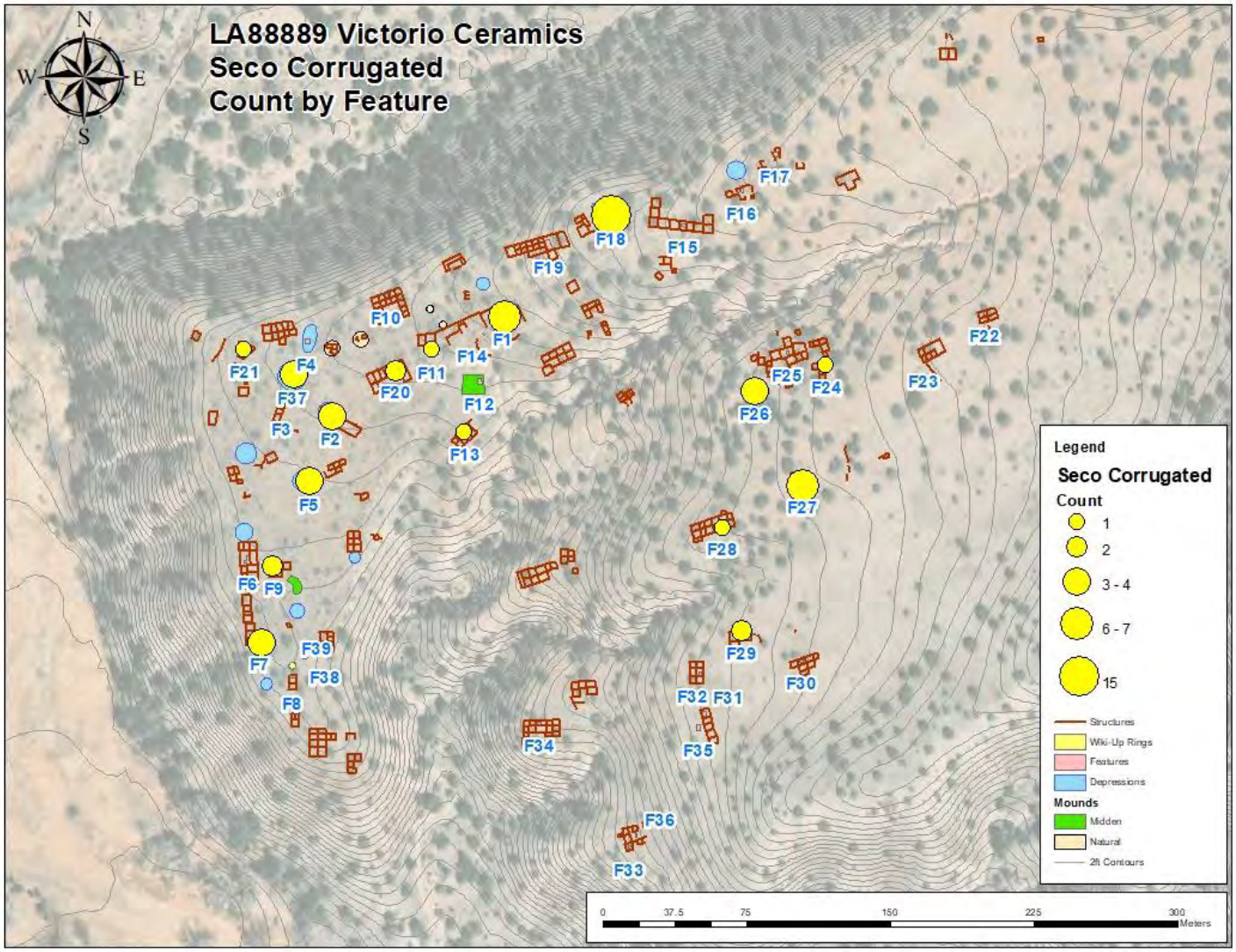

Figure 398. Distribution of Seco Corrugated on the Victorio Site.

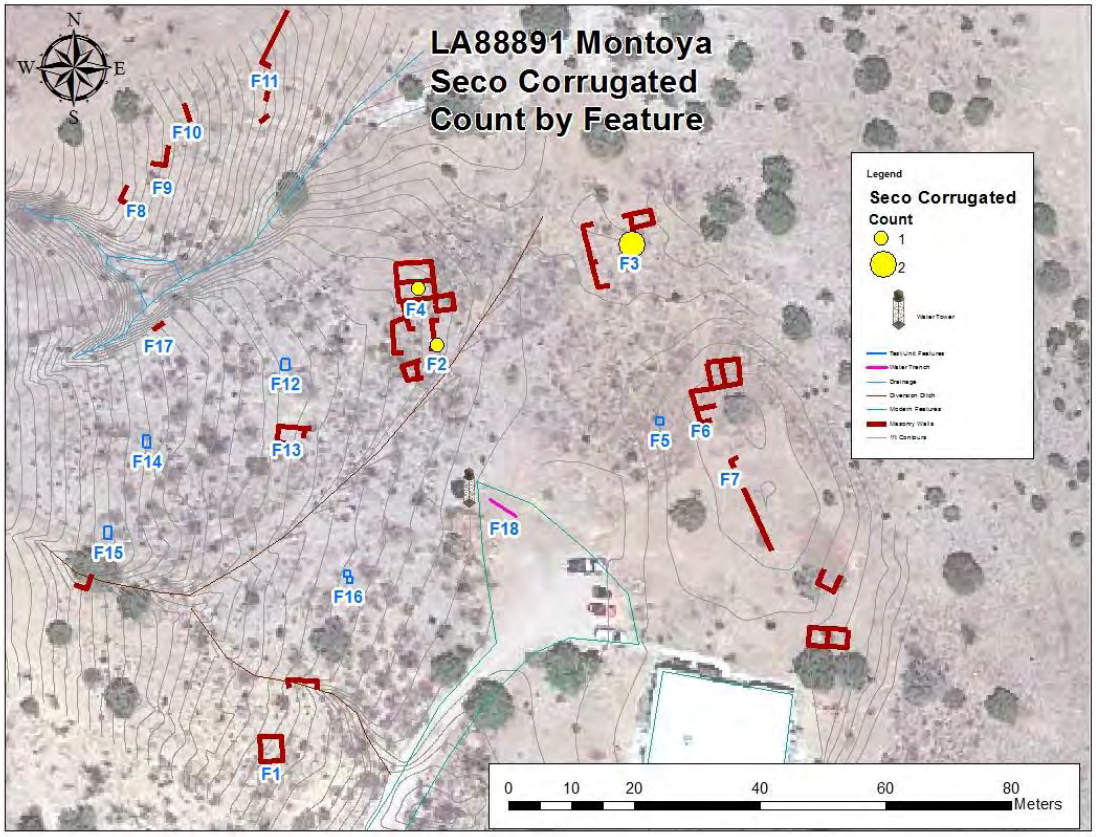

Figure 399. Distribution of Seco Corrugated on the Montoya Site.

Figure 400. LA 2292: Seco Corrugated Bowl Rim Sherd (02-391).

Figure 401. LA 2292: Seco Corrugated Bowl Rim Sherds (04-363, 06-532, 02-443).

Figure 402. LA 2292: Seco Corrugated Jar Body Sherds (02-443, 02-261).

Figure 403. LA 88889: Seco Corrugated Bowl (09-991).

Figure 404. LA 88889: Seco Corrugated Incomplete Bowl (09-1029).

Figure 405. LA 88889: Seco Corrugated Bowl (09-989).

SOCORRO BLACK-ON-WHITE

(CIBOLA WHITE WARE)

Key Attributes. Vessels are consistently well-made with surfaces ranging in color from dark blue-gray to medium gray, and to light gray. Decorated surfaces are floated and polished before painting. Well drafted geometric designs are rendered in a mineral pigment.

Dates. Accepted: A.D. 1050 – 1225. CAP Period/Phase dates: Early Pueblo Period/Socorro Phase, A.D. 1130 – 1200. The majority of Socorro B/w sherds were recovered from the Socorro Phase and Socorro-Tularosa temporal contexts at the Kelly Canyon Site. The primary contexts were the same for the type at the Montoya and Victorio Sites. The few sherds found at the Pinnacle were considered to be out of context as they were recovered from the Late Pueblo Period, Magdalena and Early Glaze period contexts. The A.D. 1130 beginning date for Socorro B/w in the Cañada Alamosa is based on the interpretation that Kelly Canyon and other Socorro communities in the canyon arrived during a drought circa A.D. 1130-1135. It is likely that some sherds arrived earlier through trade to the Mimbres components.

Basis of the Present Description. There are 3,066 sherds of Socorro B/w (Table 57) in the Cañada Alamosa assemblage, the majority of them, 2,176, and one partially restored olla were recovered from the Kelly Canyon Site (LA 1125), twenty from the Pinnacle (LA 2292), 757 from the Victorio Site (LA 88889) and 113 were found at the Montoya Site. See also Hawley (1936), Mera (1935), Olson and Wasley (1956), Human Systems Research (1973), Wilson (1994), Hill and Larson (1995), Warren (1982), Hurst (2003), and Dyer (2008).

Table 57. Count of Socorro Black-on-white by Site.

Type	1125	2292	88889	88891	Grand Total
Socorro Black-on-white	2176	20	757	113	3066

Construction. Hand coiling and scraping (Figure 406).

Figure 406. LA 1125: Socorro B/W Bowl Sherd (02-166, left: interior surface; right: exterior surface showing coiled basket impressions, suggesting the basket was utilized as a puki during the construction of the bowl).

Paste. Hard, not friable, and at times appears vitrified. Color ranges from dark gray to light gray. Carbon streaks occur occasionally with light gray edges. Fragments of temper are dark to light gray sherd particles that are often finely ground. Sherd temper may occur with translucent quartz sand or a sand mixed with black mineral inclusions (amphibole/Hornblende). Fourteen samples of Socorro Black-on-white were fully analyzed petrographically (Ownby 2017 and Ferguson et al 2024):

1. Ten had sherd temper with some felsic (rhyolite) and intermediate (dacite) volcanic rock fragments and rare grains of potassium feldspar and microcline.

2. Four had sherd temper with few other inclusions (from the northern sites and similar to samples from El Malpais NM).

Surface Color. Surface color ranges from dark blue-gray, medium gray, to light gray. Surfaces with decoration, namely the interiors of bowls and exteriors of jars are floated. No slip was observed on the Cañada Alamosa assemblage.

Surface Finish. Interior and exterior surfaces of bowls and jars are usually well scraped and smoothed although undecorated surfaces may, at times appear a little rough with smoothing stria. All decorated surfaces are FLOATED and polished or unfloated and polished. Floating is done after a vessel has been constructed, the coils of manufacturing have been obliterated, and the clay is still plastic. With a little additional water or a wet hand, the surface to be floated is manipulated with

the hand in a circular or back-and-forth motion. This activity serves to redistribute clay and temper particles. The result is similar to that when fresh laid cement is troweled. Smaller particles tend to rise toward the surface and larger one's sink. Additionally, a thin film of clay on the surface is redistributed, resulting in a more uniform colored surface. Same thing happens with troweled cement!

The act of floating in ceramics results in surfaces, that when dried, appear smoother, more uniform in color, and with the smallest of temper particles being visible. With only the tiniest of particles being close to the surface, the appearance of the vessel surface overall is one that is smooth and fine-textured, and of the same color as the body of the vessel. The term self-slipped is synonymous with the term floated. Self-slipping does not add color to the surface but it does make the surface appear more uniform. Self-slipping is most visible where it accumulates as streaks or patches of clay film on the surface.

Polishing over the floated surface with a stone will smooth it out further. When observed with the naked eye, this surface may superficially be thought to represent a slipped surface. Hence, floated surfaces are best recognized with the use of a 10X-20X power hand-lens or microscope.

Terms like thin slip or slip, are not accurately used when floated surfaces occur. Regardless if a slip is thin or thick, it is always an "additive" technique to improve or change the surface color. Thin slips can be difficult to recognize, particularly when the clay used to build the pot is also used as slipping material (finely-ground clay suspended in water). Slips are best recognized by the contrast in color with the paste of the vessel or by observing that underlying temper particles are made invisible by the overlaying slip.

Stone polishing will have a positive effect on floated surfaces. Polishing is a process that compacts the surface. Although the surface needs to be slightly damp to have the polishing activity be effective, the firm pressure applied to the floated surface, via the polishing stone, will smooth and even it out. The polished surface is dampened again and again and vigorously rubbed with the stone. This process results in a redistribution of clay and fine particles that results in surfaces that appear uniform in color and texture. This certainly describes the appearance of Socorro B/W.

The literature is filled with descriptions of Socorro Black-on-white having a slip that matches the paste or a thin white slip (Mera 1935; Hawley 1936; Olson and Wasley 1956; Human Systems Research 1973:355; Dyer 2008:133). Some describe

Socorro B/w as being unslipped, but also state that it appears to be slipped when dark clays were used (Warren 1982:156), or that it was unslipped until very late in its production (Sundt 1979:4; Dittert 1959:402). Most observations however, indicate that Socorro B/w was predominately unslipped (Hurst 2003:84; Hill and Larson: 1995: 95; Wilson 1994: 54; Hill 1989:7-1; Larson et al. 1998: 248). Within the Cañada Alamosa assemblage, Socorro B/W, including all those with the range of surface color from dark gray, blue gray, light gray, and near white, are not slipped at all, they are skillfully floated.

To illustrate the lack of slipping and the dominance of floating on Socorro Black-on-white, 768 sherds (from the 2003 season) including both bowl and jar forms from the Kelly Canyon Site (LA 1125), were examined with a 20X binocular microscope. The results showed that out of 497 bowl sherds, 381 of them had a floated decorated surface and 54 had no float or evidence of self-slipping on a decorated surface. Of the 271 jar sherds, 162 had a floated decorated surface while 101 had no evidence of floating/self-slipping. None of the Socorro sherds in this sample had slip added to any surface.

Vessel Forms. Only one partially reconstructed vessel was recovered from the Kelly Canyon Site (Figure 407). This was a large globular jar with a narrow, restricted orifice. In addition to large, globular jars, smaller globular jars with a neckless orifice and pitchers with strap handles were made. However, bowl sherds dominated the Cañada Alamosa assemblage. Bowls are hemispherical with rims that are direct off of the vessel wall. Interiors of jars are usually well smoothed while exterior surfaces of bowls generally have intermittent to even, lustrous polishing. Rim shape on both bowls and jars are predominated rounded or slightly flattened.

Figure 407. LA 1125: Socorro Black-on-white Partially Restored Olla.

Socorro Black-on-white typically has a single, linear element painted on the rim lip. However, there were several rim treatments noted on Socorro B/w from the Kelly Canyon, Montoya, and Victorio sites. With the Kelly Canyon Site being a Socorro Phase site and having Socorro B/w as the dominate painted type, rim sherds were examined for variation in painted treatment. The rim assemblage consisted of a total of 200 sherds of which 184 were bowls and 16 were jars. The analysis noted that none of these sherds lacked paint on rim lip even though three jar sherds were initially thought to have to rim-lip paint. Upon close examination, it was found that the rim-lip paint on the three sherds had initially been there but had been worn-off.

In terms of painted style, five distinct patterns were observed and include:

Rim Style 1. Paint is located on the rim lip; the vessel design goes to and touches the rim (Figures 408-410).

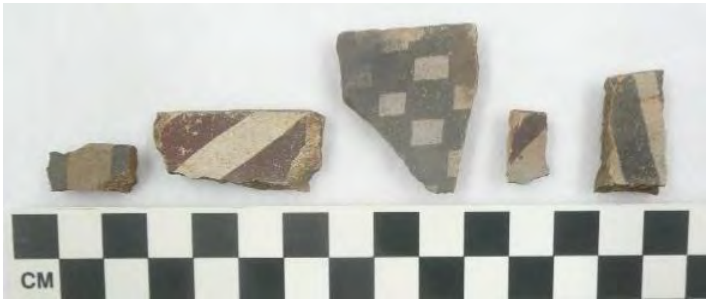

Figure 408. LA 1125: Style #1 Socorro B/w Rims.

Figure 409. LA 1125: Style #1 Socorro B/w Rims.

Figure 410. LA 1125: Style #1 Socorro B/w Rims.

Rim Style 2. Paint is located on the rim lip; design elements are appended from the rim lip, then there's open space of between 7 mm to 15 mm, then the upper framing line(s) of the design begin (Figures 411-413).

Figure 411. LA 1125: Style #2 Socorro B/W Rims.

Figure 412. LA 1125: Style #2 Socorro B/W Rims.

Figure 413. LA 1125: Style #2 Socorro B/W Rims.

Rim Style 3. Paint is located on the rim lip; then comes a space of 7mm to 15mm followed by a broad painted line, then a space (5mm to 10mm) followed by the upper framing line(s) of the design, or the broad painted line serves as the upper framing line for the designs (Figures 414 and 415).

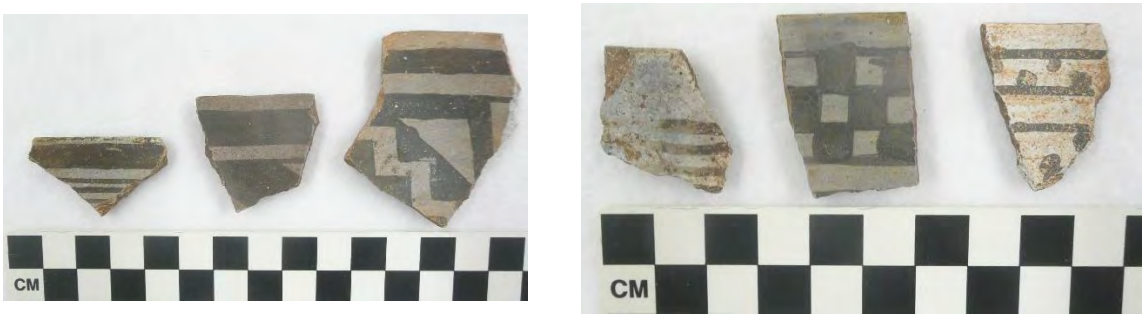

Figure 414. LA 1125: Style #3 Socorro B/w Rims.

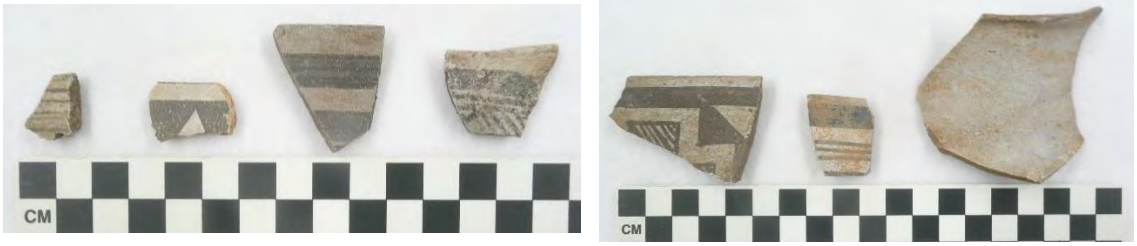

Figure 415. LA 1125: Style #3 Socorro B/w Rims.

Rim Style 4. Paint is located on the rim lip and is drawn-down onto the interior surface, creating a solid band of color of about 10mm in width that both encircles and abuts with the rim lip; design elements are appended from the broad painted band and are drawn downward to join with the main vessel design (Figure 416).

Figure 416. LA 1125: Style #4 Socorro B/w Rims.

Rim Style 5. Paint is located on the rim lip, and like style 4, is drawn-down onto the interior creating a solid band of about 10mm in width that both encircles and abuts with the rim lip, then there is a space of 7mm to 15mm and then the upper framing line(s) of the design begin (Figures 417-419).

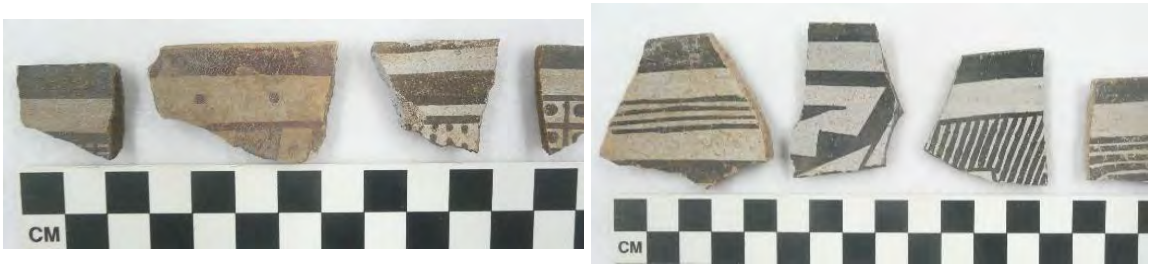

Figure 417. LA 1125: Style #5 Socorro B/w Rims.

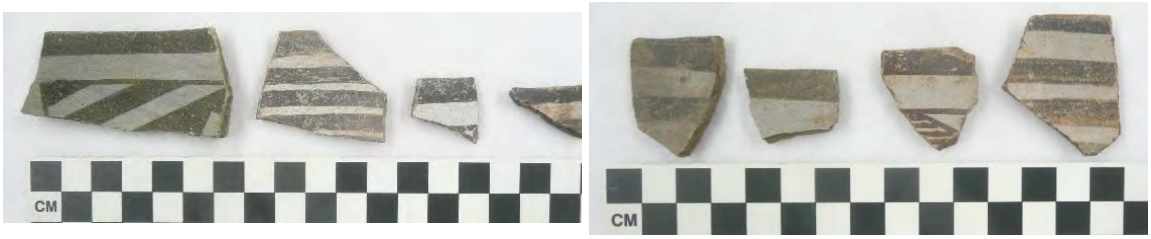

Figure 418. LA 1125: Style #5 Socorro B/w Rims.

Figure 419. LA 1125: Style #5 Socorro B/w Rims.

Rim styles for bowl sherds included all five of the patterns described above (Figure 420; (Table 58). Pattern 5, with rim lip paint drawn down onto the interior followed by a space and then the upper framing lines of the main design, was the most common of the styles for the assemblage examined. This was followed in decreasing numbers of occurrence by patterns 3, 2, 1, and 4. It is interesting to note that rim style pattern 5, is also seen on late style III of Mimbres Classic Black-on-white, which dates to A.D. 1110 – 1130 (Shafer and Brewington 1991:25). The significance of this shared rim treatment remains unknown. The rim style may also

have chronological significance for the production of Socorro B/w. It may also be possible that this rim style, or any of the other four, may have been used to visibly convey membership in a specific social network of Socorro Black-on-white producing potters.

Figure 420. LA 1125: Composite View Showing Socorro B/w Rim Styles #1, #2, #3, #4, and #5

Rim styles for jar sherds included only four of the five patterns (Table 58). There were also three exceptions to the rim style patterns listed above. These included jar rim sherds that were initially placed into patterns #1 and #3. Upon closer examination, these jar rim sherds once had rim lip paint on them but the rim lip surface had been worn away, giving the impression that there was no paint on the rim lip. Like the bowl sherds, rim style pattern #5, with the paint pigment drawn-down onto the exterior surface creating a wide band of about 10mm width, dominated the jar rims examined. This was followed in decreasing quantity by patterns 6, 4, and 8.

Table 58. Decorative Rim Style Patterns for Socorro Black-on-white from the Kelly Canyon Site, LA1125.

Feature	Bowl	Jar	Rim Style A	Rim Style B	Rim Style C	Rim Style 1	Rim Style 2	Rim Style 3	Rim Style 4	Rim Style 5
1	83		0	0	0	7	14	17	6	39
2	18					3	1	3	0	11
3	33					4	2	8	0	19
4	6						1	1	1	3
5	1							1		
6	1					1				
7	10						1	3	0	6

Feature	Bowl	Jar	Rim Style A	Rim Style B	Rim Style C	Rim Style 1	Rim Style 2	Rim Style 3	Rim Style 4	Rim Style 5
8	32					4	7	8	2	11
1		5				1	2	2		
2		1					1			
3		2						2		
4		1					1			
5		0								
6		0								
7		4	1*		2*		1			
8		3					2			1
Total	184	16	(1*)		(2*)	20	33	45	9	90

Criteria for decorative rim style patterns:

- Rim Style A- no paint on rim-lip/space/single or multiple lines
- Rim Style B- no paint on rim-lip/space/single wide band/space/upper framing lines of design
- Rim style C- no paint on rim-lip/design goes to rim
- Rim Style 1- paint on rim-lip/design goes to rim
- Rim Style 2- paint on rim-lip/design elements appended from the rim-lip/space/upper framing lines of design
- Rim Style 3- paint on rim-lip/space/wide band and/or upper framing lines of design
- Rim Style 4- pain on rim-lip is drawn-down onto the decorative surface/design elements are appended from the base of the extended "rim band' and continue downward
- Rim Style 5- paint on rim-lip is drawn-down onto the decorative surface/space/upper framing lines of design

*These three jar rims exhibit rim-lips that have been worn away, giving the impression that there was no paint on the rim-lip. Given all other jar rims where rim-lip paint has been observed, it is believed that the three jar rims (*) in this study did at one time have paint on the rim and their inclusion into rim style patterns A and C are invalid.

Decoration. Designs on Socorro Black-on-white are among the best, well drafted designs on prehistoric pottery in the American southwest. Draftsmanship is consistently crisp, precise, and balanced. Uneven lines, poorly filled solids, and sloppy drawing are extremely rare. The Socorro design system is reminiscent of that seen on Red Mesa and Reserve Black-on-white. Typical design elements and motifs seen on Socorro B/w include multiple rectilinear designs, solid with opposed diagonal hatching, broadlines, solid connected triangles, appendant dots, checkerboard, connected solid and open bullseye diamonds, saw-tooth motifs, nested, linear rectangles, and rare broadline curvilinear elements (Figures 421-425).

Figure 421. Diagonal hatching.

Figure 422. Broadline motifs.

Figure 423. Pendant dots.

Figure 424. Curvilinear, crisscross, and checkerboard motifs.

Figure 425. Broadline, pendant dot, and bullseye motifs.

Paint. Mineral, iron-based pigment, that is uniformly a true, rich black. Oxidizing of the pigment is rare but can result in patches of paint pigment that is brownish black or dark rusty brown in color. Subglazing of the pigment is common. Pigment is consistently well-applied; thin applications that don't cover the underlying surface adequately are uncommon.

Pigment on two sherd samples of Socorro Black-on-white, one from the Kelly Canyon Site and one from Veteado Pueblo (LA 44918) located on the northwest slope of Veteado Mountain northwest of the Datil Mountains, underwent lead isotope analysis to identify potential resources for the ore. The sherd from Veteado Pueblo showed lead associated with the New Placers mining district in the San Pedro Mountains of Santa Fe County, New Mexico. The other sherd sample from the Kelly Canyon Site had no lead present in the paint composition. Please see Appendix A for the complete results of the analysis.

Neutron Activation Analysis. No local production. This study defined five separate paste groups for Socorro Black-on-white (Ferguson et al. 2024). However, sherds found at Cañada Alamosa appear to have been produced in the same area as the San Marcial Black-on-white. The Cañada Alamosa samples match samples from the lower Rio Salado and the Gallinas Mountains near Magdalena. While it is possible that the ceramics were produced elsewhere, Ownby's petrographic analysis indicates production in the eastern Gallinas Mountains (Ownby 2017).

Remarks. Socorro Black-on-white was first described by Mera (1935:27-28) based on sherds from the lower Rio Grande region he believed were a "Chaco derivative" but differed in a variety of ways based on the quality of materials and craftsmanship. Mera included Socorro B/w in his "southern division" of ceramic traditions but was uncertain of its production boundaries. He suggested that the northernmost occurrence was the Rio San José and the lower Rio Puerco, the Rio Grande valley on the east, bounded on the west by the Datil National Forest, with the southern limits being undetermined (1935:27). For the most part, the production and distribution area(s) for Socorro B/w seems to have eluded archaeologists for many years but the pottery type has a distinct style and more and more data have given insight into this problem. Reviewing the literature of known Socorro Tradition sites, the primary distribution area for Socorro B/w is a large section of west-central New Mexico. This general area is bounded on the north by the regions of the upper Rio Puerco of the east (Ford 1982), city of Albuquerque, and Tijeras Canyon, which also constitutes and easternmost boundary (Wiseman 1980; Oakes 1979; Larson et al. 1998; Hill 1989; Hill and Larson 1995; Wilson 1994). The northern boundary of Socorro distribution can be

extended into Chaco Canyon where at least 10% of all painted ceramics were Socorro B/w (Ford 2019: personal communication). The eastern boundary remains to be the Rio Grande Valley from Albuquerque to Truth or Consequences. However, Socorro B/w has been recorded in sites in the Chupadero Arroyo Basin east of the Rio Grande valley (Kyte 1988:86). The southern limit of Socorro B/w distribution is the Cañada Alamosa drainage northwest of Truth or Consequences. And, the western boundary is the region around the community of Quemado and the Malpais lava flow near Grants (Mera 1935; Marshall 1993). Sherds of Socorro Black-on-white are also found in intrusive contexts throughout the Mimbres Valley and the Black Range in southwest New Mexico. There is also some waffling in the literature as to where to place Socorro Black-on-white in terms of its "ware" classification. Mera's initial 1935 era comments indicate Socorro B/w white was considered a Chaco derivative based on the design and surface finish similarly to the Cibola White Wares of Reserve B/w, Gallup B/w, Escavada B/w, and Puerco B/w all of which overlap Socorro B/W in time. Given the distribution of Socorro Black-on-white, its primary production area is west-central New Mexico therefore placing it firmly as a Cibola White Ware.

In addition to the petrographic analysis for San Marcial Black-on-white, Ownby (2017; see also Ferguson et al. 2024) has utilized petrography to examine temper inclusions and clay samples for Socorro Black-on-white. For the study, samples of Socorro B/w were chosen from the Victorio and Kelly Canyon sites located in the Cañada Alamosa as well as samples from four sites in the Gallinas Mountains located north of the Cañada Alamosa and north of Magdalena New Mexico. Other samples came from Riley Springs located on the Rio Salado, which is situated northeast of the Gallinas Mountains. Other samples were acquired northwest of the Datil Mountains from the Veteado Site (LA 44918) located on the northwest slope of Veteado Mountain, and from the most northern site, Bibo Ranch (LA 6919), located within the El Malpais National Monument and on Cebolleta Mesa.

Ownby notes that the paste of some the Socorro B/w samples is very consistent and they have inclusions similar to those found in San Marcial B/w. The geologic sources for the inclusions in these samples were identified in the same areas as those for San Marcial B/w and included the Gallinas Mountains, and the lower Rio Salado/Riley Springs areas. The inclusions in samples from Veteado Pueblo, at the headwaters of the Rio Salado, and Bibo Ranch, on the western edge of the Cebolleta Mesa, were different from the inclusions found in sherds from the Cañada Alamosa, Gallinas Mountains, and the Rio Salado/Riley Springs areas suggesting a different production area. Similar to San Marcial B/w, Ownby's

analysis points to "a common set of inclusions" found in temper and clay samples located near felsic and intermediate volcanic deposits (Ownby 2017:19). This geological makeup, paste characteristics, and chemical variation indicate production in the eastern Gallinas Mountains, and possibly the lower Rio Salado/Riley Springs areas. It is clear that the Gallina Mountains/lower Rio Salado shared similar exchange networks for Socorro Black-on-white and acquired them from the same producers (Ownby2017:19). The current interpretation is that Socorro Black-on-white was produced in the lower Rio Salado/Gallinas Mountains area and traded to the Cañada Alamosa. Figures 426-429 show the distribution of Socorro B/w on the Cañada Alamosa sites. Figures 430-434 display representative and aberrant sherds.

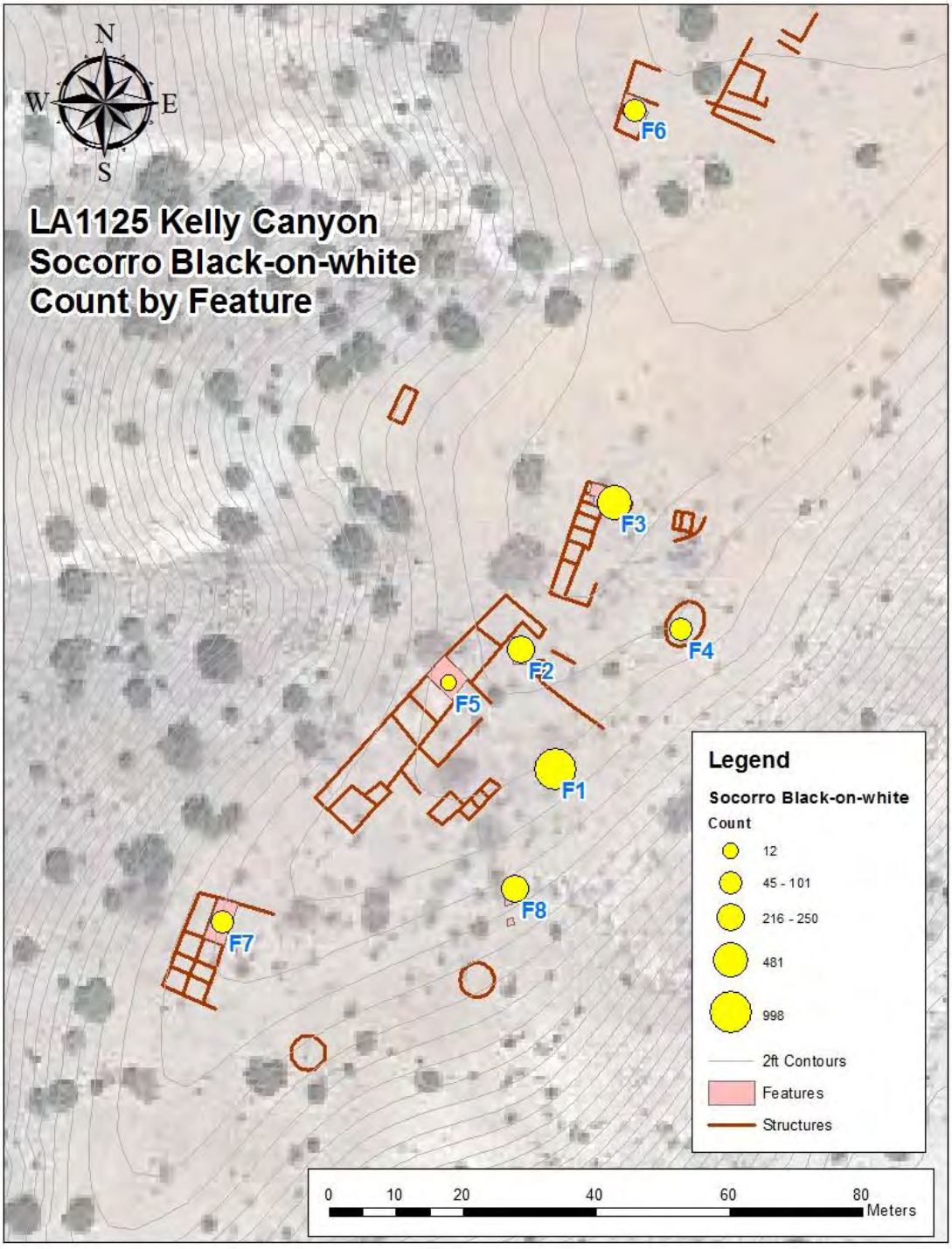

Figure 426. Distribution of Socorro B/w on the Kelly Canyon Site.

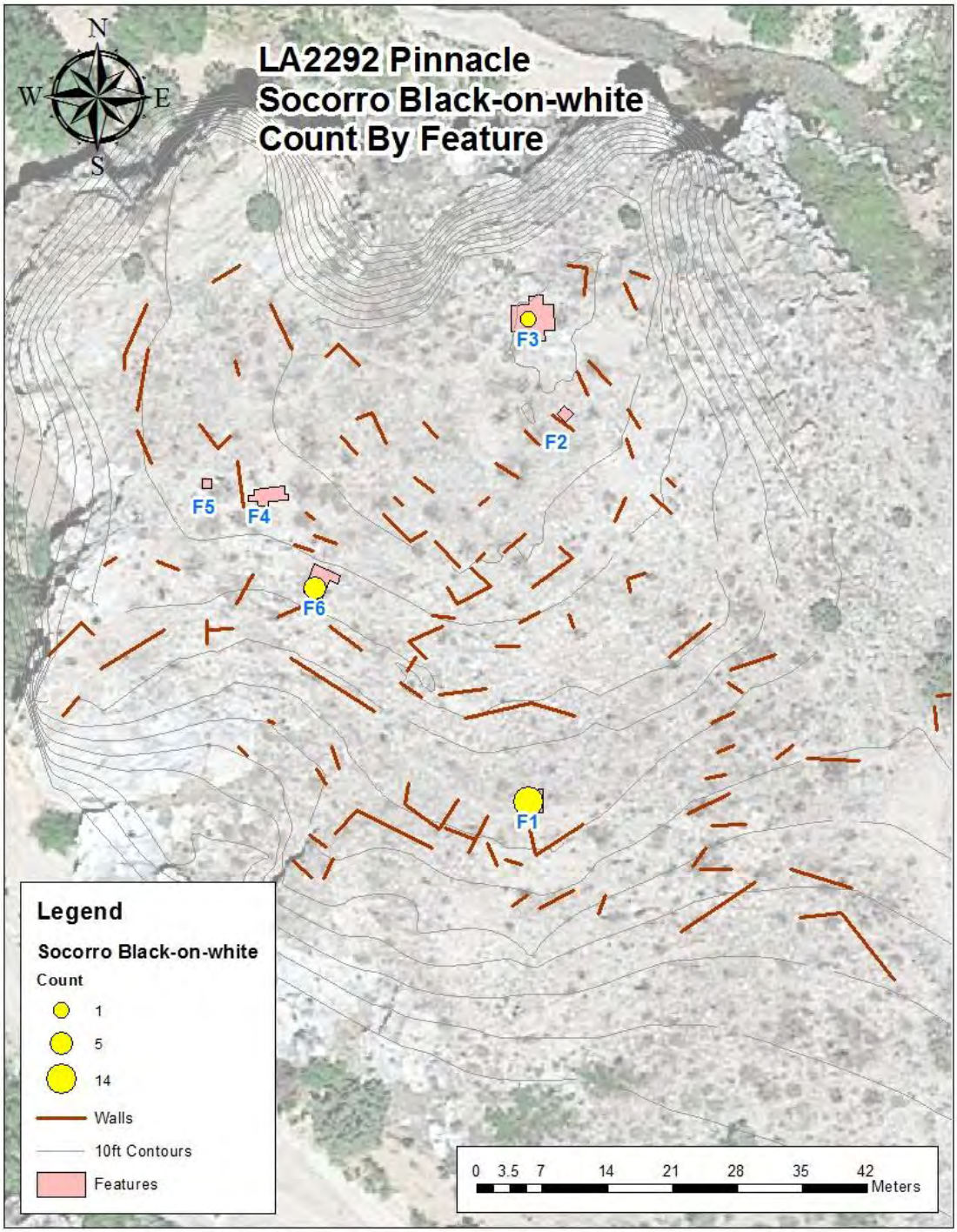

Figure 427. Distribution of Socorro B/w on the Pinnacle.

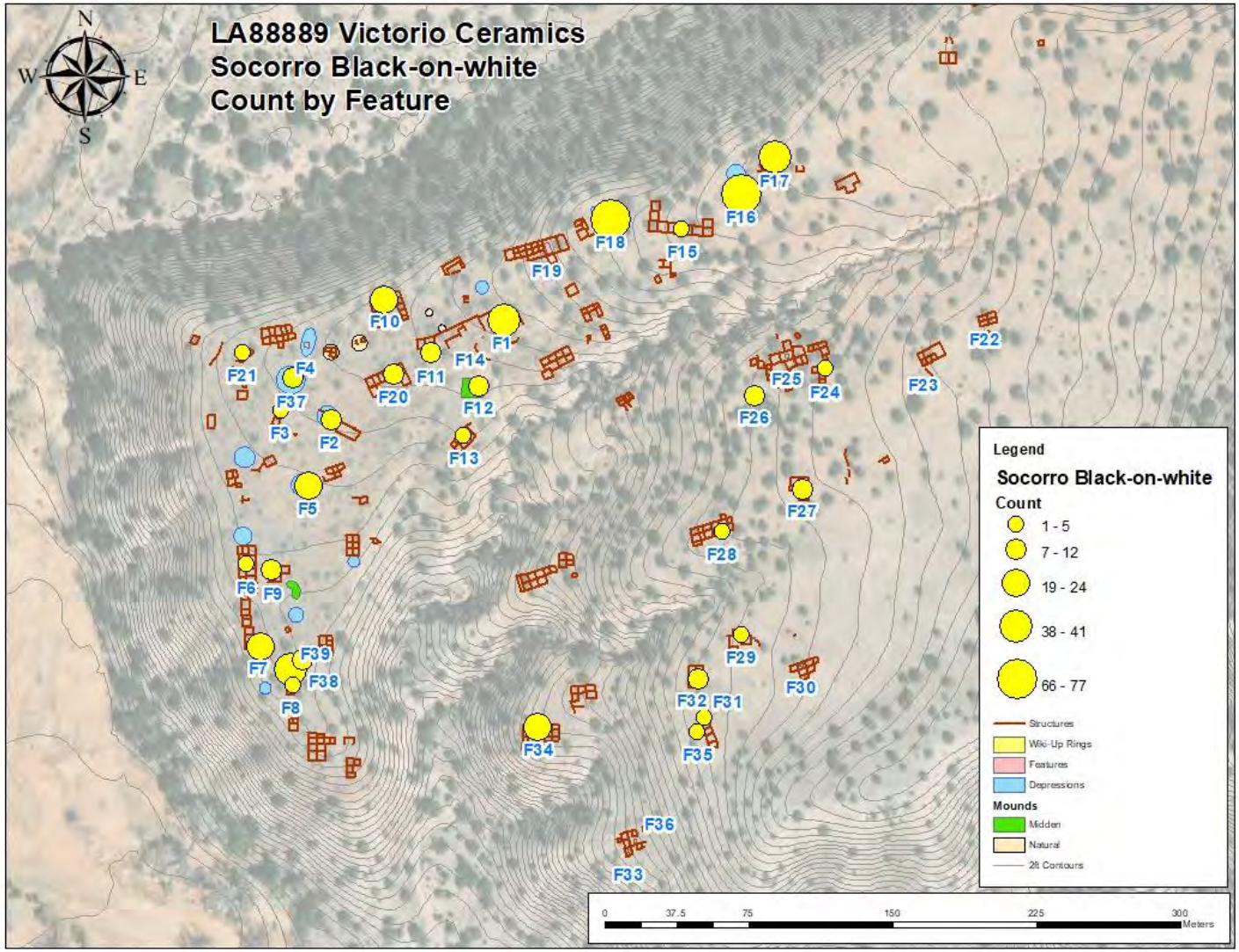

Figure 428. Distribution of Socorro B/w on the Victorio Site.

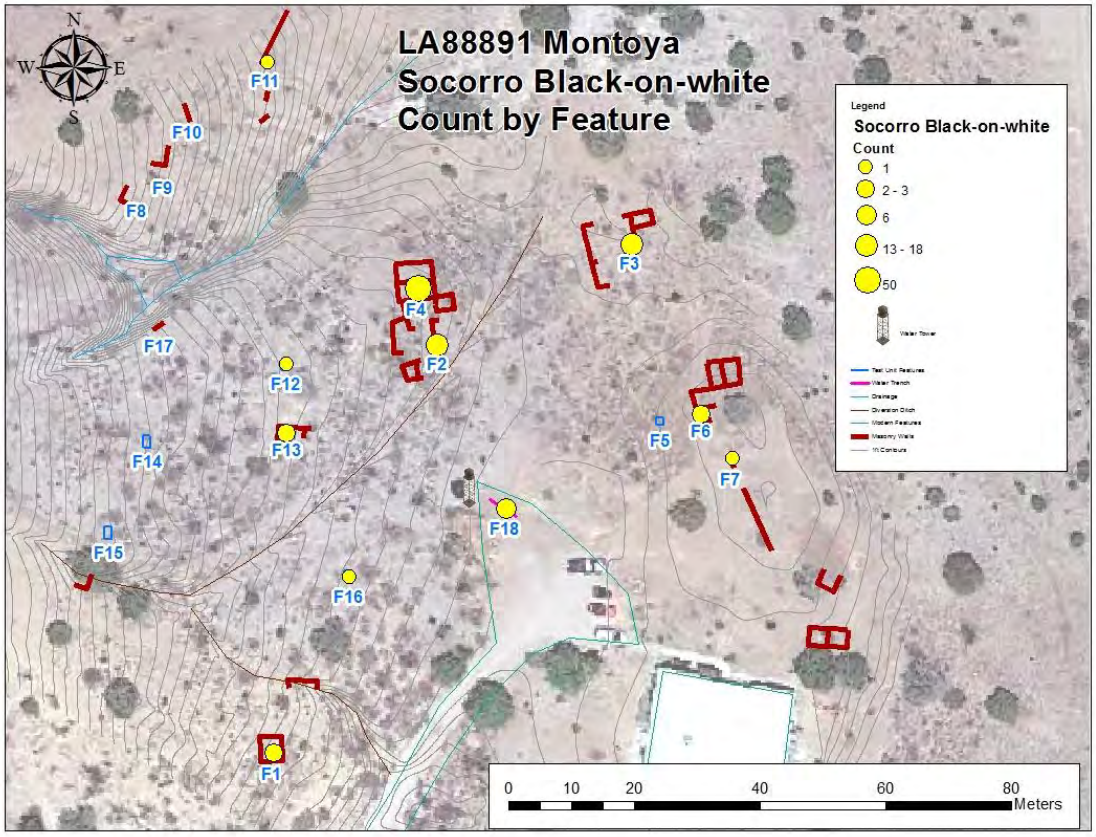

Figure 429. Distribution of Socorro B/w on the Montoya Site.

Figure 430. LA 88889: Socorro Black-on-white body sherds.
(top row: 05-68, 05-174, 05-226, 05-475;
bottom row: 05-540, 05-570, 05-620, 05-644)

Figure 431. LA 88889: Socorro Black-on-white Body Sherds.
(top row: 05-638, 05-652, 05-680, 05-685;
bottom row: 05-699, 05-683, 05-703, 05-811).
Note the Zia sun symbol design on the first sherd in the top row.
See Figure 432 or close up of the "Zia" sherd.

Figure 432. Close-up of Socorro B/w Sherd with Zia Symbol.

Figure 433. LA 88889: Socorro Black-on-white Bowl Rim Sherds.
(left to right: 05-60, 05-99, 05-370, 05-638, 05-652, 05-652)

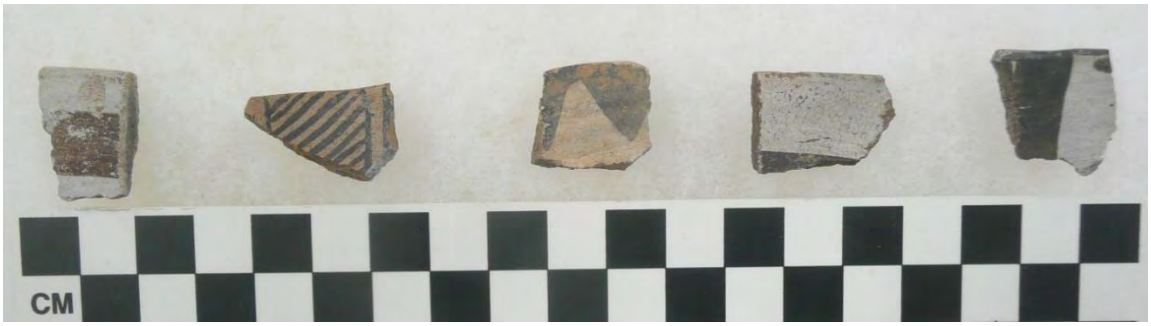

Figure 434. LA 88889: Socorro Black-on-white Bowl Rim Sherd
(left to right: 05-673, 05-701, 05-703, 05-719, 05-832)

SPRINGERVILLE POLYCHROME
(WHITE MOUNTAIN RED WARE)

Key Attributes. Thick orange-red to orange slip, mineral or carbon/mineral mix paint pigment, and closely spaced decoration that features interlocked or closely joined solid and hatched motifs on bowl interiors; black lines or bars are added to the geometric elements done in iron-free white pigment around the exterior surface of bowls; prepared sherd, sand, and rock detritus temper.

Dates. Accepted: circa A.D. 1250 – 1300. CAP Period/Phase dates: Late Pueblo Period/Tularosa Phase, A.D. 1200 -1290.

Basis of the Present Description. There are five sherds of Springerville Polychrome in the Cañada Alamosa assemblage (Table 59). One was from the Kelly Canyon Site (LA1125) where it was found in the upper fill of a Socorro Phase kiva. Four sherds were recovered from the Victorio Site (LA88889) in Tularosa and Tularosa mixed contexts. None were found at the Montoya Site (LA88891) or at the Pinnacle (LA2292). Figures 435 and 436 show the distribution of sherds on the sites. Figures 437-439 display representative sherds. See also Danson (1957), Martin, Rinaldo, and Barter (1957), Rinaldo (1959), and Carlson (1970).

Table 59. Count of Springerville Polychrome by Site.

Type	1125	2292	88889	88891	Grand Total
Springerville Polychrome	1		4		5

Construction. Hand coiling and scraping.

Paste. Ranges in color between white, light gray, buff, and pinkish white and orangish white. Gray carbon streaks are rare but do occur. The paste is hard and the texture may range from fine to coarse, depending on the size and quantity of the temper particles. Temper material consists of prepared sherd, sand, and rock detritus.

Surface Color. Bowl interior and exterior surfaces as well as jar exteriors are slipped with a thick orangish-red, or orange slip. The slip is evenly applied and polished after drying and before applying decoration.

Surface Finish. Slipped and painted surfaces are generally well smoothed but surfaces will occasionally have minor undulations. Slipped surfaces typically have a uniform polish. Unslipped/unpolished jar interiors are scraped smooth.

Vessel Forms. Bowls are open with rounded bases, jars have high or low straight necks, high shoulders, globular bodies, and strap or lug-type handles (lugs in effigy form occur). Rims are direct or slightly incurving and beveled towards the interior or they may be rounded or slightly flattened.

Decoration. Springerville Polychrome is virtually identical to St. Johns Polychrome. Designs on bowl interiors and exterior jar forms were laid-out in a banded fashion with designs held between two framing lines. The most typical design system includes opposing and interlocking solid and hatched rectilinear and curvilinear motifs with stepped or terraced endings. Hatching and other design motifs are fine-lined and well drafted. Other design elements include, pendant dots, zig-zag lines, solid triangles, diamonds, scrolls, and frets. Black lines or bars are added to the geometric elements done in iron-free white pigment around the exterior surface of bowls. Jar forms may have white pigment outlined in black or black bars integrated with a white design. A variety of St. Johns Polychrome may have white outlined motifs on the interior of bowls but this variety is still referred to as St. Johns Polychrome.

Paint. Iron-based mineral pigment. The pigment color is black, dark brown, or greenish-black and appears matt against the polished slip. The paint may also subglaze. Some have paint pigment that is a carbon/mineral mix which will appear black in color and have a fuzzy/blurred appearance

Remarks. Although production of this type begins a little later than St. Johns Polychrome, Springerville Polychrome is essentially identical to St. Johns Polychrome. Where St. Johns Polychrome has only white colored geometric designs encircling the exteriors of bowls, Springerville Polychrome has the addition of black colored bars incorporated with the white design or black outlining the white design on the exterior. This is not to be confused with a variety of St. Johns Polychrome that has white color outlining black designs on the interior surfaces of bowls. Carlson (1970:47) states that Springerville Polychrome was originally identified as a variety of St. Johns Polychrome, but contemporary analysts, as well as Carlson, prefer to separate Springerville Polychrome as a type separate from St. Johns Polychrome.

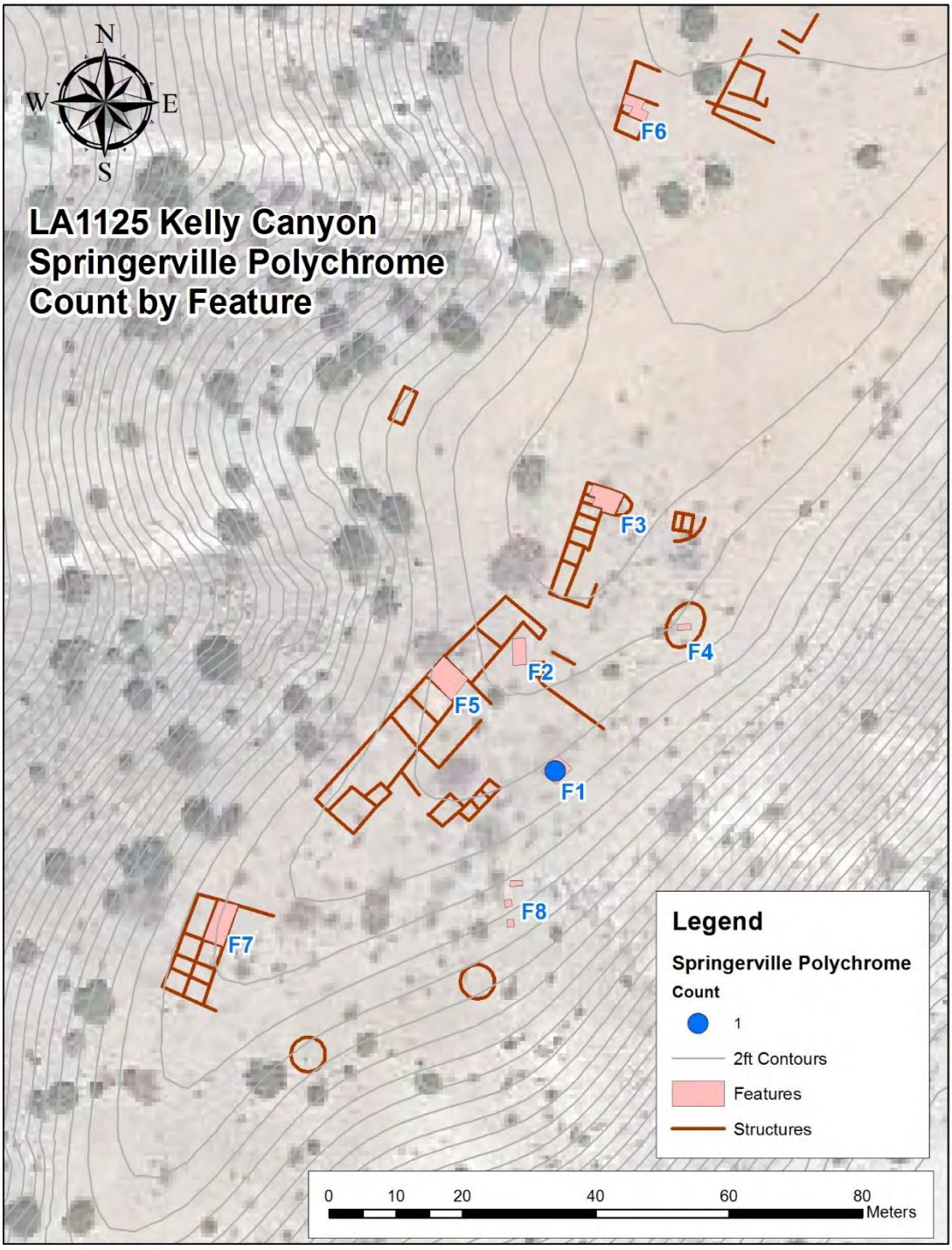

Figure 435. Distribution of Springerville Polychrome on the Kelly Canyon Site.

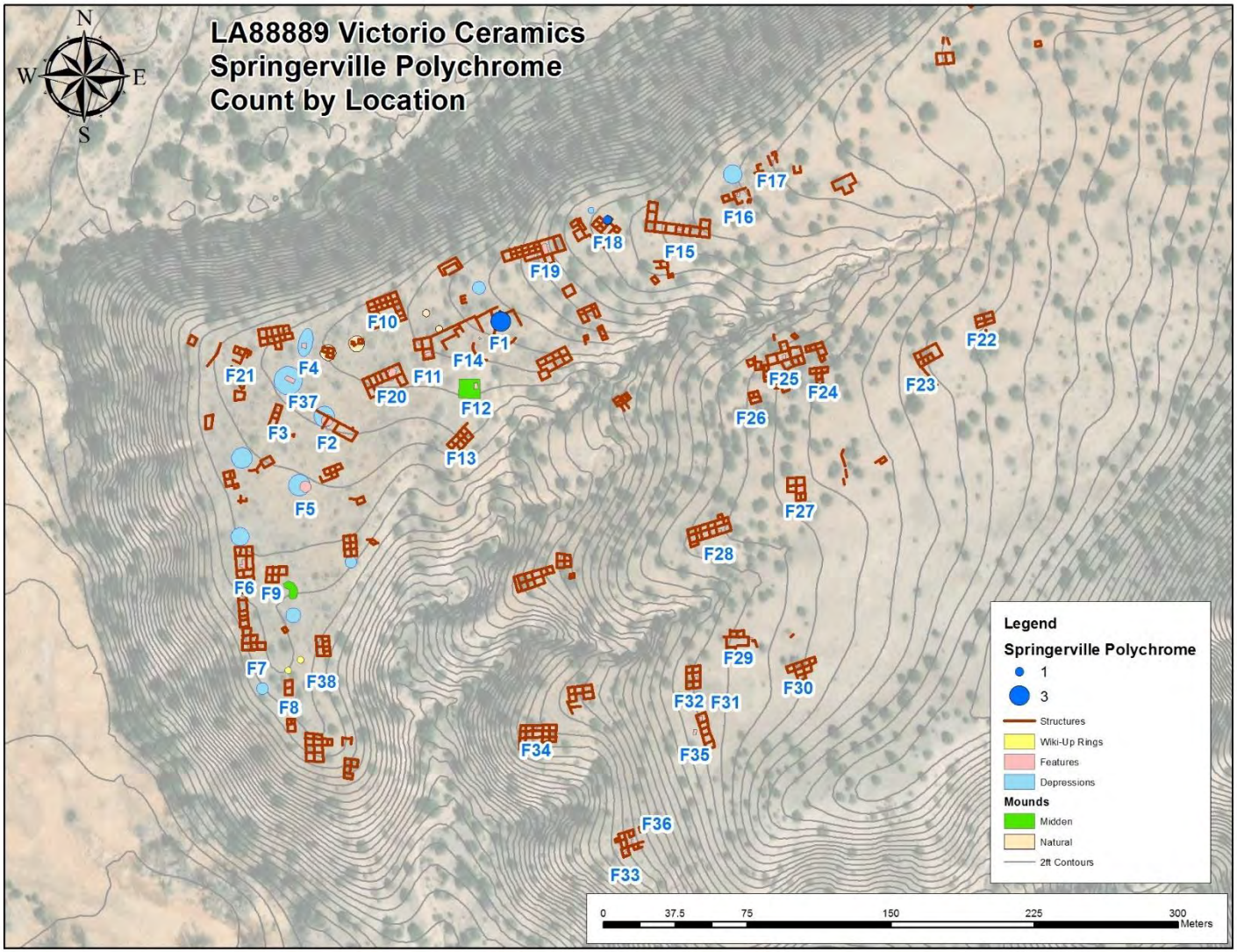

Figure 436. Distribution of Springerville Polychrome on the Victorio Site.

Figure 437. LA 1125: Springerville Polychrome (03-349, left- interior surface, right- exterior surface).

Figure 438. LA 88889: Springerville Polychrome (99-462, left-interior surface, right- exterior surface).

Figure 439. LA 88889: Springerville Polychrome (09-1517, left- interior surface, right- exterior surface).

ST. JOHNS BLACK-ON-RED
(WHITE MOUNTAIN RED WARE)

Key Attributes. Red, orange-red, to orange colored slip, mineral or carbon/mineral mix paint pigment, and decoration that features interlocked or closely joined solid and hatched motifs.

Dates. Accepted: A.D. 1175 – 1300/1325. CAP Period/Phase dates: Early Pueblo Period, Socorro Phase, A.D. 1130-1200 and Late Pueblo Period, Tularosa Phase, A.D. 1200-1290. St. Johns B/r was found in its greatest numbers within the mixed Socorro – Tularosa Phase context and the Tularosa Phase context at the Victorio Site.

Basis of the Present Description. One hundred seventy-nine sherds of St. Johns Black-on-red are in the Cañada Alamosa assemblage (Table 60). Five sherds were recovered from the Kelly Canyon Site (LA 1125), twenty- seven from the Pinnacle (LA 2292), one hundred forty-seven from the Victorio Site (LA 88889), and none from the Montoya Site (LA 88891). See also Martin, Rinaldo, and Barter (1957), Rinaldo (1959), and Carlson (1970). Figures 440-442 show the distribution of the type on the sites. Figures 443 and 444 display representative sherds.

Table 60. Count of St. John Black-on-red by Site.

Type	1125		2292	88889	88891	Grand Total
St. Johns Black-on-red	5		27	147		179

Construction. Hand coiling and scraping.

Paste. Light colored paste ranges between white, light gray, buff, and pinkish white. Pale gray carbon streaks occur. The paste is hard and the texture may range from fine to coarse, depending on the size and quantity of the temper particles. Temper material consists of prepared sherd, sand, and rock detritus.

Surface Color. Jar exteriors and bowl interior and exterior surfaces are slipped with a thick red, orangish-red, or orange slip. The slip is evenly applied and polished after drying and before applying decoration.

Surface Finish. Slipped and painted surfaces are generally well smoothed but surfaces will occasionally have minor undulations. Slipped surfaces typically have a uniform polish. Unslipped/unpolished jar interiors are scraped smooth but may undulate slightly.

Vessel Forms. Hemispherical bowls and jars with high or low straight necks, high shoulders, globular bodies, and strap handles (strap handles with effigy forms attached do occur). Rims are direct or slightly incurving and beveled towards the interior or they may be rounded or slightly flattened.

Decoration. Designs on bowl interiors and exterior jar forms were laid-out in a banded fashion with designs held between two framing lines. The most typical design system includes opposing and interlocking solid and hatched rectilinear and curvilinear motifs with stepped or terraced endings. Hatching and other design motifs are fine-lined and well drafted. The overall design on a vessel looks compact and closely spaced. Other design elements include, pendant dots, zig-zag lines, solid triangles, diamonds, scrolls, and frets. The design system on St. Johns Black-on-red and St. Johns Polychrome is very similar to that seen on Tularosa Black-on-white. See Carlson's discussion of Tularosa Style (1970:90-91).

Paint. Iron-based mineral pigment was utilized to create the designs on St. Johns B/r. The pigment color is black, dark brown, or greenish-black and this pigment will appear matt against the polished slip. The paint will also appear as a subglaze. Some samples of St. Johns B/r may have paint pigment that is a carbon/mineral mix which will appear black in color and have a fuzzy/blurred appearance.

Remarks. St. Johns Black-on-red may be confused with other types. One likely candidate is Wingate Black-on-red. Wingate's designs are more widely spaced and boldly drawn than those on St. Johns Black-on-red and slip color on Wingate is commonly red and never ranges to an orange color, unlike St. Johns Black-on-red which can range from red to orange.

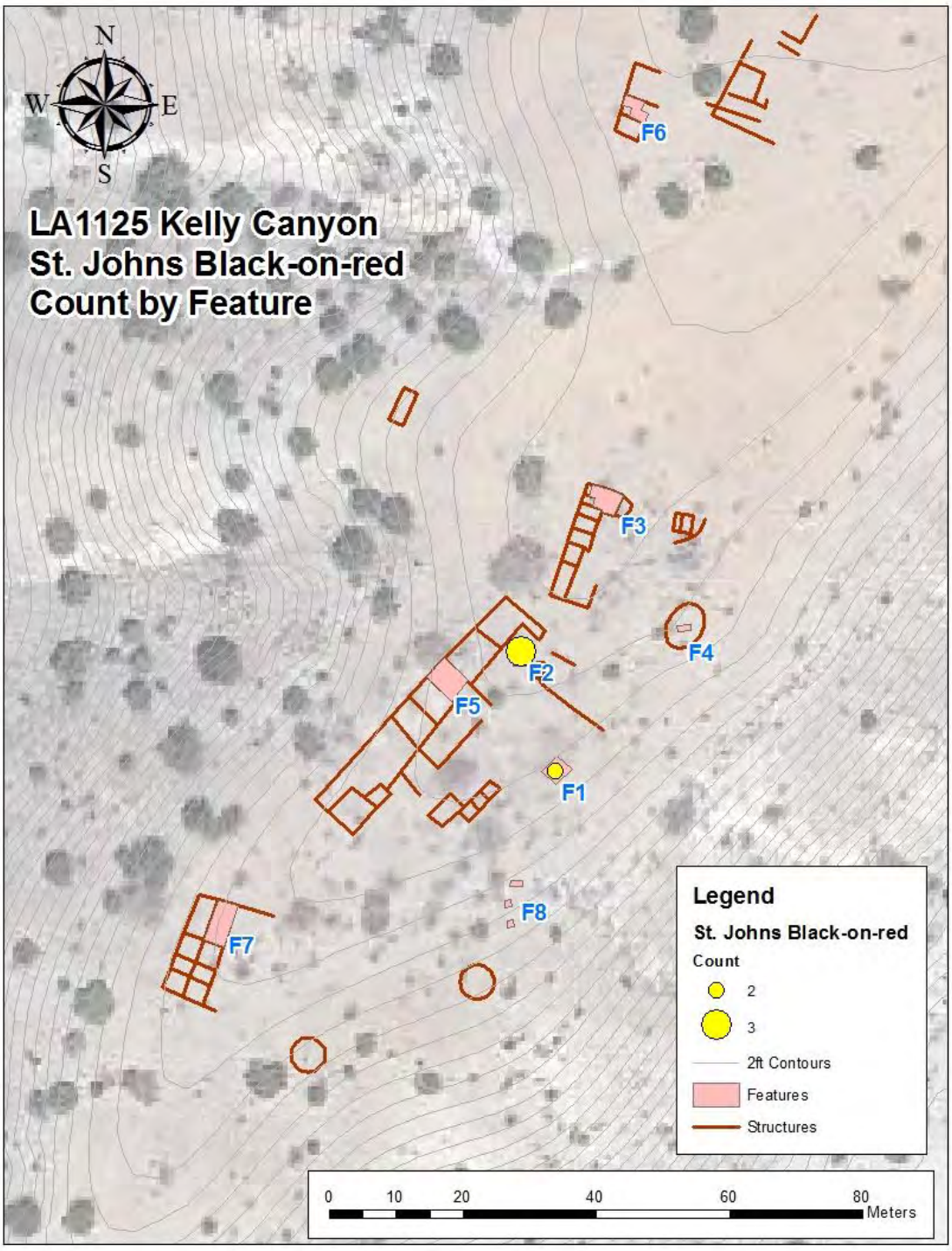

Figure 440. Distribution of St. Johns Black-on-red on the Kelly Canyon Site.

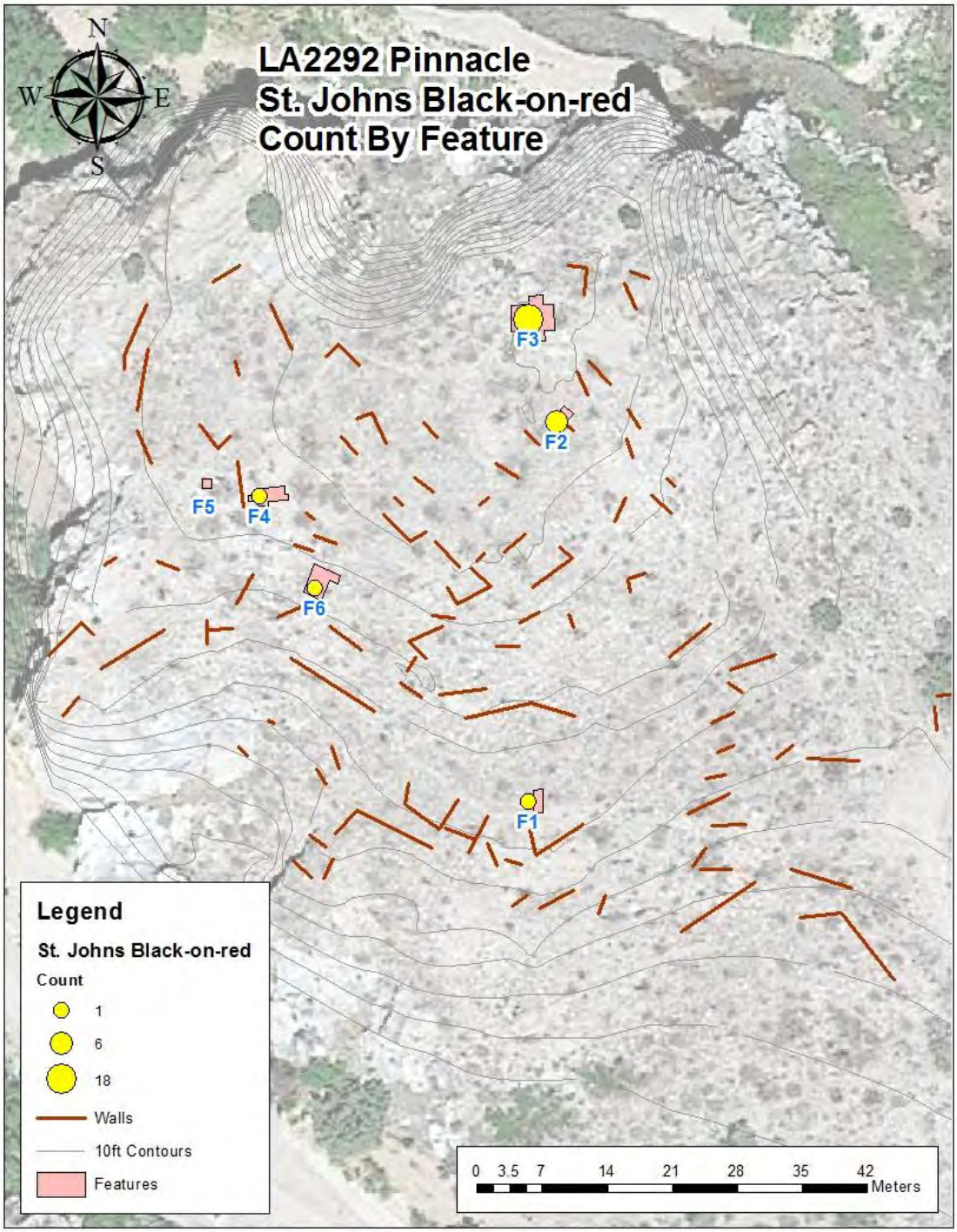

Figure 441. Distribution of St. Johns Black-on-red on the Pinnacle.

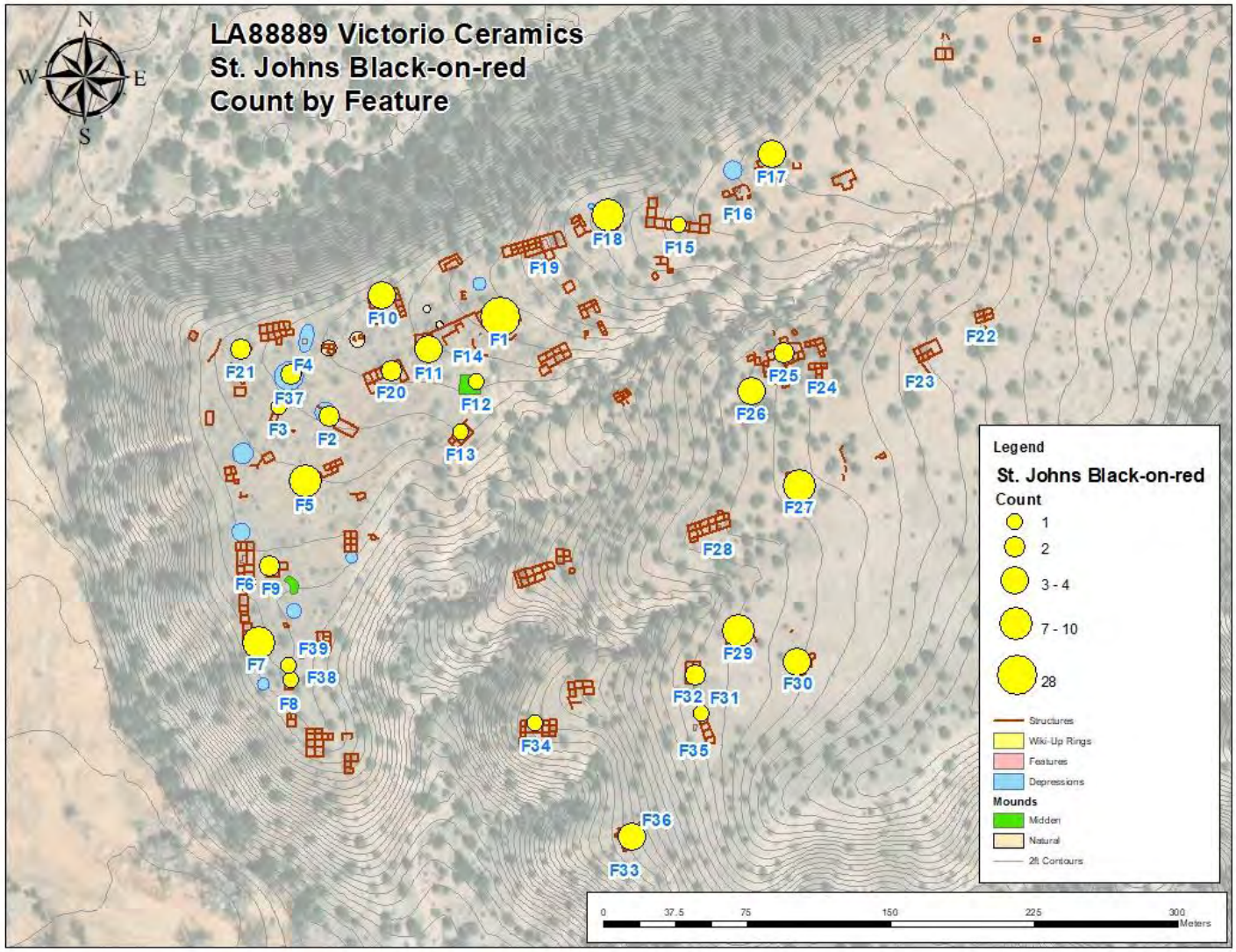

Figure 442. Distribution of St. Johns Black-on-red on the Victorio Site.

Figure 443. LA 2292: St. Johns Black-on-red Jar Sherds (01-73).

Figure 444. LA 88889: St. Johns Black-on-red Bowl Sherds (05-110 and 05-832).

ST. JOHNS POLYCHROME
(WHITE MOUNTAIN RED WARE)

Key Attributes. Thick red, orange-red, to orange colored slip, mineral or carbon/mineral mix paint pigment, and closely spaced, well drafted decoration that features interlocked or closely joined solid and hatched motifs on bowl interiors and continuous geometric elements done in iron-free white pigment around the exterior surface of bowls; temper material consists of prepared sherd, sand, and rock detritus.

Dates. Accepted: A.D. 1175 – 1300/1325. CAP Period/Phase dates: late Early Pueblo Period, Socorro Phase A.D. 1130-1200 and Late Pueblo Period, A.D. 1200-1290. The majority of St. Johns Polychrome was found within the mixed Socorro-Tularosa Phase and the Tularosa Phase contexts at the Victorio and Kelly Canyon Sites and in the Magdalena Phase temporal context (A.D. 1250 – 1290) at the Pinnacle.

Basis of the Present Description. Seven hundred-fourteen sherds of St. Johns Polychrome are in the Cañada Alamosa assemblage (Table 61). Twenty were recovered from the Kelly Canyon Site (LA 1125), eighty-five from a Magdalena Phase context the Pinnacle (LA 2292), Six hundred-four from the Victorio Site (LA 88889), and five from the Montoya Site (LA 88891). One restored bowl (80%) of St. Johns Polychrome came from the Pinnacle. See also Mera (1934), Colton and Hargrave (1937), Martin, Rinaldo, and Barter (1957), Rinaldo (1959), and Carlson (1970).

Table 61. Count of St. Johns Polychrome.

Type	1125	2292	88889	88891	Grand Total
St. Johns Polychrome	20	85	604	5	714

Construction. Hand coiling and scraping.

Paste. The paste is commonly light and ranges in color between white, light gray, buff, and pinkish white and orangish white. Gray carbon streaks are rare but do occur. The paste is hard and the texture may range from fine to coarse, depending on the size and quantity of the temper particles. Temper material consists of prepared sherd, sand, and rock detritus.

Surface Color. Bowl interior and exterior surfaces as well as jar exteriors are slipped with a thick red, orangish-red, or orange slip. The slip is evenly applied and polished after drying and before applying decoration.

Surface Finish. Slipped and painted surfaces are generally well smoothed but surfaces will occasionally have minor undulations. Slipped surfaces typically have a uniform polish. Unslipped/unpolished jar interiors are scraped smooth. Occasionally, large jar forms may have indentations into and on either side of the upper body that served as finger holds to facilitate lifting and carrying (Figure 445).

Vessel Forms. Bowls tend to be open and hemispherical; jars have high or low straight necks, high shoulders, globular bodies, and strap or lug-type handles (strap handles with effigy forms or lugs in effigy form occur). Rims are direct or slightly incurving and beveled towards the interior or they may be rounded or slightly flattened.

Figure 445. LA 2292: White Mountain Red Ware (St. Johns Black-on-red or Polychrome) Unusual "Inverted Side-Lugs" from Two Different Jar Vessels, Interior and Exterior Views (01-68 and 08-185).

Decoration. Designs on bowl interiors and exterior jar forms were laid-out in a banded fashion with designs held between two framing lines. The most typical design system includes opposing and interlocking solid and hatched rectilinear and curvilinear motifs with stepped or terraced endings. These features along with parallel hatching characterizes the Tularosa style which is most common on St. Johns Polychrome (Carlson 1970:91). Hatching and other design motifs are fine-lined and well drafted. Hatched motifs on St. Johns Polychrome may be diagonal (Wingate style), parallel (Tularosa style), or a combination of both may been seen on a single vessel (Carlson 1970:37,90). The overall design on a vessel looks compact and closely spaced. Other design elements include, pendant dots, zig-zag lines, solid triangles, diamonds, scrolls, and frets. White colored linear or unit designs encircle the exterior surface of bowls. Jar forms may or may not have white pigment included with the overall design.

There is some variation in the interior and exterior decoration (Figure 446). A variety of St. Johns Polychrome may have white outlined motifs on the interior of

bowls but this variety is still referred to as St. Johns Polychrome but is considered to be a late variety. This late variety of St. Johns Polychrome, dating circa A.D. 1250-1300 (Peeples 2020: personal communication), has black designs outlined with white pigment. This combination of one-color outlining another on the exterior surface of St. Johns Polychrome, particularly on sherds, will be difficult to distinguish from the same color combination on the exteriors of Springerville Polychrome. However, Springerville Polychrome has black lines or bars added to the white colored geometric designs around the exterior surface of bowls while those black designs on St. Johns Polychrome are outlined with white. The overall design system seen on St. Johns Black-on-red and St. Johns Polychrome, and its varieties are very similar to that seen on Tularosa Black-on-white. See Carlson's discussion of Tularosa Style (1970:90-91).

Figure 446. LA 88889: Decorative Paint Color Variations Observed on Interior (Top) and Exterior (Bottom) Surfaces of St. Johns Polychrome Bowls (left to right 05-220, 05-633, 05-714, 05-784).

Decorative color varieties observed on interior/exterior surfaces of St. Johns Polychrome (Left image- third sherd from left has white pigment outlining black pigment, other sherds are typical interior color combinations for the type. Right image/l to r- 05-220 and 05-633 have black outlined with white pigment, 05-714 has white pigment only typical for the type, 05-784 has black outlined with white

pigment). The color combination on the exterior surfaces of 05-220, 05-633, and 05-784 are seen on the late variety of St. Johns Polychrome.

Paint. Iron-based mineral pigment. The pigment color is black, dark brown, or greenish-black and this pigment will appear matt against the polished slip. The paint will also appear as a subglaze. Some samples of St. Johns Polychrome have paint pigment that is a carbon/mineral mix which will appear black in color and have a fuzzy/blurred appearance.

Neutron Activation Analysis. No local production. The sample of St. Johns Polychrome was produced in several areas located north and west of Cañada Alamosa including the El Morro Valley, Marietta Mesa, Plateau, Las Ventanas (Group 1,2, and3), and South Cibola. The sample of St. Johns Polychrome had a significant number of unassigned sherds. Possible sources include the western Gallinas Mountains near Magdalena (Ferguson et al. 2024).

Remarks. Like St. Johns Black-on-red, St. Johns Polychrome may difficult to distinguish from Wingate Black-on-red and Wingate Polychrome. Always remember that the slip color on Wingate stays within the red to maroon red range while the thicker slip on St. Johns will range from red, orange-red, to orange. The hatched with opposed solids motifs on Wingate are more open and boldly expressed compared to the well drafted, closely spaced designs on St. Johns Polychrome. White colored linear or unit designs on the exterior of St. Johns Polychrome bowls were laid-down on an overall slip. Designs on Wingate Polychrome bowl exteriors were created by laying red colored pigment onto an unslipped oxidized surface or by slipping the exterior with white and creating the designs with red pigment laid onto the white slipped surface.

Figures 447-450 show the distribution of St. Johns Polychrome by site. Figures 451-461 display representative sherds and a partially restored vessel.

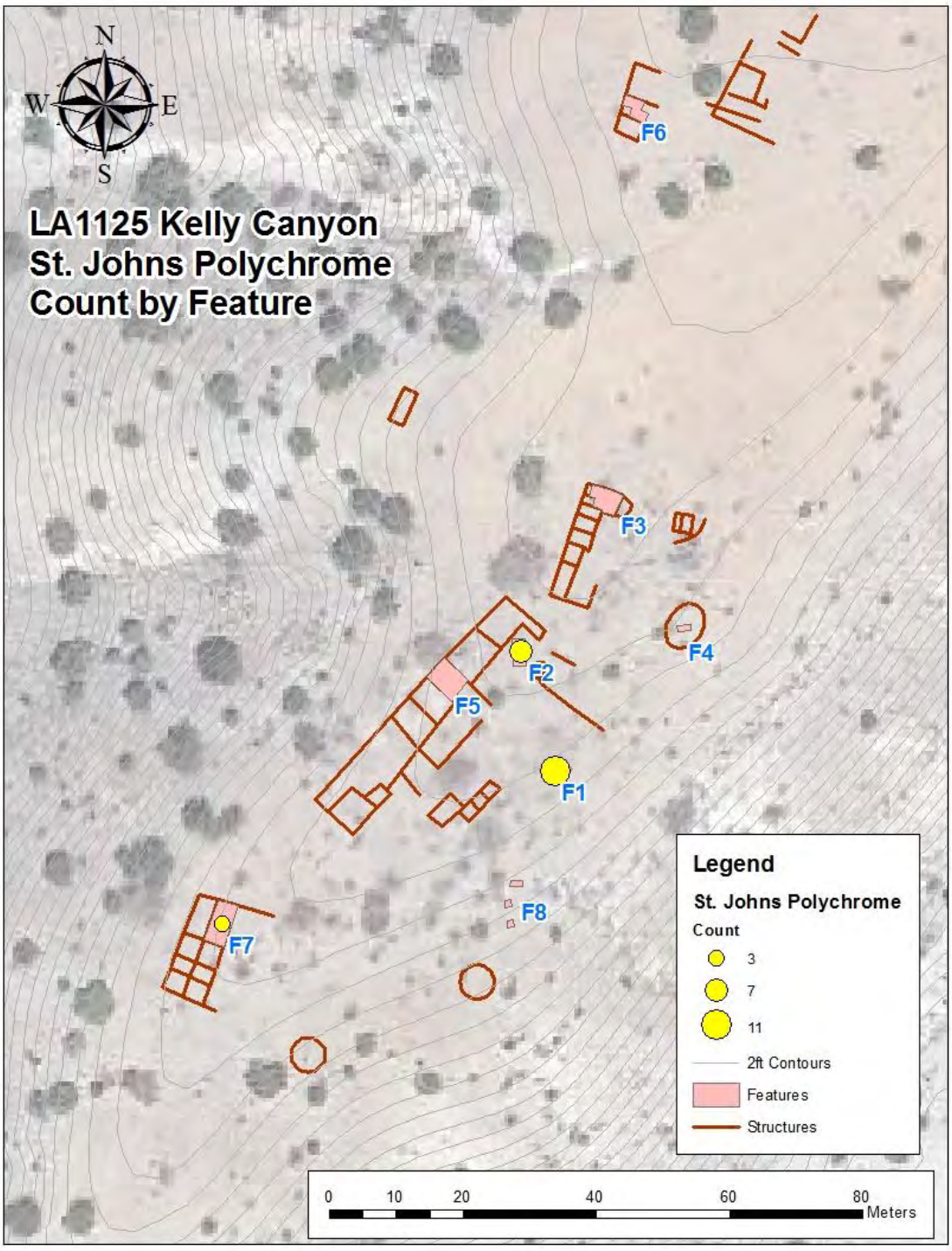

Figure 447. Distribution of St. Johns Polychrome on the Kelly Canyon Site.

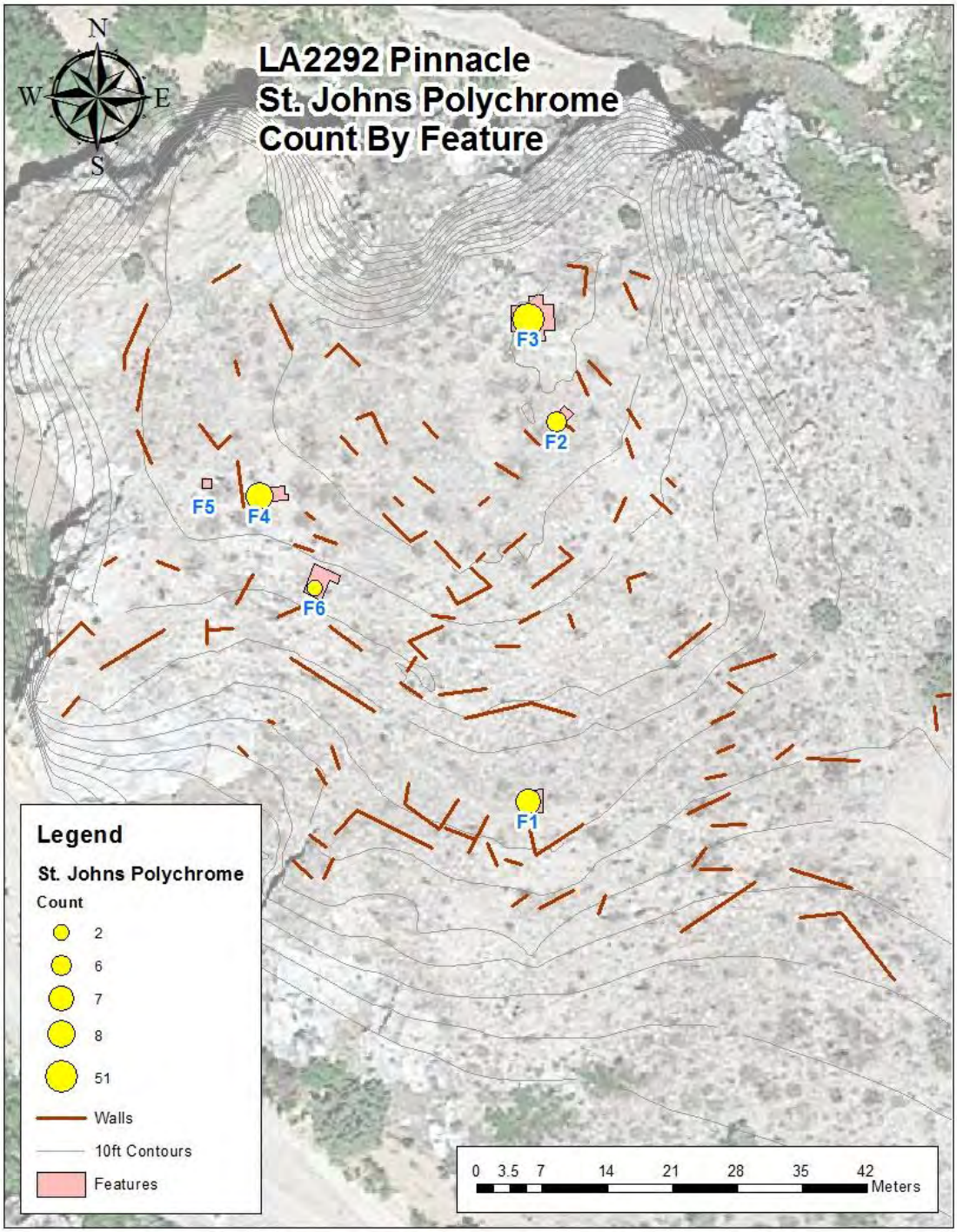

Figure 448. Distribution of St. Johns Polychrome on the Pinnacle.

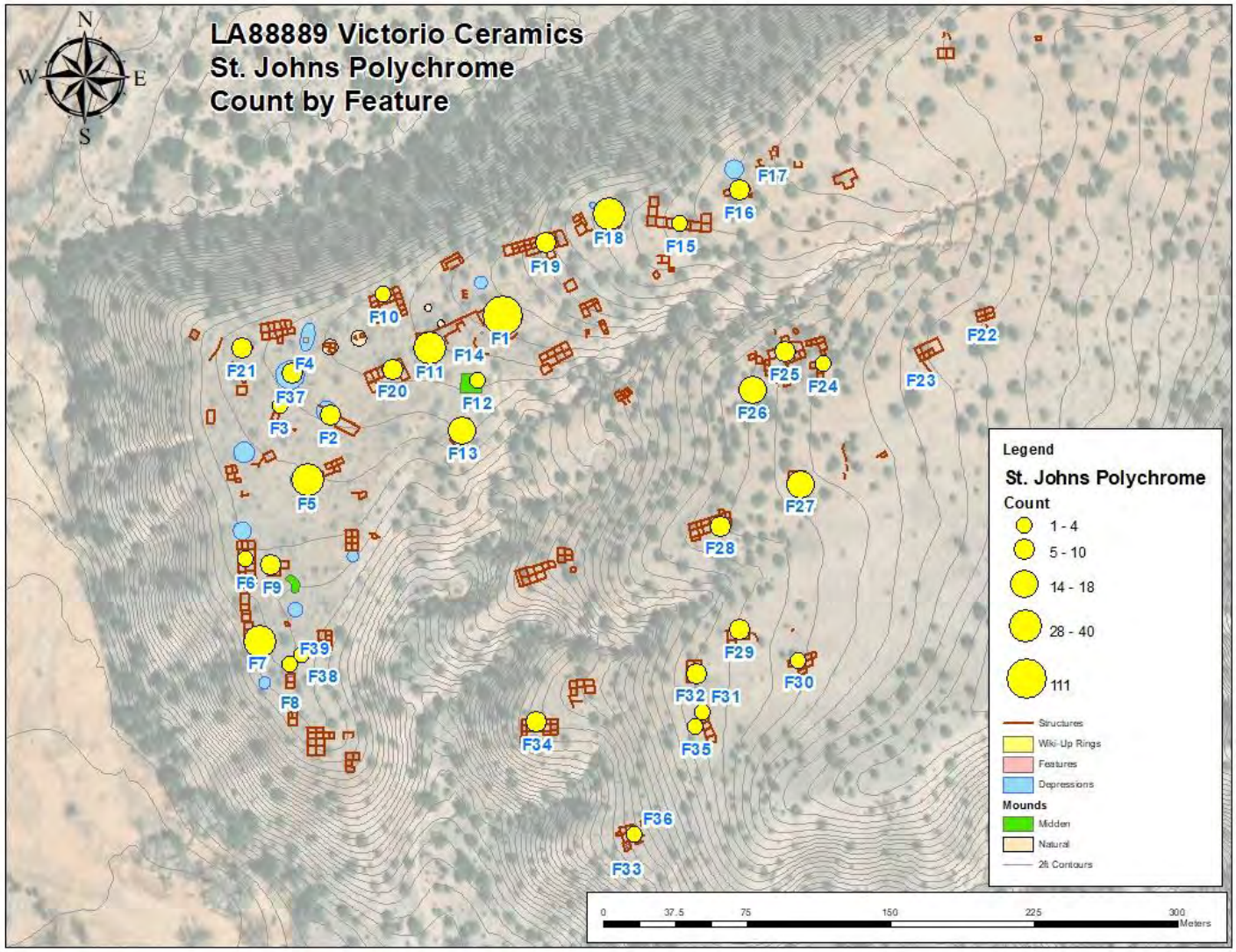

Figure 449. Distribution of St. Johns Polychrome on the Victorio Site.

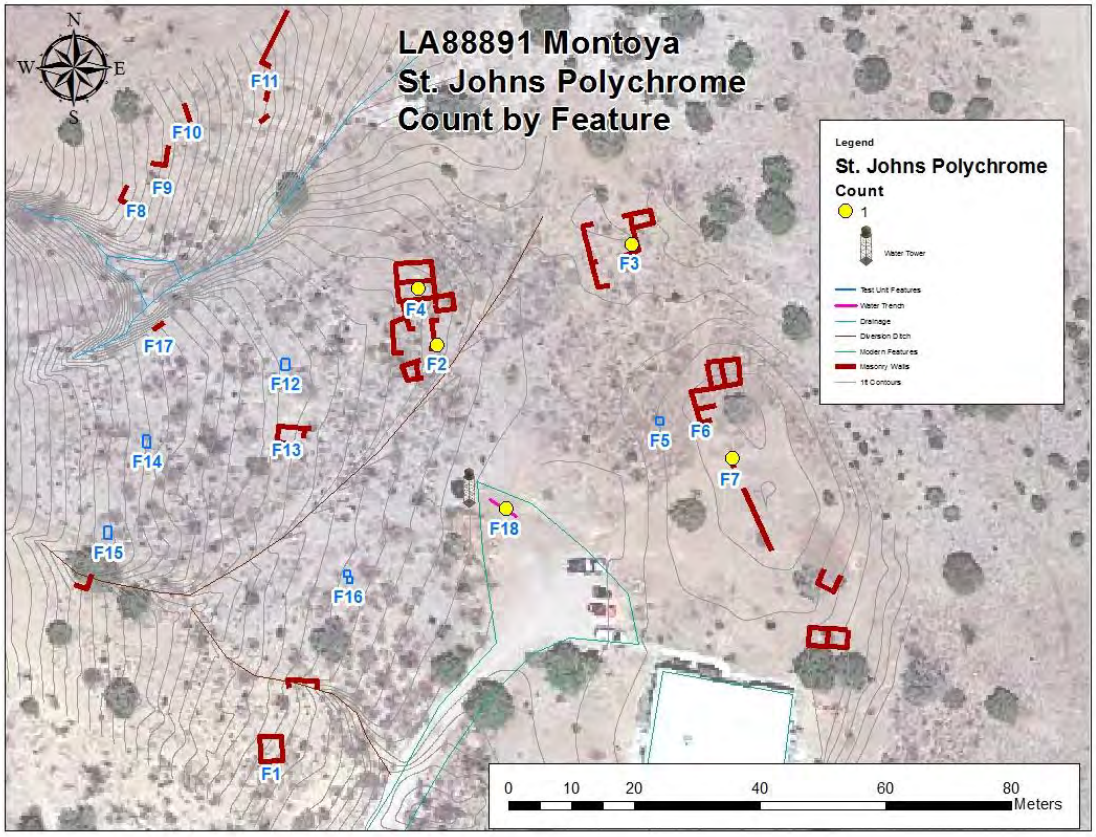

Figure 450. Distribution of St. Johns Polychrome on the Montoya Site.

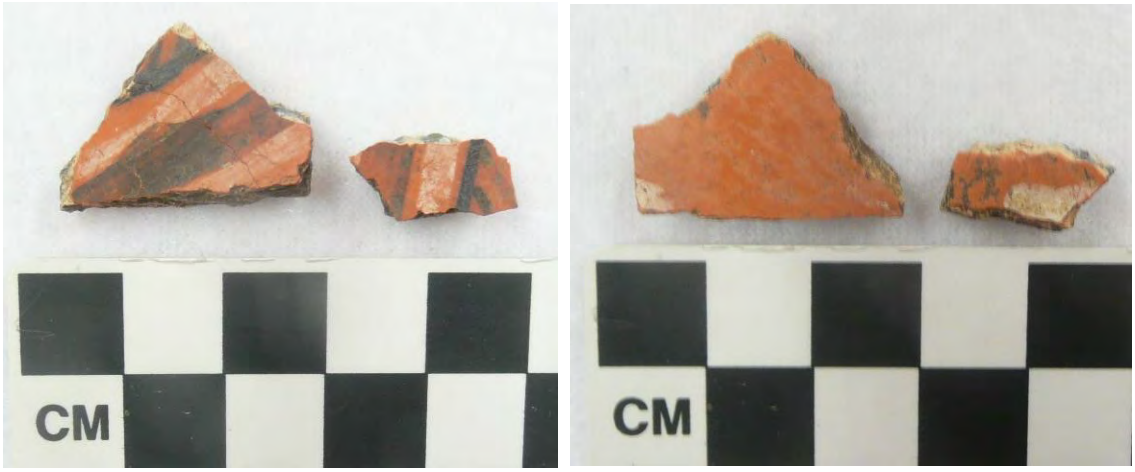

Figure 451. LA 1125: St. Johns Polychrome Bowl Sherds (02-552, left-interior view, right-exterior view).

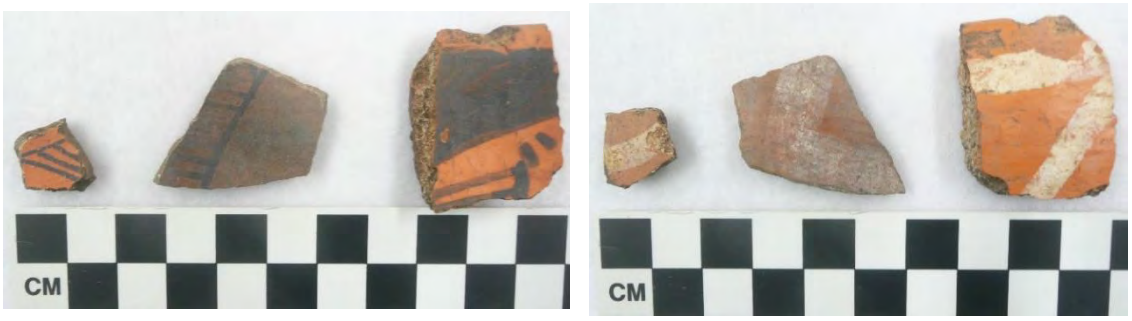

Figure 452. LA 1125: St. Johns Polychrome Bowl Sherds (03-332, 03-324, 03-599; left-interior view, right-exterior view).

Figure 453. LA 88889: St. Johns Polychrome Bowl Sherds (top-interior view, bottom-exterior view; top row/l to r: 05-264, 05-551, 05-662 rim; bottom row/l to r: 06-631, 05-689 rim/subglaze pigment, 05-701 rim with worked edges, 05-707 rim).

Figure 454. LA 88889: St. Johns Polychrome Bowl Rim interior and exterior views (06-540).

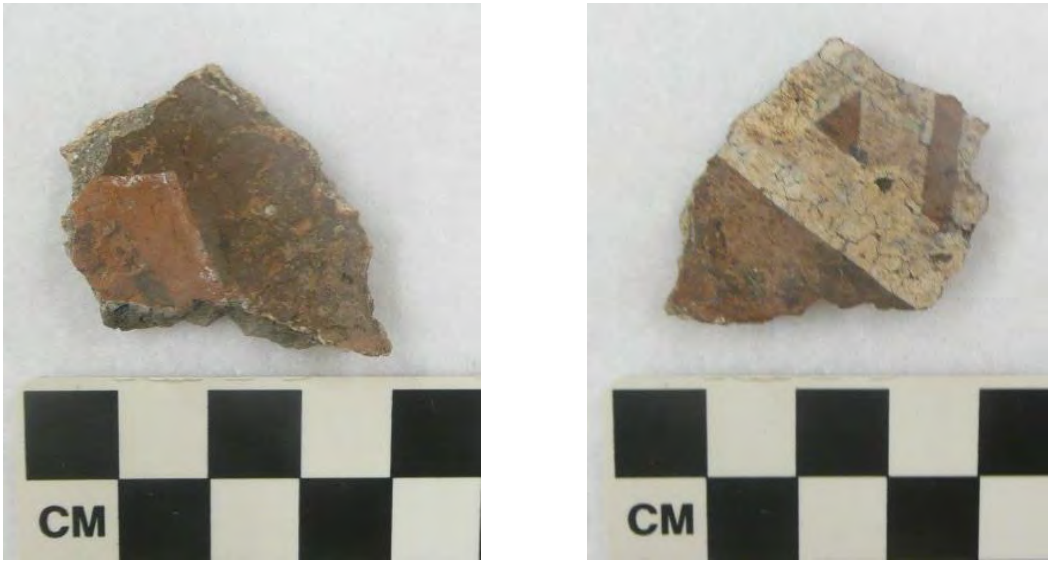

Figure 455. LA 88889: St. Johns Polychrome Bowl Sherd, Interior and Exterior Views (06-705).

Figure 456. LA 88889: St. Johns Polychrome Bowl Sherd, Interior and Exterior Views (08-1270 and 08-1330).

Figure 457. LA 2292: St. Johns Polychrome Bowl Body and Rim Sherd, Interior and Exterior Views (00-129 & 00-397).

Figure 458. LA 2292: St. Johns Polychrome Partially Restored Bowl with Heavy Sooting of Exterior Painted Design (02-73). This vessel was recovered from a Magdalena Phase floor.

Figure 459. Exterior of Bowl Depicted in Figure 458.

Figure 460. Interior of Bowl Depicted in Figure 458-

Figure 461. Painting of St. Johns Polychrome from LA 2292 Showing the Detail that Is Obscured by Soot. Courtesy Phil Yost.

TECHADO POLYCHROME
(WHITE MOUNTAIN RED WARE)

Key Attributes. Thick red, orange-red, to orange colored slip, mineral-based paint pigment, and closely spaced, well drafted decoration in a Tularosa design style (similar to St. Johns Polychrome). Unique bowl exterior decoration that includes boldly expressed black geometric designs painted on top of a wide, white colored band, often seen in combination with St. Johns Polychrome-like continuous geometric elements done in white pigment around the exterior surface of bowls.

Dates. Termed Techado Polychrome by Jimmy Smith (Smith et al. 2009:126-134), this specific White Mountain Red Ware variant appears to have been produced only in the Quemado area and has been found in tree-ring dated contexts from Los Gigantes, a post Chaco great house site near Zuni. In that case the tree-ring dates ranged from A.D. 1253 into the 1270s (Peebles personal communication 2009). In a review of extant collections Peebles has found small quantities of Techado Polychrome in a great number of Cibola area sites, however the only areas where it shows up with regularity are the Mariana Mesa and Springerville subareas. Peebles maintains that the type is found exclusively in sites dating between A.D. 1240 and A.D. 1325 (Peebles personal communication 2010). CAP Period/Phase dates: Late Pueblo Period, Tularosa Phase, A.D. 1200 – 1290. Eight of the fourteen sherds of Techado Polychrome were recovered from Tularosa Phase contexts at the Victorio Site. The remaining six sherds are in mixed contexts.

Basis of the Present Description. Fourteen sherds (Table 62) were recovered from the Victorio Site (LA 88889). Figure 462 shows the distribution of sherds on the Victorio Site. Figures 463-467 display representative sherds. See also Smith, Robertson, Tawater, Jamison and Osburn (2009) who named this new type of White Mountain Red Ware.

Table 62. Count of Techado Polychrome.

Type	1125	2292	88889	88891	Grand Total
Techado Polychrome			14		14

Construction. Hand coiling and scraping.

Paste. The hard paste is light ranging from pale yellow, light tan, to light gray. The texture is fine with well-prepared sherd temper.

Surface Color. Bowl interior and exterior surfaces as well as jar exteriors are slipped with a thick red, orangish-red, or orange slip. The slip is evenly applied and polished after drying and before applying decoration.

Surface Finish. Slipped and painted surfaces are generally well smoothed but surfaces will occasionally have minor undulations. Slipped surfaces have a uniform polish. Unslipped/unpolished jar interiors are scraped smooth.

Vessel Forms. Although bowl forms are more common, jar/olla forms were produced. All samples in the Cañada Alamosa assemblage were bowl forms. Large open bowls are typical with slightly incurving sidewalls. Rims are rounded or inwardly beveled.

Decoration. Designs on bowl interiors and the exteriors of jar forms were laid-out in a banded fashion with designs held between two framing lines. The Tularosa design system, like that on St. Johns Polychrome, typifies that seen on Techado Polychrome although designs similar to Heshotauthla and Pinedale Polychromes are also reported (Smith et al. 2009:126-134). The most typical designs include opposing and interlocking solid and hatched rectilinear and curvilinear motifs with stepped or terraced endings. Hatching and other design motifs may not appear well drafted. The overall design on a vessel looks compact and closely spaced. Design elements include, pendant dots, zig-zag lines, solid triangles, diamonds, scrolls, and frets. It is the exterior bowl design that makes Techado Polychrome unique. There are essentially two styles of exterior design. The most diagnostic style includes boldly expressed black geometric designs painted on top of a wide, white colored band. The other exterior design style includes the diagnostic bold, black geometric designs painted on top of a wide, white colored band in combination with St. Johns Polychrome-like continuous geometric elements done in white pigment.

Paint. Black mineral-based pigment occurs in matte, subglaze, and glaze formats. White pigment is presumed to be derived from kaolin clay.

Remarks. Techado Polychrome is an important marker for interpreting the late occupation and abandonment of the Victorio Site (LA 88889). Smith et al. (2009:134) indicate that Techado Polychrome was manufactured at Techado Spring Pueblo prior to A.D. 1275 and predates Heshotauthla Glaze Polychrome as well as Kwakina Glaze Polychrome at Techado Spring Pueblo. Conversely, production of Techado Polychrome ended before the pueblo was abandoned

around A.D. 1300. Smith et al. (2009:126) have suggested a fairly tight timeframe for the production of Techado Polychrome as being A.D. 1260 to 1290.

Although the sherds of this type from the Victorio Site are generally small, they are distributed across the extent of the sixty-acre site and are found in five room features and three test units. The wide distribution coupled with the fact that the extensive site was merely tested, indicates use of Techado by multiple households. It is also significant that Techado Polychrome was found in rooms with chronometric dates in the late 1200s.

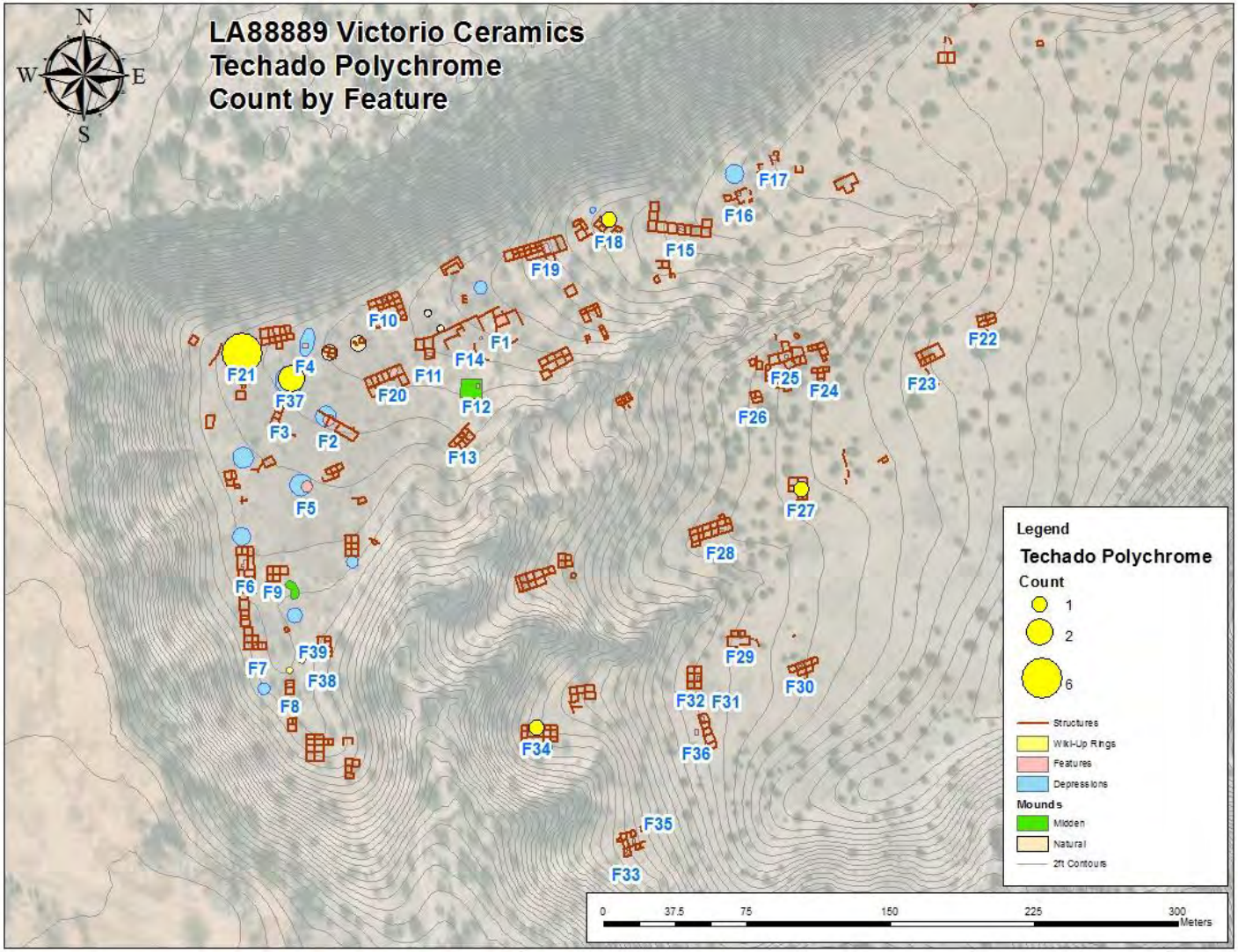

Figure 462. Distribution of Techado Polychrome on the Victorio Site.

Figure 463. LA 88889: Techado Polychrome Bowl Body Sherds, Interior and Exterior Views (05-631, 05-829, 05-832).

Figure 464. LA 88889: Techado Polychrome Bowl Rim, Interior and Exterior Views (07-1064). This sherd was recovered from the same test excavation that yielded a bison femur.

Figure 465. LA 88889: Techado Polychrome bowl rim, interior and exterior views (08-1240).

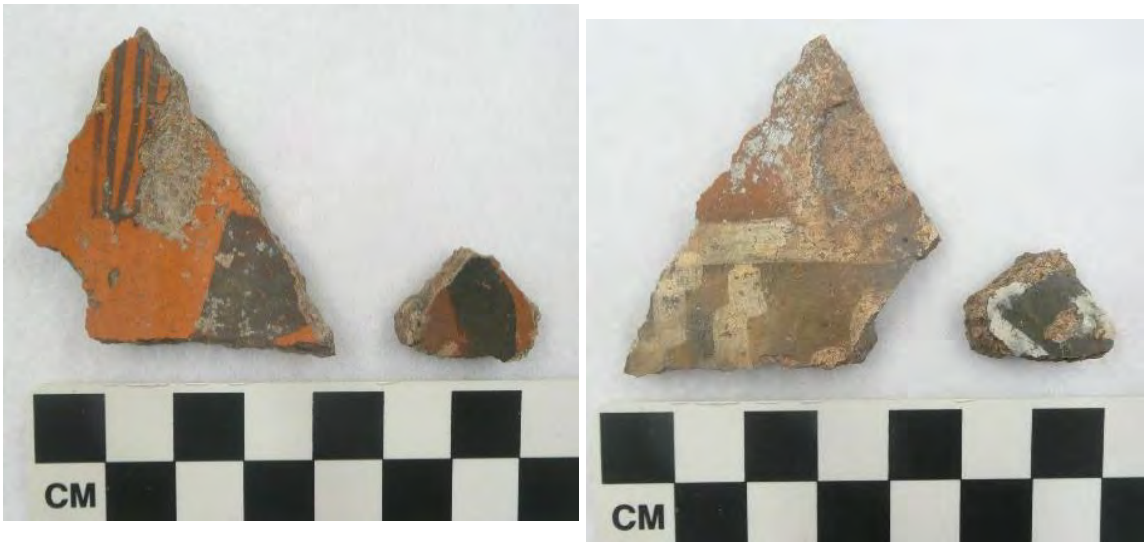

Figure 466. LA 88889: Techado Polychrome Bowl Body Sherds, Interior and Exterior Views (09-615 & 09-370).

Figure 467. LA 88889: Techado Polychrome Bowl Body Sherds, Interior and Exterior Views (10-743 and 10-790).

THREE CIRCLE NECK CORRUGATED

(MOGOLLON BROWN WARE)

Key Attributes. Narrow clapboard style of corrugation located at the vessel neck that are uniform and plain. Bottom-most coil is frequently tooled or finger indented. Must have a rim/neck sherd with a portion of the body to identify this type.

Dates. Accepted: A.D.750 – 1000. CAP Period/Phase dates: Late Pit House Period, Three Circle Phase, A.D. 750-800 – 900. The best context for the type is four sherds from the Three Circle Phase (A.D.750-800/900) contexts at the Victorio Site. Elsewhere on the Victorio Site, Three Circle Neck Corrugated is intrusive within Mixed and Tularosa Phase contexts.

Basis of the Present Description. Forty-eight sherds were recovered from the Cañada Alamosa Project (Table 63). Forty-five sherds excavated from the Victorio Site (LA88889) and three from the Montoya Site (LA88891). Figures 468 and 469 show the distribution of sherds on the two sites. Figure 470 displays representative sherds. See also Haury (1936) and Shafer (2003).

Table 63. Count of Three Circle Neck Corrugated.

Type	1125	2292	88889	88891	Grand Total
Three Circle Neck Corrugated			45	3	48

Construction. Hand coiling and scraping.

Paste. Soft to medium hard; color is medium brown to light brown with occasional carbon streaks; texture is fine to coarse depending on quantity and temper particle size. Temper is igneous detritus, prepared rock, or most commonly rounded and angular pieces of sand or quartz sand.

Surface Color. Medium to light brown; may vary to gray and dark brown, occasionally oxidized to reddish brown; fire clouds are common.

Surface Finish. Usually well smoothed and well-polished on uncorrugated surfaces below the neck; interiors scraped and intermittently polished; temper rarely protrudes the surface.

Vessel Forms. Wide mouth jar forms dominate, with or without handles. Rims are typically a fillet style consisting of a single board band measuring 10 to 15 millimeters in width

Decoration. Narrow clapboard type of corrugations that are uniform and plain; each corrugation ranges from 5mm to 7mm in width with two to three corrugations per centimeter; corrugation is located at the vessel neck but may cover the upper one quarter of the vessel. The bottom-most coil of the neck corrugations is frequently tooled or finger indented. Polishing on coils is not common.

Paint. No painted decorations.

Neutron Activation Analysis. Five of the six sherds submitted were locally produced. One sherd was produced in the Gila Forks area (Ferguson et al. 2024).

Remarks. Three Circle Neck Corrugated is the first of the Mogollon Brown Wares to have true corrugations as an embellishment to an otherwise smoothed, polished, and plain brown pottery. The earliest culinary vessels in the Mogollon ceramic tradition had plain surfaces produced by scraping both interior and exterior surfaces until the coils of manufacturing were completely obliterated. Then by the early A.D. 700s, potters produced culinary pottery with a textured exterior surface, restricted to the exterior neck portions of jars, by not obliterating some of the coils of clay used to construct vessels. This type of texturing is referred to as neck banding and Alma Neck Banded is of this style. In the mid-700s, Mogollon potters developed an early style of corrugated pottery called Three Circle Neck Corrugated. This pottery is characterized by a horizontally ridged or clap-board appearance created by the corrugations.

Because the corrugations on Three Circle Neck Corrugated are restricted to the neck portion of a vessel, a rim/neck portion sherd is needed to identify the type. Otherwise without the rim/neck sherd, it is impossible to distinguish body sherds of Three Circle Neck Corrugated from jar sherds of Alma Plain.

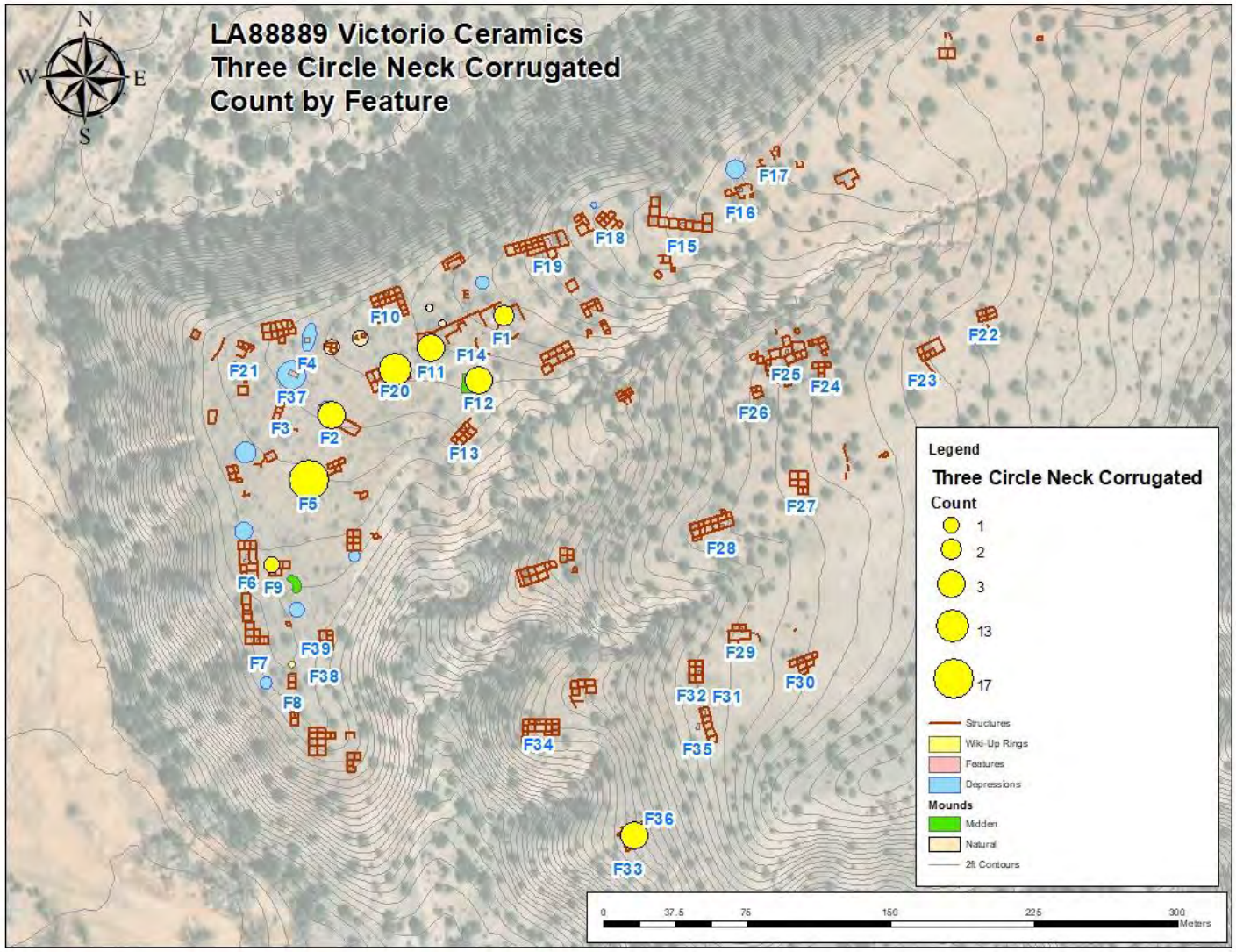

Figure 468. Distribution of Three Circle Neck Corrugated on the Victorio Site.

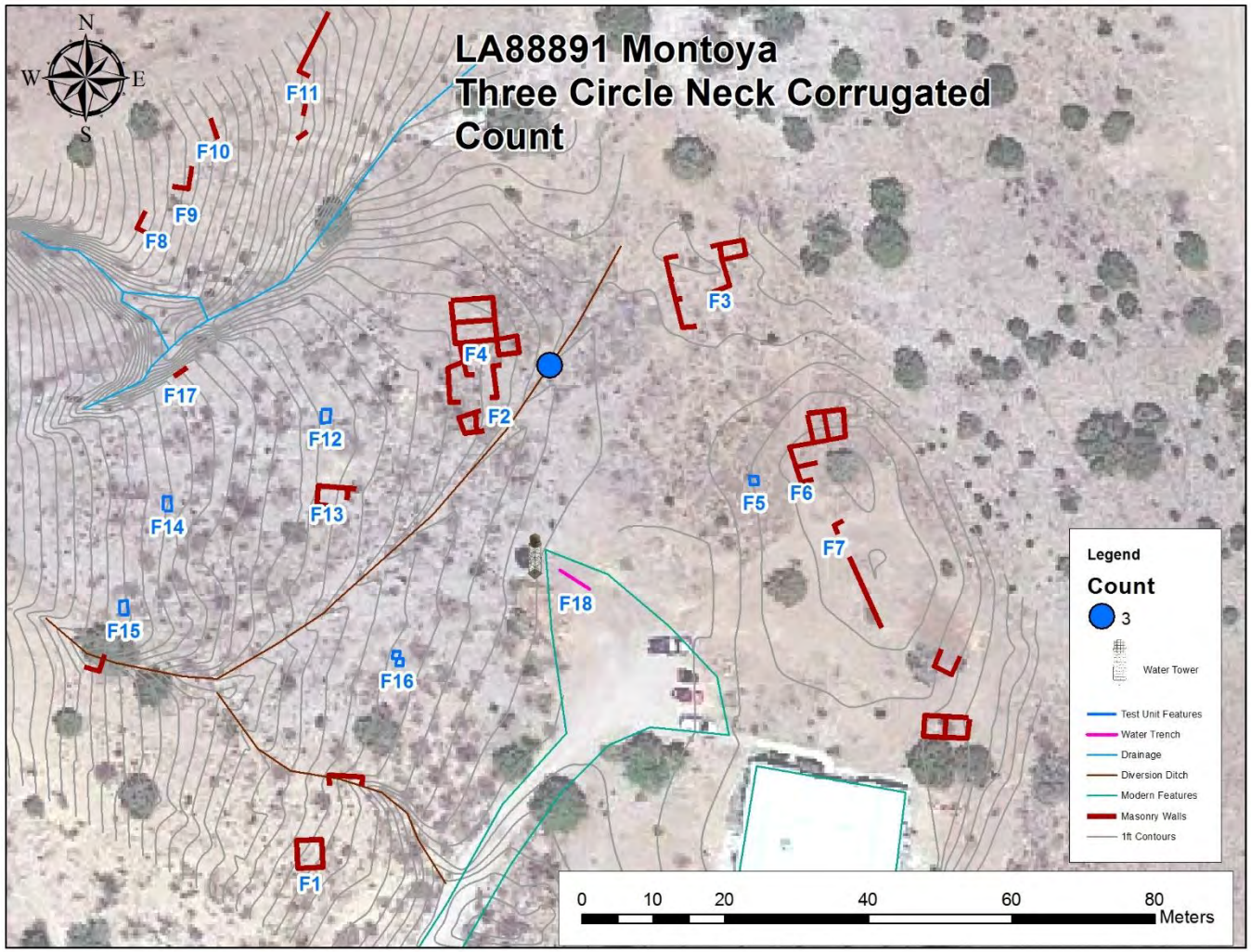

Figure 469. Distribution of Three Circle Neck Corrugated on the Montoya Site.

Figure 470. LA 88891: Three Circle Neck Corrugated from a Mimbres room.

THREE CIRCLE RED-ON-WHITE

(MIMBRES WHITE WARE)

Key Attributes. Chalky white slip, simple geometric designs done in iron-rich red pigment; both slip and designs are polished over, designs are drawn to and touch a painted rim.

Dates. Accepted: A.D.750 -950. Wheat (1955:90 186) places the introduction of Three Circle R/w in his mid-Mogollon III period (San Francisco Phase), circa 700 -900. CAP Period/Phase dates: Late Pit House Period, San Francisco Phase, A.D. 675-750/800 and Three Circle Phase A.D.750-800/900. Feature 2, a pit house, at the Victorio site, had Three Circle Red-on-white in Late Pit House contexts 50 cm to 60 cm above the floor. An archeo-magnetic date of A.D. 730 to 750 from a collared hearth in the floor of this pit structure, which also contained sherds of Mogollon Red-on-brown, suggests that the Three Circle R/w dates to slightly later than A.D. 750. Feature 5, also a Victorio Site pit structure yielded sherds of Three Circle R/w, Mogollon R/b, and Mimbres Boldface B/w on the floor. An archeo-magnetic date from this feature provided a date of A.D. 740- 860.

Basis of the Present Description. Thirty-five sherds of Three Circle Red-on-white (Table 64) were excavated from the Victorio Site (LA 88889). Figure 471 shows the distribution of the type on the Victorio Site. Figures 472-477 display representative sherds. See also Haury (1936), Martin and Rinaldo (1950), Wheat (1955), Anyon (1980), Shafer and Brewington (1995), and Shafer (2003).

Table 64. Count of Three Circle Red-on-white.

Type	1125	2292	88889	88891	Grand Total
Three Circle Red-on-white			35		35

Construction. Hand coiling and scraping.

Paste. Consistently oxidized rendering the paste in colors of red, reddish brown, and occasionally a thin gray interior color may be present sandwiched between the oxidized portions of the paste. Paste texture tends to be fine but will appear coarser depending on the abundance and size of temper particles. Temper material is mixed particle, rounded and angular sand

Surface Color. Interior surfaces of bowl forms are slipped with an iron-free kaolin-type clay which renders a cream/fawn/tan to a dirty white color. The slip may appear chalky and may be crackled. Jars are slipped on the upper two-thirds of the exterior surface. The slip is usually thick and uniformly applied or it can be

thin and streaky. The unslipped portions of bowls (exterior surfaces) and jars (interior surfaces) are oxidized and appear red, reddish-brown, or brown.

Surface Finish. Both paint pigment and slip are polished-over and will range from well-polished to streaky. Exterior surfaces of bowls may show scraping stria but are also lightly polished. Although slipping and finger indenting of bowl exterior surfaces is rare, it does occur. Artifact# 09-533 (Feature 5, Level 4-5; Figure 477) and #07-616 (Feature 2, Level 11-12; Figure 473) have slipped exteriors. Artifact #08-298 (Feature 2, Level 9-12; Figure 476), #07-633 (Feature 2, Level 11-12; Figure 474), and #07-975 (Feature 2, Level 9-10; Figure 474) have a dimpled and slipped and polished exterior surface. Fire clouds are common.

Vessel Forms. Shallow bowls with outward flaring sidewalls and hemispherical bowls are most common. Jar forms have globular bodies and direct rims. Rims, in general, are tapered and narrower than the vessel wall.

Decoration. Characterized by an openness to design layout with scrolls, wavy-line hachure, straight and squiggle-type linear elements, serrated lines, and solid elements opposed by linear elements. Designs on bowls extend to and touch the rim. Paint on the rim lip is typical.

Paint. Iron-rich, mineral-based pigment.

Remarks. Three Circle Red-on-white was the third significant change in the development of painted pottery produced by Mogollon Mimbres potters. The first change from an exclusive plain brown ware pottery tradition was a highly polished red slipped pottery named San Francisco Red. The second change was Mogollon Red-on-brown with red painted designs on a brown surface. The third significant change was the addition of white slip as a background color to contrast with the red color of the paint pigment. As such, Three Circle Red-on-white is the earliest white-slipped ware in the Mogollon region. Designs on Three Circle R/w are like those seen on Mogollon R/b bowls which are laid-out on the interior surface in panels or individual fields that may represent two, three, four, and occasionally five repetitions of the same design or two different designs that oppose one another in four paneled layouts, but with time, designs begin to diversify and open-up. Three Circle R/w was short-lived, perhaps being produced in one generation's time. Shafer (2003:38) provides dates of A.D. 750 to 825 for the type from the NAN Ranch. Anyon (1980) suggests that the type was made only over 40 years during the period of A.D. 730 to 770. Three Circle R/w becomes the transition type to Mimbres Boldface Black-on-white as better control was gained

in the use of the non-oxidizing atmosphere to more consistently produce a black pigmented design on the white slipped background. Hence, the stylistic continuum from Mogollon R/b to Mimbres Boldface B/w occurred over approximately 100 to 125 years which is a fairly short period of time. Learning a new firing technique and adding new technology (slipping with a non-iron bearing clay) to a well-established pottery tradition isn't without its difficulties but it is well within the realm of the possible.

There is another view to the notion that Three Circle Red-on-white developed out of Mogollon Red-on-brown. Lekson (2006:39-41) has suggested that Mogollon Red-on-brown, Three Circle Red-on-white and Mimbres Boldface Black-on-white do not represent an evolutionary sequence based on the general paucity of pre-A.D. 700 dates for Mogollon Red-on-brown. The exception to this is a pre-A.D. 700 context for Mogollon Red-on-brown in House 28 at Harris Village (Lekson 2006:40). Lekson does not give this date any weight because he states "…three other pit houses at Harris and the nearby McAnally and Galaz sites, are either precisely or approximately contemporary to Pit House 28 and have only plainwares and redwares (Lekson 2006:40)." Given this, the earliest and well dated contexts for Mogollon Red-on-brown occur at Mogollon Village with a date no earlier than A.D. 736-755 (Lekson 2006:40). Lekson emphasizes that a date span from the early 700s to the early 800s is just too short for three ceramic types to sequentially evolve out of one another and suggests that the three types may have been contemporary for a short time. Interestingly, Lekson also suggests there may be a geographical distinction that Mogollon Red-on-brown, Three Circle Red-on-white and Mimbres Boldface Black-on-white tend to occur in higher frequencies together in the Gila and San Francisco drainages than in the Mimbres Valley drainage. The implication is that that the earliest development for Three Circle Red-on-white and Mimbres Boldface Black-on-white was in the western drainages rather than in the Mimbres Valley (2006:40-41).

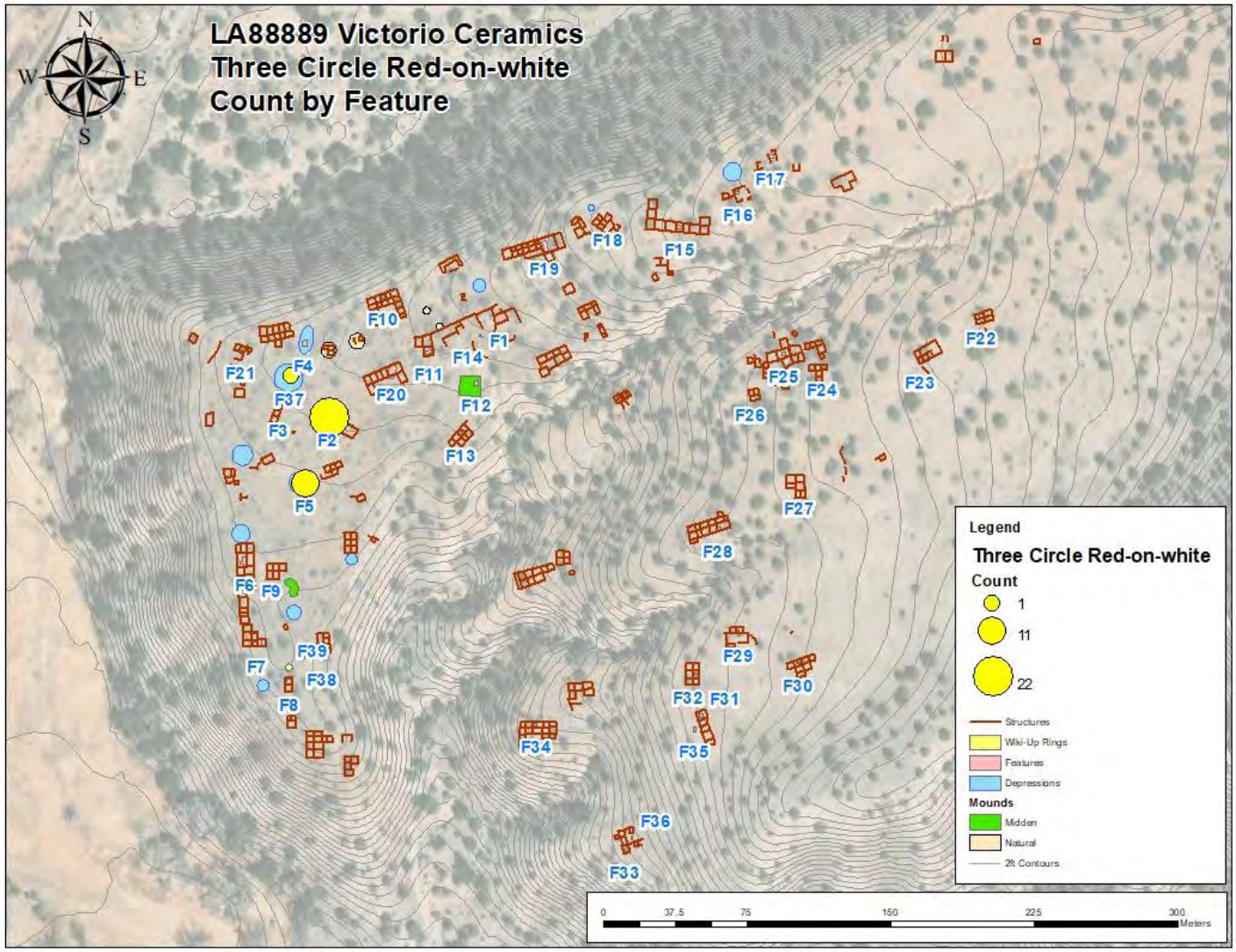

Figure 471. Distribution of Three Circle Red-on-white on the Victorio Site.

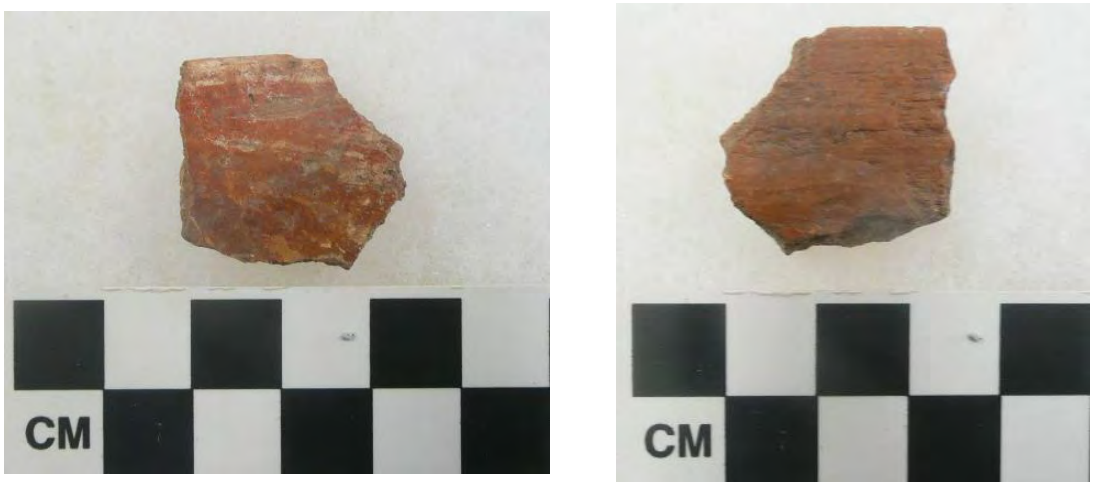

Figure 472. LA 88889: Three Circle Red-on-white Bowl Rim (05-774), Interior and Exterior Views. Note the polished red slip on the exterior surface of the sherd.

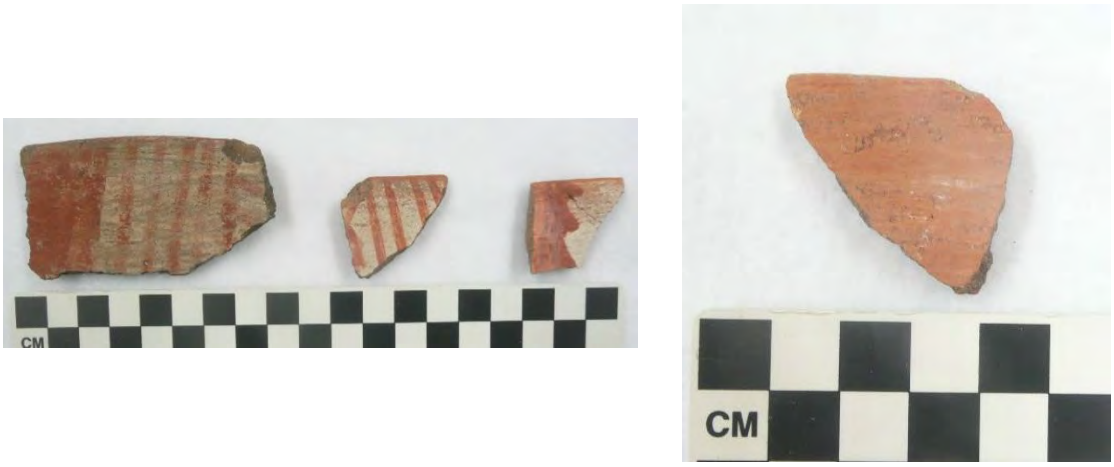

Figure 473. LA 88889: Three Circle Red-on-white bowl rim sherds (07-188, 07-616, 07-338). Exterior view of 07-616 with red slip.

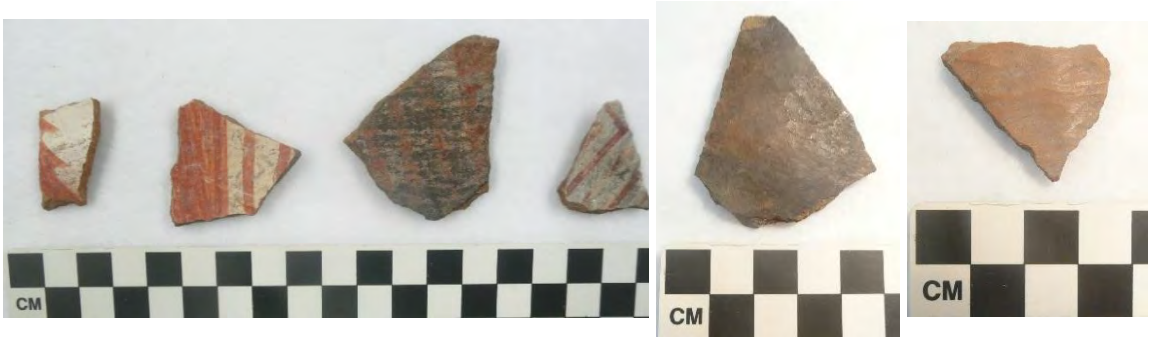

Figure 474. LA 88889: Three Circle Red-on-white Body Sherds (07-338, 07-644, 07-633, 07-975). Exterior view of 07-633 shows red slip and shallow dimples and on 07-975 an unslipped exterior surface with shallow dimples.

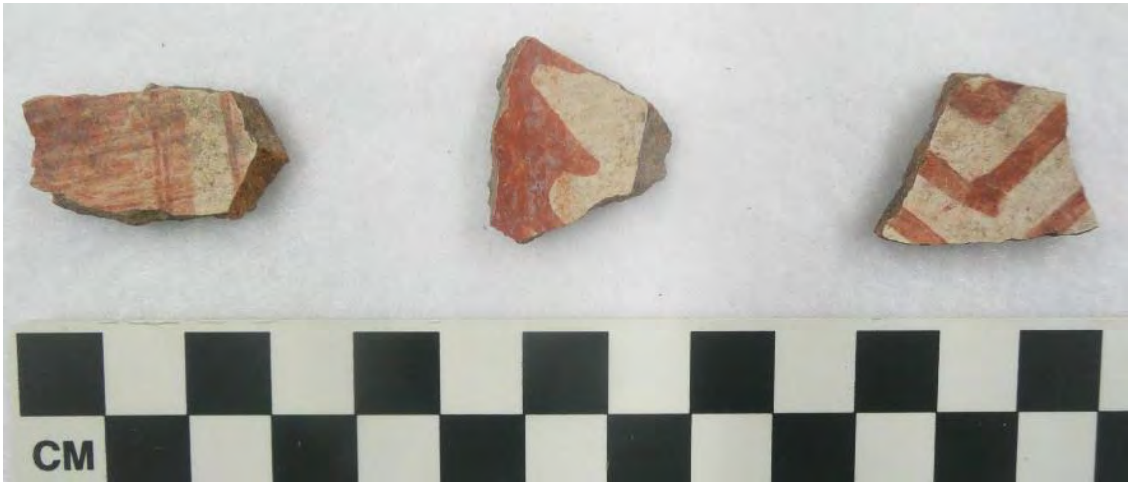

Figure 475. LA 88889: Three Circle Red-on-white Bowl Body Sherds (07-975, 07-351, 07-1078).

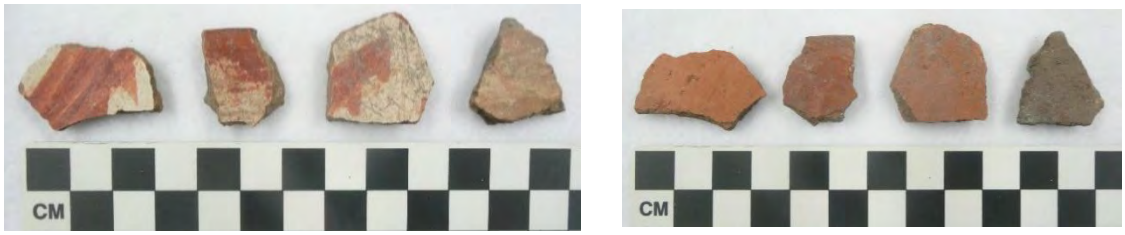

Figure 476. LA 88889: Three Circle Red-on-white Bowl Sherds, Interior and Exterior Views (08-45 body with unslipped exterior, 08-298 rim with slip and dimples on exterior, 08-486 & 08-598 body sherds with unslipped exteriors).

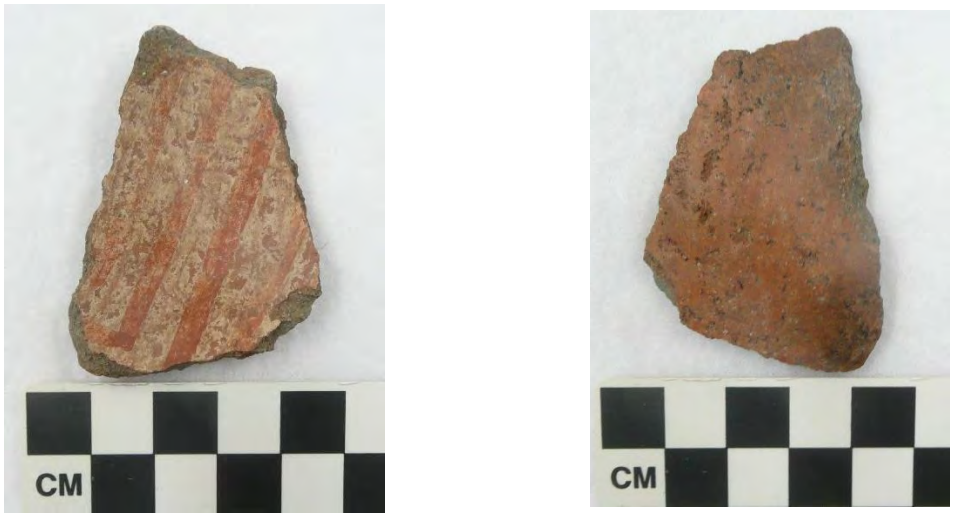

Figure 477. LA 88889: Three Circle Red-on-white Bowl Body Sherd (09-533) With Slip on the Exterior Surface.

THREE RIVERS RED-ON-TERRACOTTA

(THREE RIVERS RED WARE)

Key Attributes. Muted orange/terracotta-colored surfaces that are smooth and floated; simple geometric designs that are dominated by linear elements.

Dates. Accepted: circa A.D. 1150 – 1300. Chronometric dates from production areas are limited. Breternitz (1966:97) comments that tree-ring evidence is limited and uses the Smiley, Stubbs, and Bannister (1953:58) dates of A.D. 1150 – 1300. CAP Period/Phase dates: Late Pueblo Period, A.D. 1200-1290, Tularosa Phase to the Early Glaze period, A.D. 1300-1400. Within the Cañada Alamosa Project, Three Rivers Red-on-terracotta is found in the latest temporal contexts, Magdalena Phase, circa A.D. 1250-1300, and in the Early Glaze period context (A.D. 1310 – 1400) at the Pinnacle. At the Victorio Site, sherds of the type were recovered from the Tularosa Phase context of A.D. 1200 –1290.

Basis of the Present Description. There are only eighteen sherds of Three Rivers R/t in the Cañada Alamosa assemblage (Table 65). Eight sherds and one partially restored bowl (25%) came from the Pinnacle (LA 2292) and 10 from the Victorio Site (LA 88889). No sherds of this type were encountered at the Kelly Canyon Site (LA 1125) or the Montoya Site (LA 88891). Figures 478 and 479 show the distribution of sherds on the two sites. Figures 480-483 display representative examples. See also Mera and Stallings (1931), Nesbitt (1931), Hawley (1936), (Kelly 1966), Human Systems Research, Inc. (1973), and Wiseman (2004).

Table 65. Count of Three Rivers Red-on-terracotta.

Type	1125	2292	88889	88891	Grand Total
Three Rivers Red-on-terracotta		8	10		18

Construction. Hand coiling and scraping.

Paste. Medium-hard and fine textured, depending upon the amount of temper present. The paste is uniformly a terracotta to light brown color and carbon streaks usually do not occur. The temper is fine-grained and consists of mixed particles of gray syenite, white feldspar and sand.

Surface Color. All surfaces range in color from a light buff to a terracotta which ranges from brownish-orange to a light brownish-red.

Surface Finish. The decorated surfaces, interiors of bowls and exteriors of jars, are floated. Once painted designs are applied, both the paint and surface are polished,

sometimes only intermittently. The exteriors of bowls are smoothed but may undulate and appear rougher than the floated surfaces.

Vessel forms. Hemispherical bows with direct rims are most common. A partial bowl was recovered from Feature 4 in a Late Pueblo/Early Glaze Period context (circa A.D. 1310 – 1400) in the Pinnacle. Jar or olla forms are not common and this writer has never seen a jar sherd of Three Rivers R/t. There were no jar forms in the Pinnacle assemblage. Bowl rims are direct with flattened to slightly rounded rim lips.

Decoration. The design system on Three Rivers R/t vessels is characterized by its simplicity. Designs include multiple fine lines, usually in groups of three to four, of reddish-brown pigment on a floated surface. Although rarer, curvilinear elements and geometric solids such as small triangles, toothed lines and interlocking scrolls do occur. The design system is such that the linear designs are appended from a grouping of multiple lines situated close to the rim and flow into and across the interior spaces of the bowl. Large open spaces between design components are common. Paint on the rim lip is common.

Paint. The red to reddish-brown paint used to render designs on Three Rivers R/t is an iron-based pigment likely derived from hematite.

Remarks. Three Rivers Red-on-terracotta is the second of three types within the sequence of the Three Rivers Red Ware group. The broad-line variety, San Andres Red-on-terracotta, named by McCluney (1962) was developed first (circa A.D. 900?), possibly influenced by Mogollon Red-on-brown or Chihuahuan red-on-buff pottery. It is followed by Three Rivers Red-on-terracotta and finally, by circa A.D. 1300, Lincoln Black-on-red. The center for production of Three Rivers Red-on-terracotta and for all of the Three River Red Wares is within a relatively small geographic region (Wiseman 2014:38) located in south-central New Mexico in the northern and eastern portion of the Tularosa Basin and the Sierra Blanca region. Three Rivers R/t was more broadly traded than the other Three Rivers Red Ware and can be found in southern and southwestern New Mexico as well as southeastern portion of the state and into Texas (Kelly 1966:175; Wiseman 2014:38).

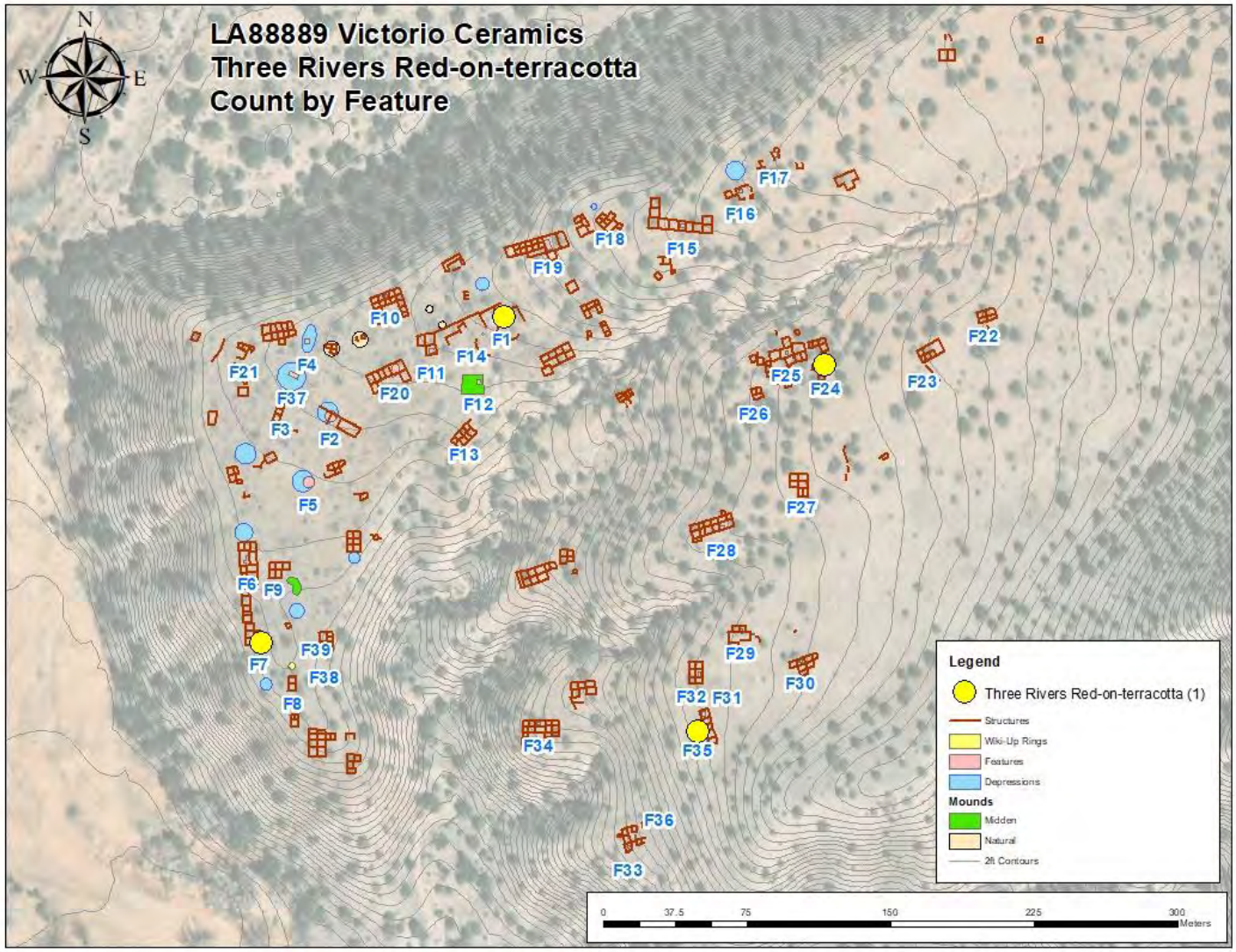

Figure 478. Distribution of Three Rivers Red-on-terracotta on the Victorio Site.

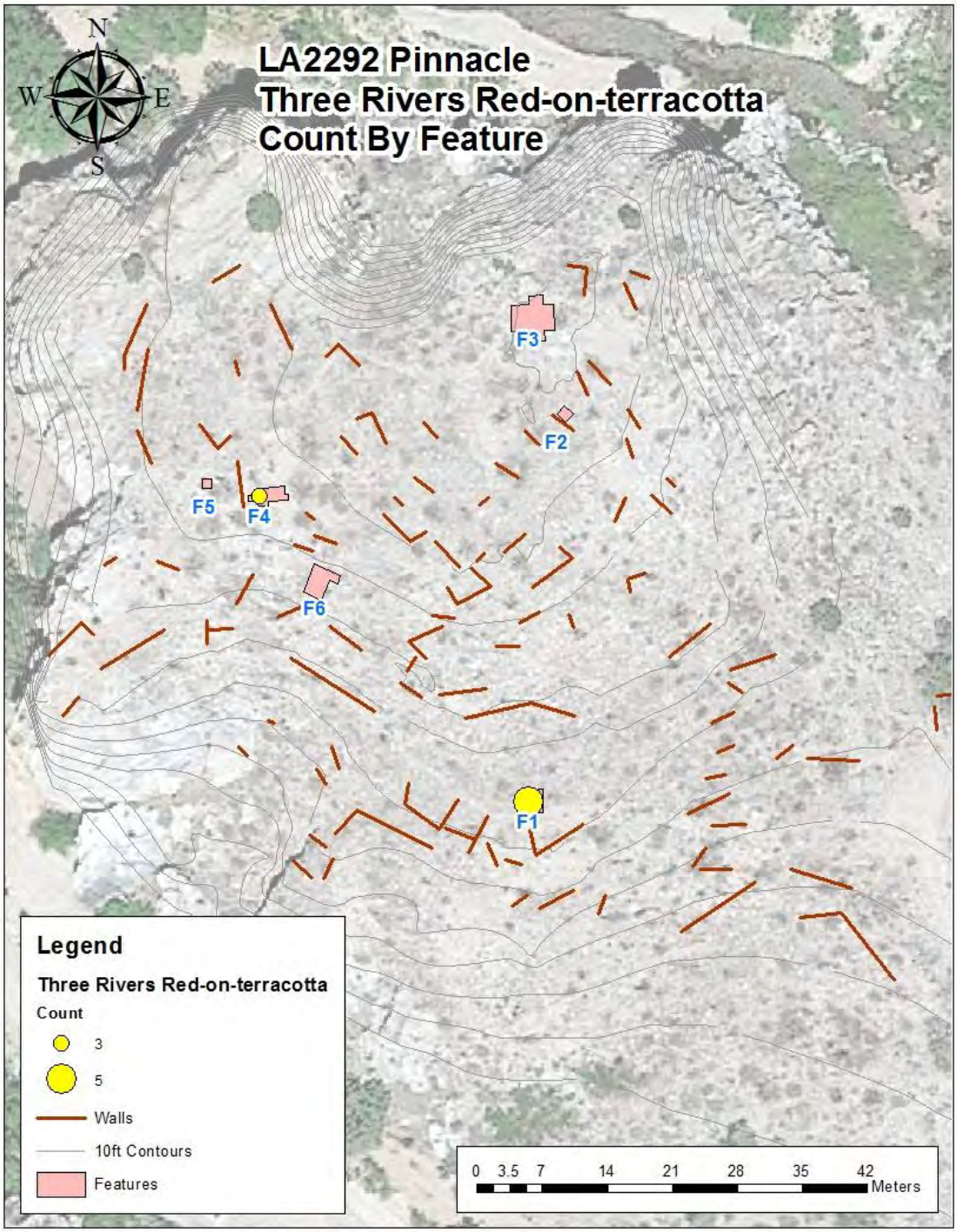

Figure 479 Distribution of Three Rivers Red-on-terracotta on the Pinnacle.

Figure 480. LA 2292: Three Rivers Red-on-terracotta Partial Bowl (04-534/04-552). Recovered from a Glaze Period floor context and associated with a large corn cob, both of which may have been left as an offering at closure. A radiocarbon date on the corn places it in the early 14th century.

Figure 481. LA 2292: Three Rivers Red-on-terracotta Body and Rim Sherds, Interior and Exterior Views (00-20, 02-355, 02-145).

Figure 482. LA 88889: Three Rivers Red-on-terracotta Body Sherd (05-169). The paint pigment on the left side of the sherd is nearly eroded away.

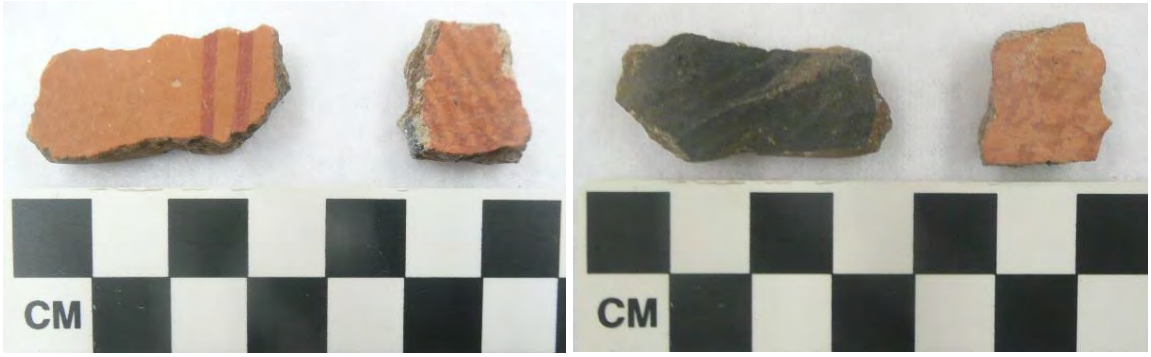

Figure 483. LA 88889: Three Rivers Red-on-terracotta Body Sherds (08-236 and 08-1376), Interior and Exterior Views.

TOHATCHI BANDED

(CIBOLA GRAY WARE)

Key Attributes. Utility jar forms with narrow and plain unobliterated bands located between the fillet rim and the upper shoulder, and a lower body that has been scraped smooth; sand temper.

Dates. Accepted: circa A.D. 900-1050. CAP Period/Phase dates: Early Pueblo Period, Mimbres Transitional and Classic Phases, A.D. 950–1130. The two sherds of Tohatchi Banded were recovered from the upper levels of test units in association with Mimbres Transitional B/w at the Montoya Site.

Basis of the Present Description. Two sherds were identified from the Montoya Site (LA88891) in surficial context with Red Mesa B/w and Mimbres Transitional B/w (Mimbres Style II) sherds (Table 66). Figure 484 shows the location of the sherds on the Montoya Site. Figure 485 displays a representative sherd. See also Olson and Wasley (1956), and Windes and McKenna (2009).

Table 66. Count of Tohatchi Banded.

Type	1125	2292	88889	88891	Grand Total
Tohatchi Banded				2	2

Construction. Hand coiling and scraping.

Paste. Color is medium to dark gray; coarse to medium texture; quartz sand temper (in the Cañada Alamosa sample).

Surface Color. Ranges from very dark gray to light gray.

Surface Finish. Plain, unindented narrow coils (less than 10mm width) are situated between the fillet rim and the shoulder of the vessel. These coils may be somewhat flattened or clapboarded. Neither of the two sherds in the assemblage had additional embellishments to the coils (e.g. incising, tooling). The portion of the vessel below the shoulder is scraped smooth but the surface texture can be coarse due to protruding temper particles. Vessel surfaces are not polished.

Vessel Forms. Utility jar and pitcher forms with fillet rims.

Decoration. Plain, unindented neck bands located between the fillet rim and the shoulder of the vessel.

Paint. None

Remarks. Tohatchi Banded is commonly associated with Red Mesa Black-on-white particularly within the Chaco culture area. It is recognized by the narrow neck bands restricted to the neck and shoulder areas of vessels. If the neck/shoulder coils are absent, sherds of Tohatchi Banded could be mistaken for body sherds of Lino Gray and Kana'a Gray (neck banded).

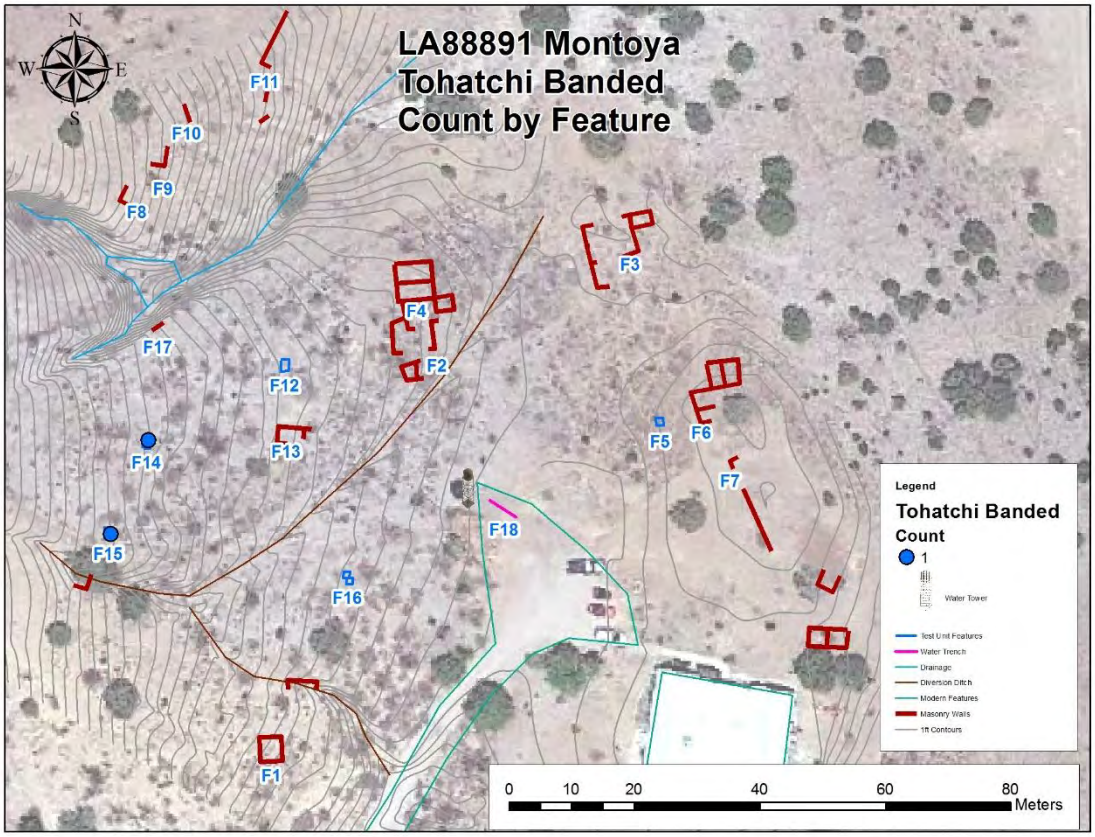

Figure 484. Distribution of Tohatchi Banded on the Montoya Site.

Figure 485. LA 88891: Sherd of Tohatchi Banded (2011-31).

TULAROSA BLACK-ON-WHITE

(CIBOLA WHITE WARE)

Key Attributes. Lustrous and uniformly polished thick slip that often crackles, finely drafted curvilinear and rectilinear designs that are tightly spaced, mineral-based pigment and prepared sherd temper.

Dates. Accepted: A.D. 1175 – 1300. CAP Period/Phase dates: late Early to Late Pueblo Period, Socorro Phase, A.D. 1130-1200 and Tularosa Phase, A.D. 1200-1290. Tularosa B/w was found in limited quantities in the mixed Socorro – Tularosa Phase temporal context at the Montoya, Victorio, and Kelly Canyon sites. The majority (N=434) were found in Tularosa and Tularosa mixed contexts at the Victorio Site. At the Pinnacle, the type (N=11) was found in the lower levels of the midden within the Late Pueblo/Magdalena Phase context of A.D. 1250 – 1290. The remaining Tularosa sherds at Pinnacle were found out of context and mixed within the Early Glaze period of A.D. 1300 – 1400.

Basis of the Present Description. Eight hundred twenty-nine sherds are in the Cañada Alamosa assemblage (Table 67). Twenty-five from the Kelly Canyon site (LA 1125), twenty-three from the Pinnacle (LA 2292), seven hundred seventy-one sherds and one partial bowl and a partial rim restoration were excavated from the Victorio Site (LA 88889), and ten were recovered from the Montoya Site (LA 88891). Figures 486-489 show the distribution of sherds on the sites. Figures 490-506 display representative images of sherds and vessels. See also Gladwin and Gladwin (1931), Hawley (1936), Martin et al. (1952), and Rinaldo and Bluhm (1956).

Table 67. Count of Tularosa Black-on-white.

Type	1125	2292	88889	88891	Grand Total
Tularosa Black-on-white	25	23	771	10	829

Construction. Hand coiling and scraping.

Paste. Light gray to white color, occasional dark gray cores or those with a medium gray center sandwiched between white to light gray color close to the surface. The paste is hard with a fine texture. Tempering material consists of prepared sherd occasionally mixed with sand or rock detritus.

Surface Color. The interior and exterior surfaces of bowl forms and the exteriors of jar forms are slipped uniformly with a thick, light gray to white colored slip that

frequently crackles. Black matte paint pigment was used for designs is applied after polishing.

Surface Finish. Slipped surfaces are uniformly polished to a luster. Jar interiors are scraped smooth but may undulate and exhibit fine ridges associated with the scrapping and smoothing process.

Vessel Forms. Hemispherical bowls, globular jars with short, narrow straight necks, pitchers also with globular bodies, straight necks, and strap handles that are plain or have animal effigies incorporated, and ladles with straight, shaft-like handles. Rims on bowls and jar/pitcher forms are direct with flattened, beveled inward or rounded rim lips.

Decoration. Designs on bowl interiors and exterior jar forms were laid-out in a banded fashion with designs held between two framing lines. The most typical design system includes opposing and interlocking solid and hatched rectilinear and curvilinear motifs with stepped or terraced endings. Hatching on Tularosa B/w is commonly parallel to the framing lines and occasionally diagonal. Hatching and other design motifs are fine-lined and well drafted. The overall design on a vessel looks compact and closely spaced in a baroque style that appears to be almost over-decorated. Other design elements include parallelograms, multiple parallel lines, woven/netting-like elements, pendant dots, zig-zag lines, solid triangles, diamonds and diamonds filled with crosses, checkerboard, sawtooth and chevrons. The design system on Tularosa Black-on-white is very similar to that seen on St. Johns B/W and Polychrome. Paint on rim-lips is rare except for rim ticks (Figure 496).

Paint. Iron-based mineral pigment. Subglazing of the pigment does occur.

Neutron Activation Analysis. No local production. Tularosa Black-on-white had a more restricted set of production areas, than St. Johns Polychrome, to include Marietta Mesa, Plateau, and Las Ventanas (Groups 1, 2, and 3). The Tularosa B/w sample had a significant number of unassigned sherds. Possible sources include the western Gallinas Mountains near Magdalena (Ferguson et al. 2024).

Remarks: Ancestral Puebloans from the southern Colorado Plateau region began moving south around A.D.750 and increasingly so by A.D.900 (see Pueblo II Expansion, Lekson 2008:299-300, note #172). They found new homes in west-central New Mexico (Oakes 1999) and east-central Arizona (Herr 2001). Archaeologists refer to this region as the Cibola culture area, the southern end of which extends into the mountains of southwest New Mexico in the vicinity of

Apache Creek and the modern community of Reserve. Archaeological sites in this upland area were designated as Mogollon, and referred to as the Cibola or Reserve Branch of the Mogollon (Gladwin and Gladwin 1934; Danson 1952; Martin 1979:63) primarily because of the long-standing production of Mogollon brown utility wares in the region.

White slipped pottery was made along the same trajectory by both the Mimbres Branch and Cibola Branch Mogollon potters beginning circa A.D. 750. But around A.D. 1000, a different style of white slipped pottery, representing a fairly sudden and drastic change, began to appear and possibly produced in the Cibola Branch of the Mogollon. The technology, style, and appearance of this pottery was Ancestral Puebloan and not Mogollon. The earliest type was named Reserve B/w (A.D. 1000-1200) which was followed by Tularosa Black-on-white (A.D. 1175-1300).

Mimbres Mogollon White Ware, which by A.D. 1000 was represented by Mimbres Style III (Classic) and Reserve and Tularosa Black-on-white, are technologically and aesthetically very different from one another. Mimbres Style III is characterized by a thick, unpolished chalky white slip, mineral pigment, polish applied to the paint, and sand or detritus temper. Designs consisting of complex geometric designs, often combined with representational designs were laid-out on vessels in a bilateral, trilateral, quadrilateral, and framed banded layouts later in the sequence. Reserve and Tularosa white ware is characterized by a polished slip with matte (unpolished) mineral pigment, and sherd temper. Designs consist of simple solid elements with opposed diagonal hatching and later more complex opposing and interlocking solid and hatched rectilinear and curvilinear motifs with stepped or terraced endings were laid-out in framed banded patterns. Going out on a limb here with this statement—there are two possible scenarios as to how a new and very different technological style and design knowledge happened to occur in what is currently considered to be a traditional Mogollon homeland:

1. Mimbres Mogollon culture ended in the Cibola Culture area in the 10th century and its population was replaced by Ancestral Puebloan people coming in from the north and who were making their own white slipped and painted pottery. They utilized the local brown firing clays to produce their utility ware. Or,

2. Reserve Black-on-white and Tularosa Black-on-white are being produced in the northern end of the Cibola region where gray and white burning clays exist and these pottery types are being traded south. This scenario is

reflective of the origins of Socorro B/w (which is essentially an eastern version of Reserve B/w) and the Tularosa B/w found in the Cañada Alamosa painted wares assemblage (Ferguson et al. 2024).

Certainly, more research is needed to understand the dynamics of the change in ceramic technology that occurred in the Cibola Branch of the Mogollon around A.D. 1000.

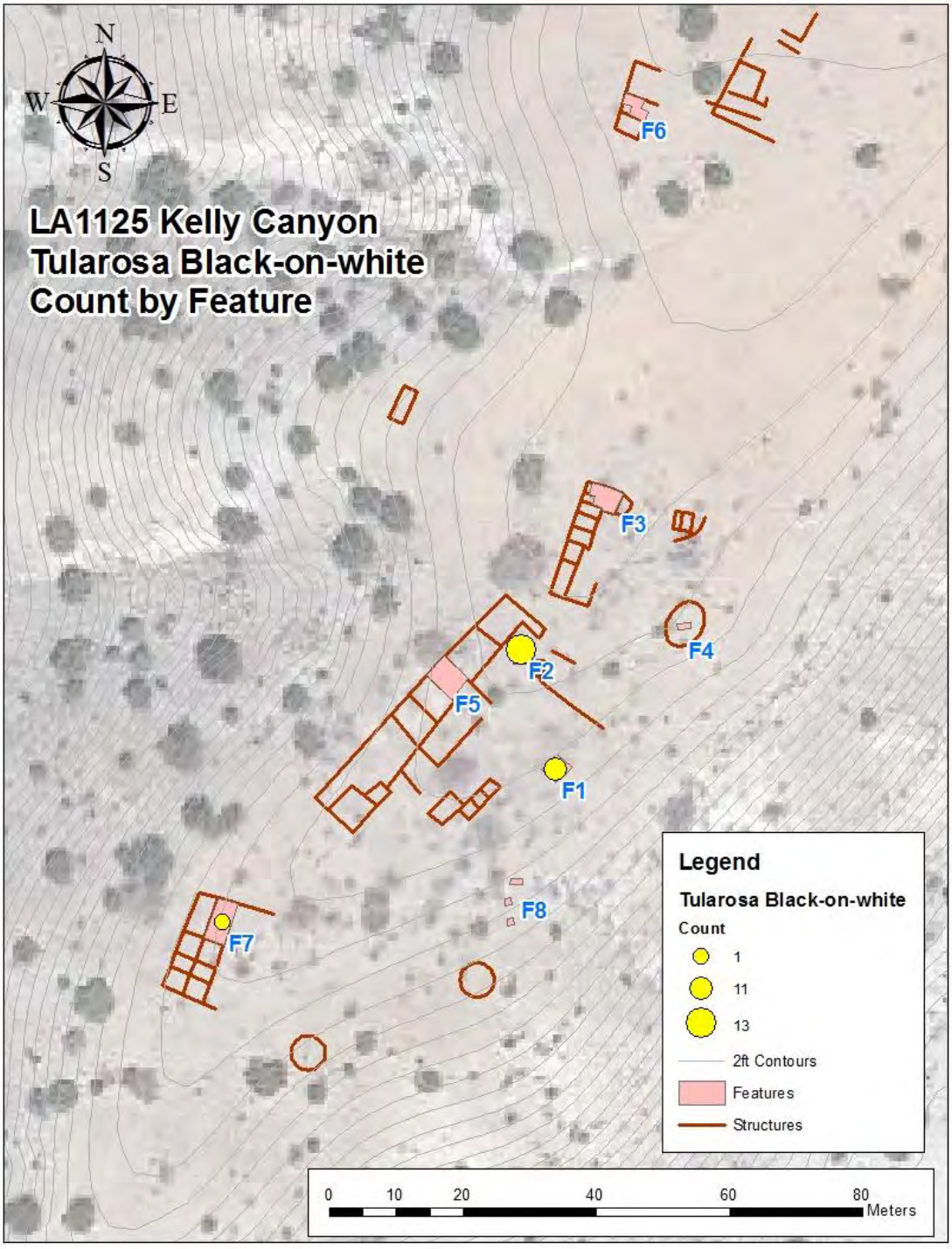

Figure 486. Distribution of Tularosa Black-on-white on the Kelly Canyon Site.

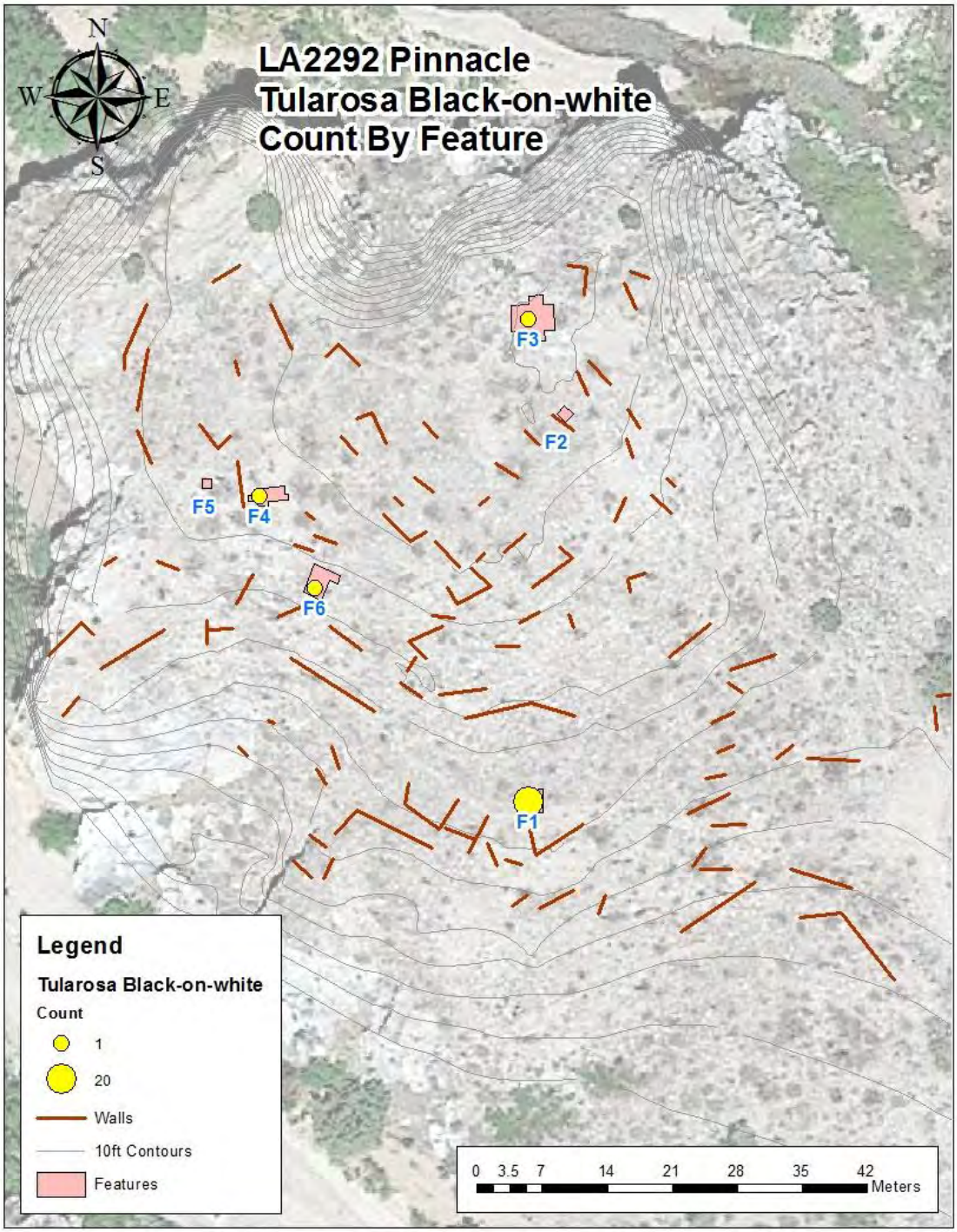

Figure 487. Distribution of Tularosa Black-on-white on the Pinnacle.

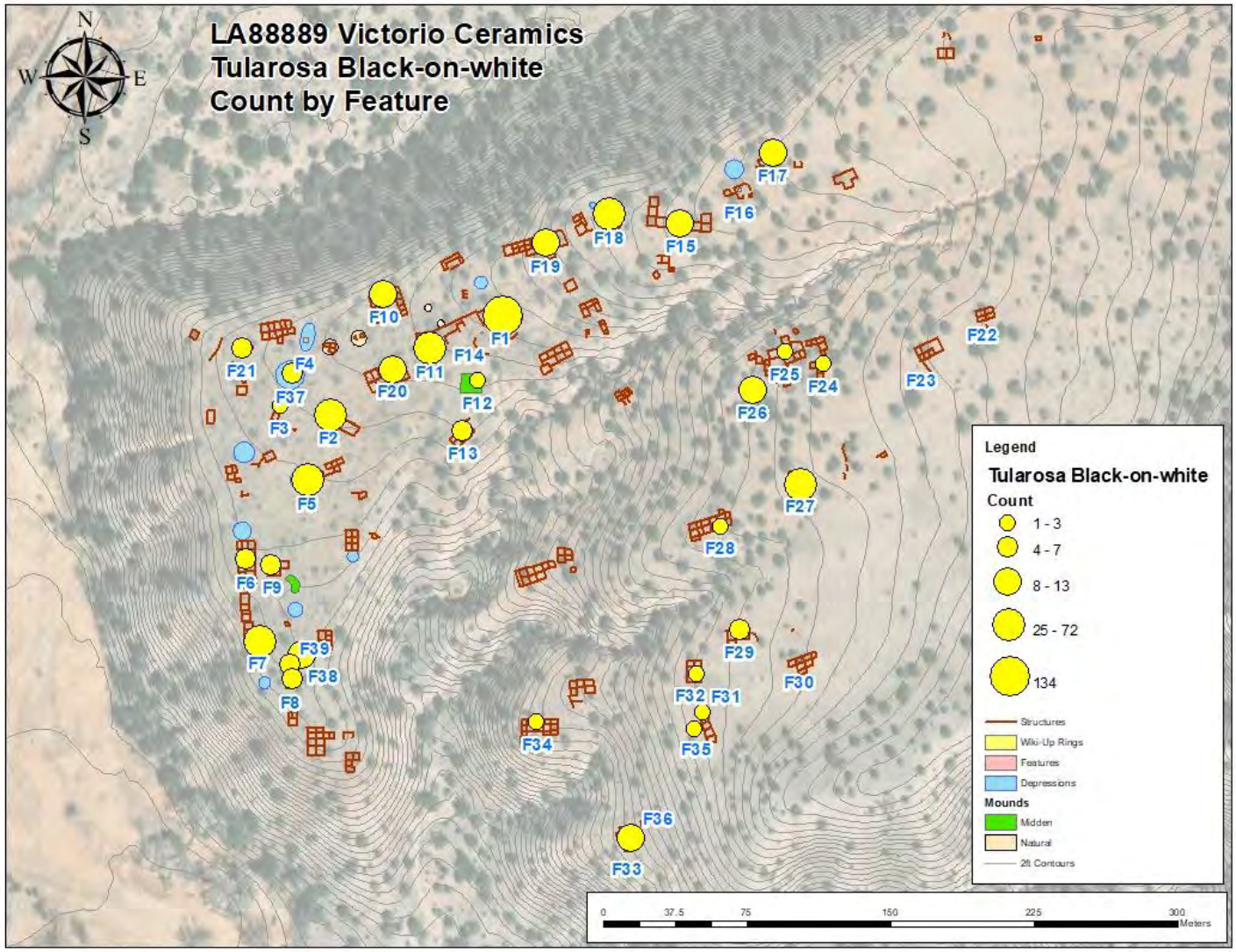

Figure 488. Distribution of Tularosa Black-on-white on the Victorio Site.

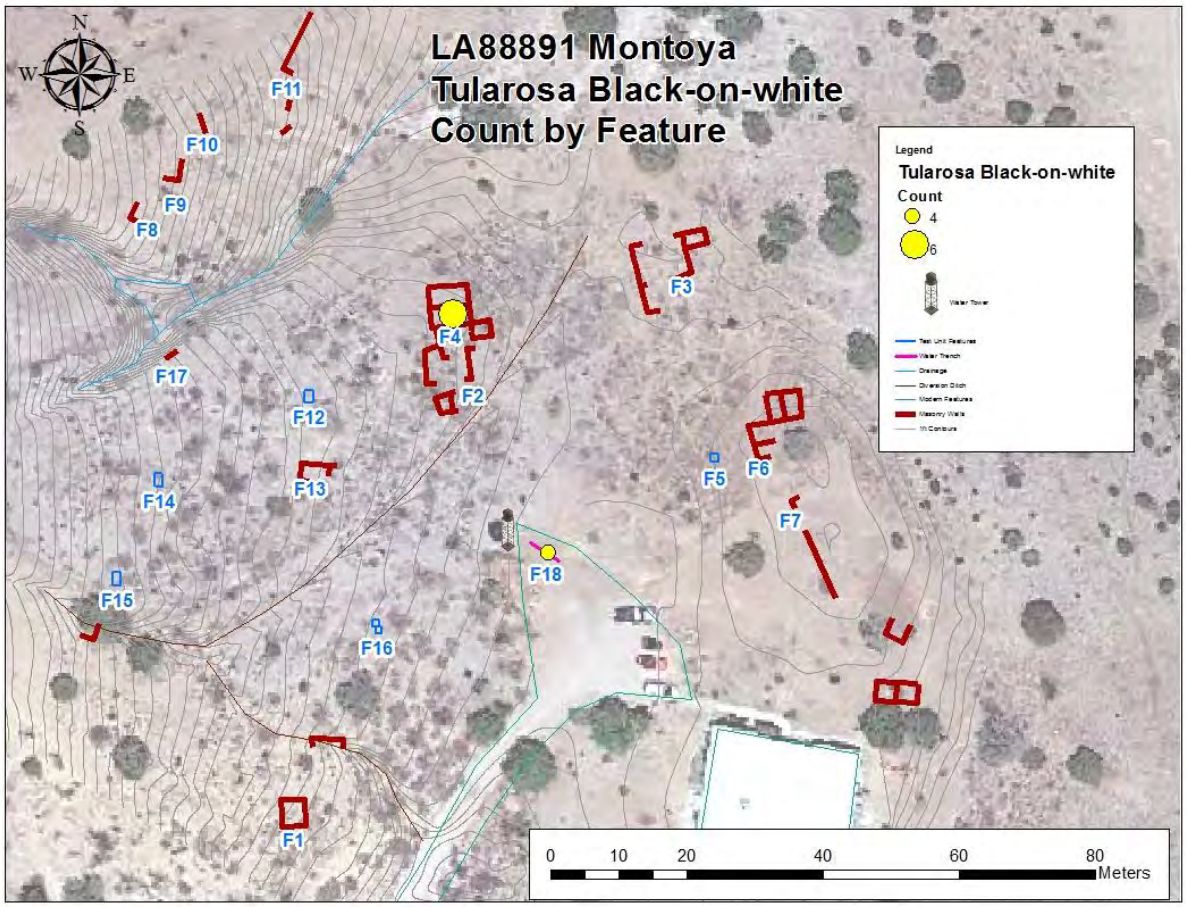

Figure 489. Distribution of Tularosa Black-on-white on the Montoya Site.

Figure 490. LA 88891: Tularosa Black-on-white Jar Body Sherds (04-401 and 04-313).

Figure 491. LA 88891: Tularosa Black-on-white Jar Body Sherds (Bag 1 O'Toole Trench).

Figure 492. LA 1125: Tularosa Black-on-white Jar Body Sherds (02-498, 02-552, 02-373, 02-254).

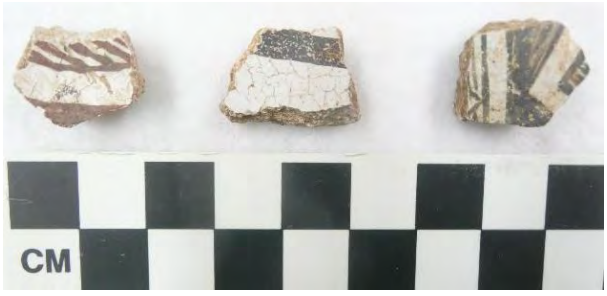

Figure 493. LA 1125: Tularosa Black-on-white Body Sherds, Interior and Exterior Views (03-377 bowl, 03-332 bowl, 03-102 jar).

Figure 494. LA 88889: Tularosa Black-on-white Body Sherds (05-44 jar, 05-272 bowl, 05-414 jar, 05-607 bowl, 05-682 bowl). Note the worked sherd (4th from the left), which has incised lines across and down the middle of the painted line.

Figure 495. LA 88889: Tularosa Black-on-white Body Sherds (05-699 jar, 05-724 jar, 05-832 bowl).

Figure 496. LA 88889: Tularosa Black-on-white Bowl Rim Sherds (05-725 & 05-748). Note the painted "ticks" on both rims.

Figure 497. LA 88889: Tularosa Black-on-white (05-824) Dipper Handle Fragment.

Figure 498. LA 88889: Tularosa Black-on-white Sherds
(06-214 jar rim, 06-793 jar, 06-724 jar, 06-513 jar, 06-532 bowl).

Figure 499. LA 88889: Tularosa Black-on-white Sherds
(07-1139 jar rim and jar body, 07-805 jar body,
07-210 jar body, 07-1243 bowl rim).

Figure 500. LA 88889: Tularosa Black-on-white Sherds (08-196 bowl rim with painted ticks on the rim lip, 08-210 jar body, 08-422 bowl rim with a single tick on the rim lip).

Figure 501. LA 88889: Tularosa Black-on-white Sherds (09-1632 jar rim, 09-1620 jar body, 09-1017 jar body, 09-658 bowl body).

Figure 502. LA 88889: Tularosa Black-on-white Sherds (10-413 jar body, 10-755 jar body, 10-144 bowl body).

Figure 503. LA 88889: Tularosa Black-on-white Partially Restored Bowl (99-785).

Figure 504. LA 88889: Painting with a Virtual Depiction of the Tularosa Black-on-white Bowl in the Above Figure. Courtesy Phil Yost.

Figure 505. LA 88889: Tularosa Black-on-white Partially Restored Bowl Rim (99-345,371,376,426,557,591,704,936,970, & 1092).

Figure 506. LA 2292: Tularosa Black-on-white Body Sherds (left image 02-532 bowl sherds; right image 08-15 and 02-160 both jar body sherds).

TULAROSA FILLET RIM
(MOGOLLON BROWN WARE)

Key Attributes. Bowl forms only. Interiors are purposefully smudged black and have a good to lustrous polish. Exteriors are predominately a well-polished medium brown and the defining feature is a fillet rim under-scored with two to three indented corrugated coils.

Dates. Accepted: A.D. 1100 – 1350. CAP Period/Phase dates: Late Pueblo Period, Tularosa Phase A.D. 1200 – 1290. The majority (N=8) of the sherds of Tularosa Fillet Rim were recovered from the Tularosa Phase temporal context at the Victorio Site and from the Magdalena Phase (A.D. 1250 – 1300) temporal context (N=3) at the Pinnacle.

Basis of the Present Description. Eighteen sherds of Tularosa Fillet Rim were analyzed for the project (Table 68). Three sherds were from the Kelly Canyon Site, four from the Pinnacle, eleven from the Victorio Site, and none from the Montoya Site. Figures 507-509 show the distribution of sherds. Figure 510 displays representative sherds. See also Martin et al. (1952), Gladwin and Gladwin (1934), and Kidder (2000:283).

Table 68. Count of Tularosa Fillet Rim.

Type	1125	2292	88889	88891	Grand Total
Tularosa Fillet Rim	3	4	11		18

Construction. Hand coiling and scraping.

Paste. Soft and friable. Color is commonly medium brown and ranges from yellowish tan and reddish tan through brown, gray-brown, to dark brown and black. Temper consists of rounded and angular particles of sand or detritus.

Surface Color. Exterior surface color is predominately a medium brown but ranges to a yellowish or reddish brown, and dark brown. Interiors are purposefully smudged black. Fire clouds and sooting are common on exterior surfaces.

Surface Finish. Exterior surfaces are well smoothed and polished. The fillet rim is under-scored with two to three indented corrugated coils that measure 3 to 4 millimeters in width. Interior surfaces are purposefully smudged and usually highly polished.

Vessel Forms. Bowl forms only. Rims are direct and of the fillet style (broad band).

Decoration. Very minimal and consists of two to three rows of smoothed, polished and somewhat flattened indented corrugation located immediately below the fillet rim.

Paint. No painted decorations.

Remarks. The body portions of Tularosa Fillet Rim, both interior and exterior surfaces, are identical to those seen on bowl forms of Reserve Plain and Indented Corrugated. To correctly identify Tularosa Fillet Rim, a rim sherd with an attached portion of the body below the rim (that shows the two to three rows of indented corrugation) is needed.

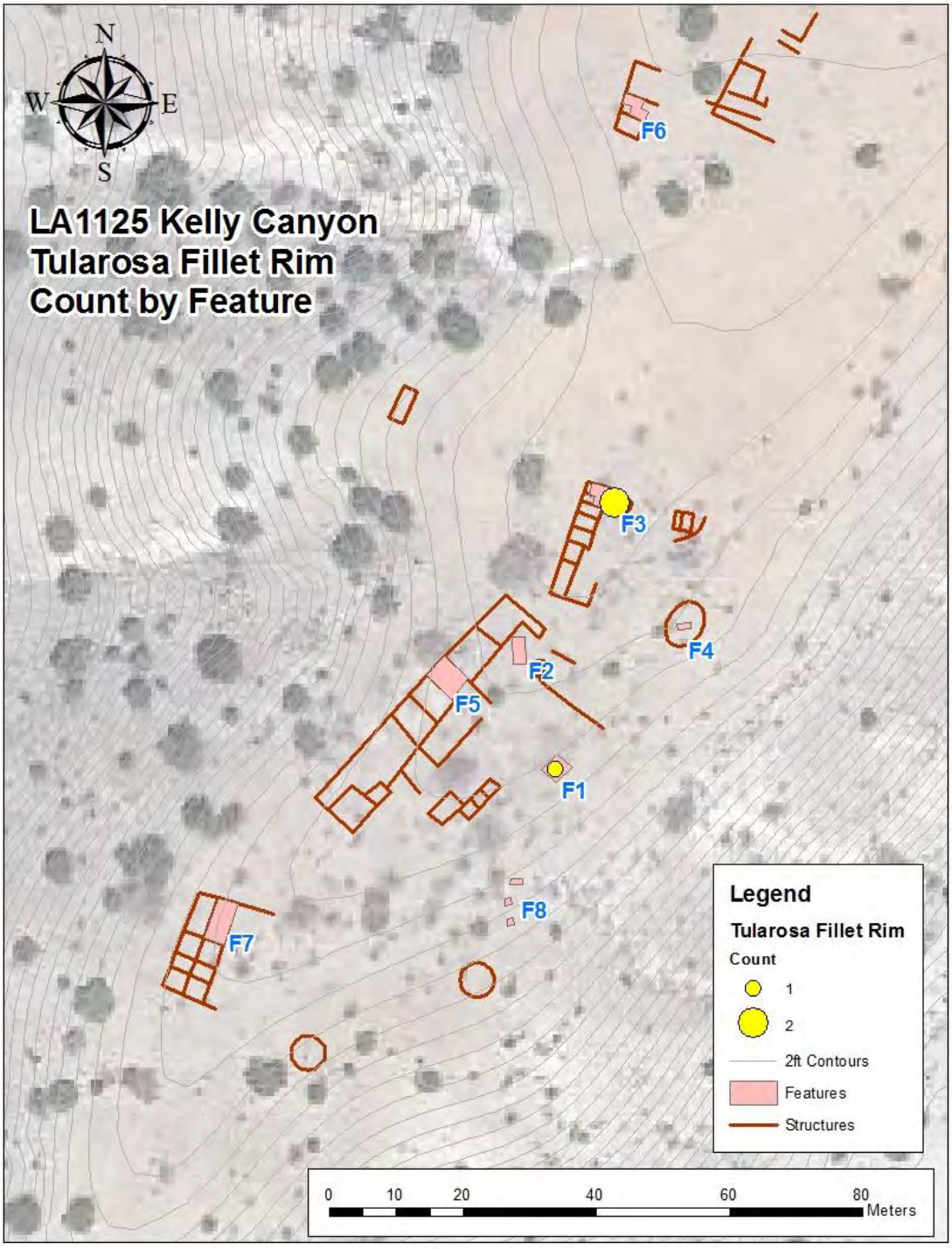

Figure 507. Distribution of Tularosa Fillet Rim on the Kelly Canyon Site.

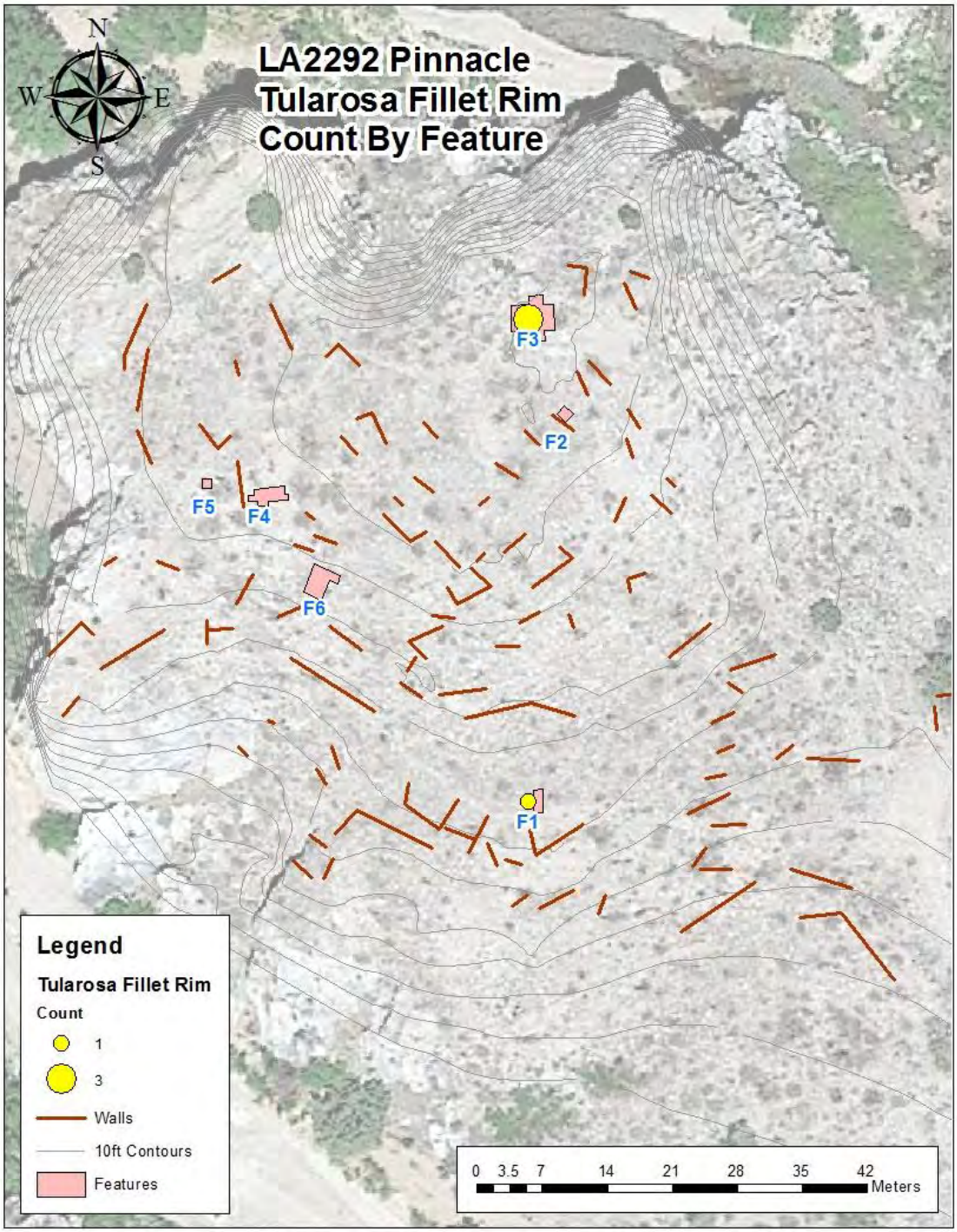

Figure 508. Distribution of Tularosa Fillet Rim on the Pinnacle.

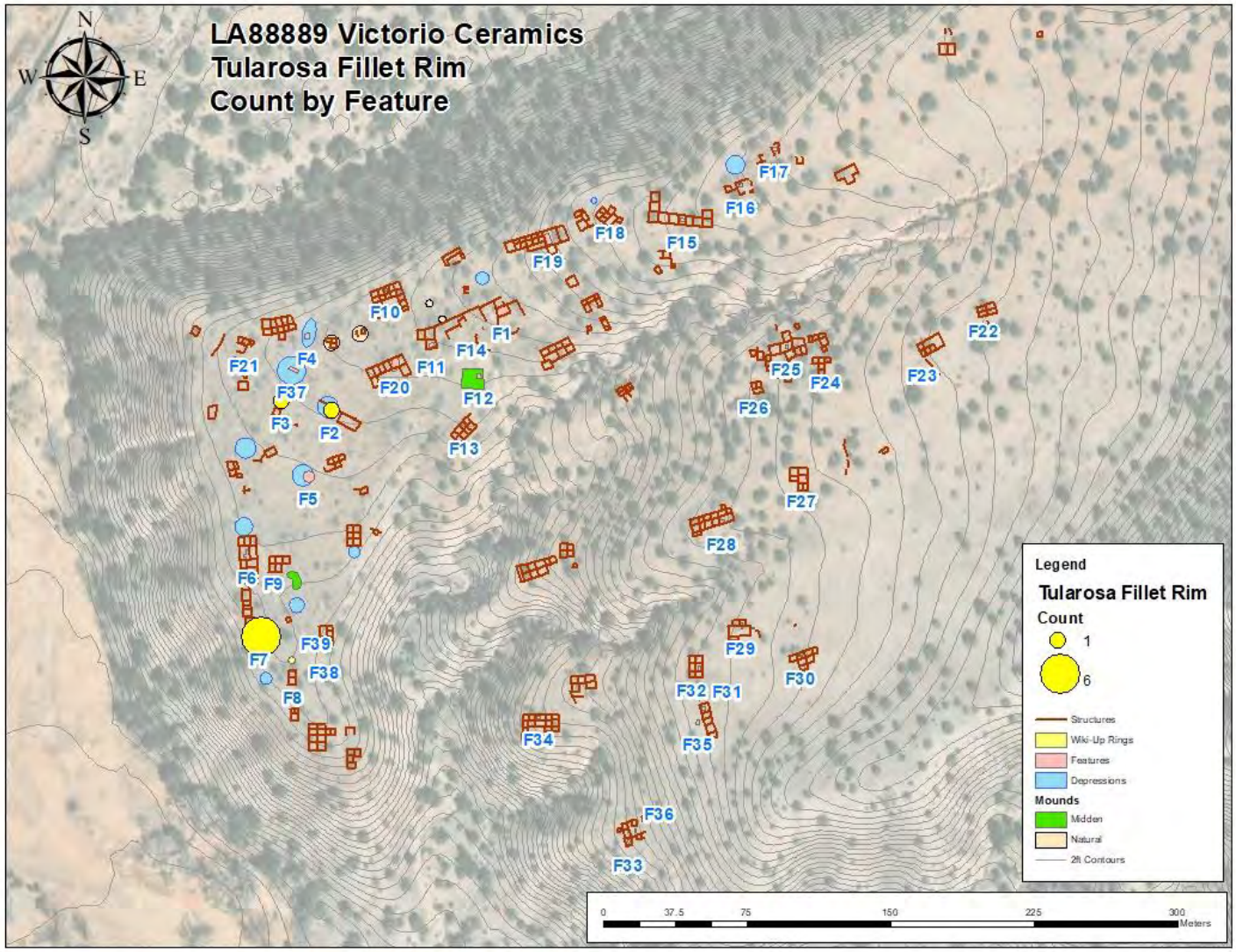

Figure 509. Distribution of Tularosa Fillet Rim on the Victorio Site.

Figure 510. LA 88889: Tularosa Fillet Rim Bowl Rim Sherds (06-1098, 08-1383, 06-939).

TULAROSA PATTERNED CORRUGATED AND TULAROSA PATTERNED CORRUGATED, SMUDGED VARIETY

(MOGOLLON BROWN WARE)

Key Attributes. Smoothed, polished and somewhat flattened alternating rows/bands of indented and plain corrugation, or allover plain corrugation with geometric patterns created with indented corrugation. Corrugations are uniformly spaced from the fillet rim to the base of the vessel shoulder or all the way to the bottom of the vessel. Bowl forms have smudged interiors. Bowls have direct rims and jars have everted rims

Dates. Accepted: A.D. 1100 – 1350; Rinaldo and Blumn (1956: 169) date the type at circa A.D. 1050-1250. CAP Period/Phase dates: Early Pueblo Period, Socorro Phase, A.D. 1130-1200 to the Late Pueblo Period, Tularosa Phase A.D. 1200 – 1290. Across three sites—Kelly Canyon, Victorio, and Montoya, Tularosa Pattern Corrugated is found in the Socorro Phase temporal context (A.D. 1130 – 1200), but becomes a dominate type within the Tularosa and Tularosa-mixed contexts (A.D. 1200 – 1290) particularly at the Victorio Site. A few sherds of the type were recovered from the Magdalena Phase context (A.D. 1250 – 1290) and in the Glazed Mixed period at the Pinnacle.

Basis of the Present Description. 768 sherds of Tularosa Patterned Corrugated were analyzed for the project (Table 69); 76 sherds came from the Kelly Canyon Site, 50 from the Pinnacle, 579 sherds, one near complete olla and one partially restored bowl were recovered from the Victorio Site, and 63 sherds were recovered from the Montoya Site). Figures 511-514 show the distribution of sherds on the sites. Figures 515-523 display representative sherds and vessels. See also Martin and Rinaldo (1950), Martin et al. (1952), and Rinaldo and Bluhm (1956).

Table 69. Count of Tularosa Patterned Corrugated.

Type	1125	2292	88889	88891	Grand Total
Tularosa Patterned Corrugated	76	50	579	63	768

Construction. Hand coiling and scraping.

Paste. Soft and friable. Color is commonly medium brown and ranges from yellowish tan and reddish tan through brown, gray-brown, to dark brown and black. Temper consists of rounded and angular particles of sand or detritus.

Surface Color. Surface color is a medium brown but ranges to a yellowish or reddish brown, and dark brown. Interior color of jars is usually medium brown but may range to dark brown and black. Interiors of bowls are purposefully smudged black. Fire clouds and sooting are common on exterior surfaces of both bowls and jars.

Surface Finish. Interior surfaces of jars range from smooth to somewhat rough and they may exhibit intermittent polishing stria. Interior surfaces of bowls are well smoothed, smudged black, and polished, often to a luster. Exterior surfaces of jars have alternating rows of indented and plain corrugation, or allover plain corrugation with geometric patterns created with indented corrugation. Corrugation may extend from the base of the fillet rim to the shoulder of the vessel or extended all the way to the vessel bottom. Bowl exteriors are similar to jars in that corrugation begins at the base of a fillet rim and may extend downward to cover one-third of the upper vessel wall or extend all the way to the vessel bottom. Those portions of bowl or jar exteriors that do not have corrugation are smoothed and polished.

Vessel Forms. Jars and bowls. Jars are wide-mouthed with everted fillet rims. Bowls have straight or slightly out-flaring side walls and direct fillet rims

Decoration. There are no painted decorations. Exteriors of both jars and bowls have narrow, plain and indented corrugation that measures 3 to 4 millimeters in width. One decorative style is the creation of alternating rows or bands of plain and indented corrugation. This style has been referred to as the Reserve variant of Tularosa Patterned Corrugation (Rinaldo and Bluhm 1956:169). The other decorative style seen on Tularosa Patterned Corrugated is that of allover plain corrugation with geometric unit designs or geometric designs that move obliquely or encircle a vessel. Geometric designs include stacked chevrons, diamonds, and triangles and connected triangles.

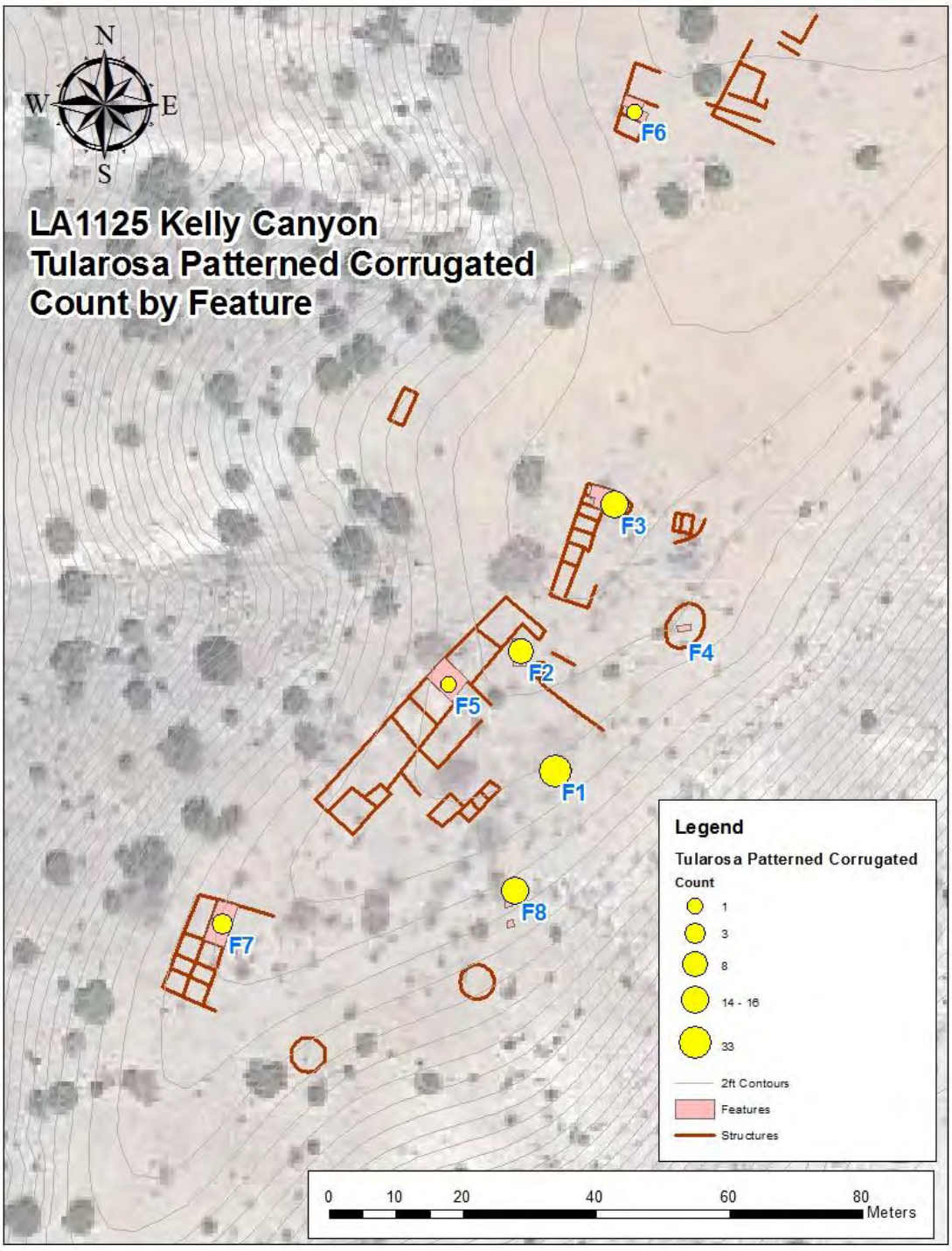

Figure 511. Distribution of Tularosa Patterned Corrugated on the Kelly Canyon Site.

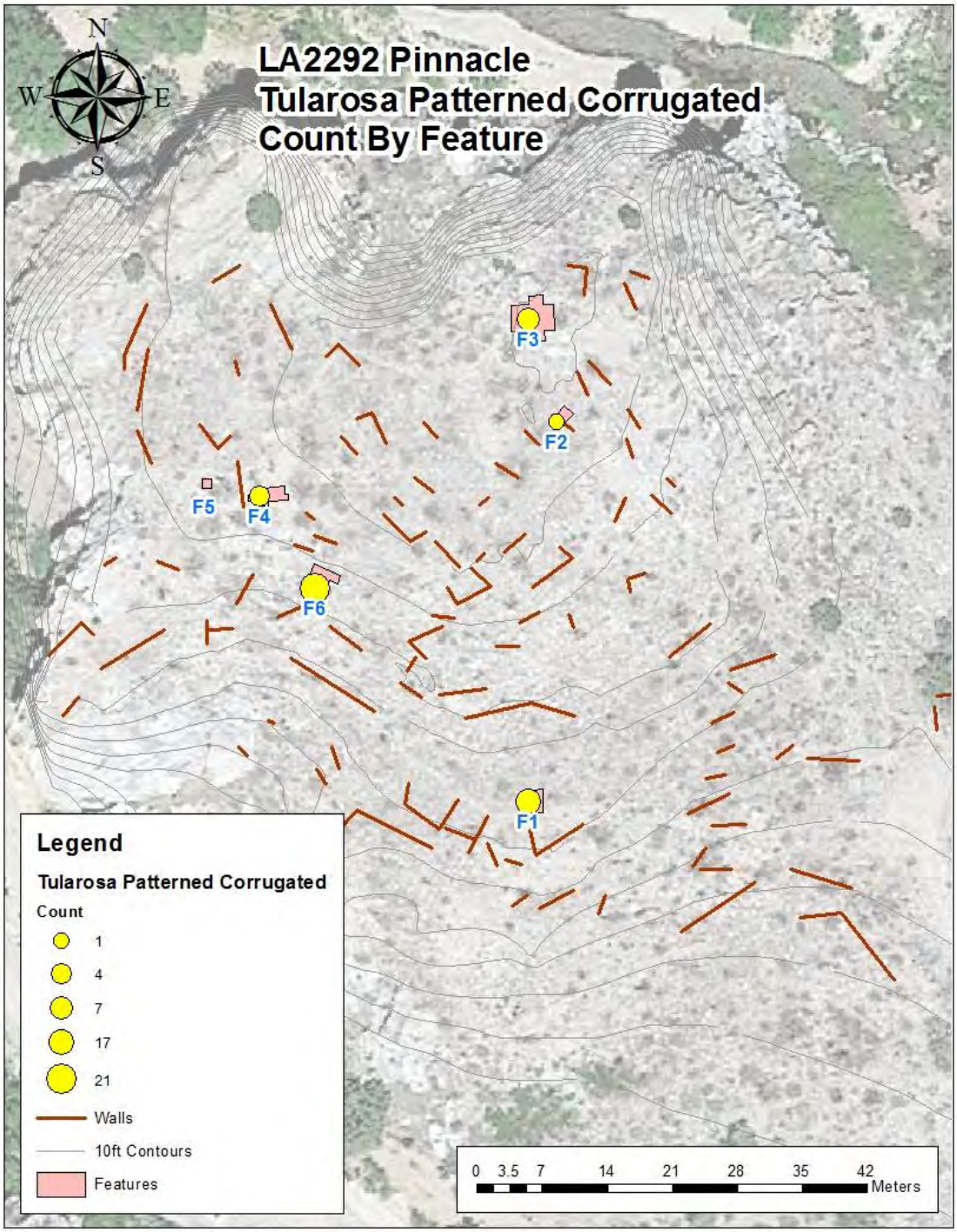

Figure 512. Distribution of Tularosa Patterned Corrugated on the Pinnacle.

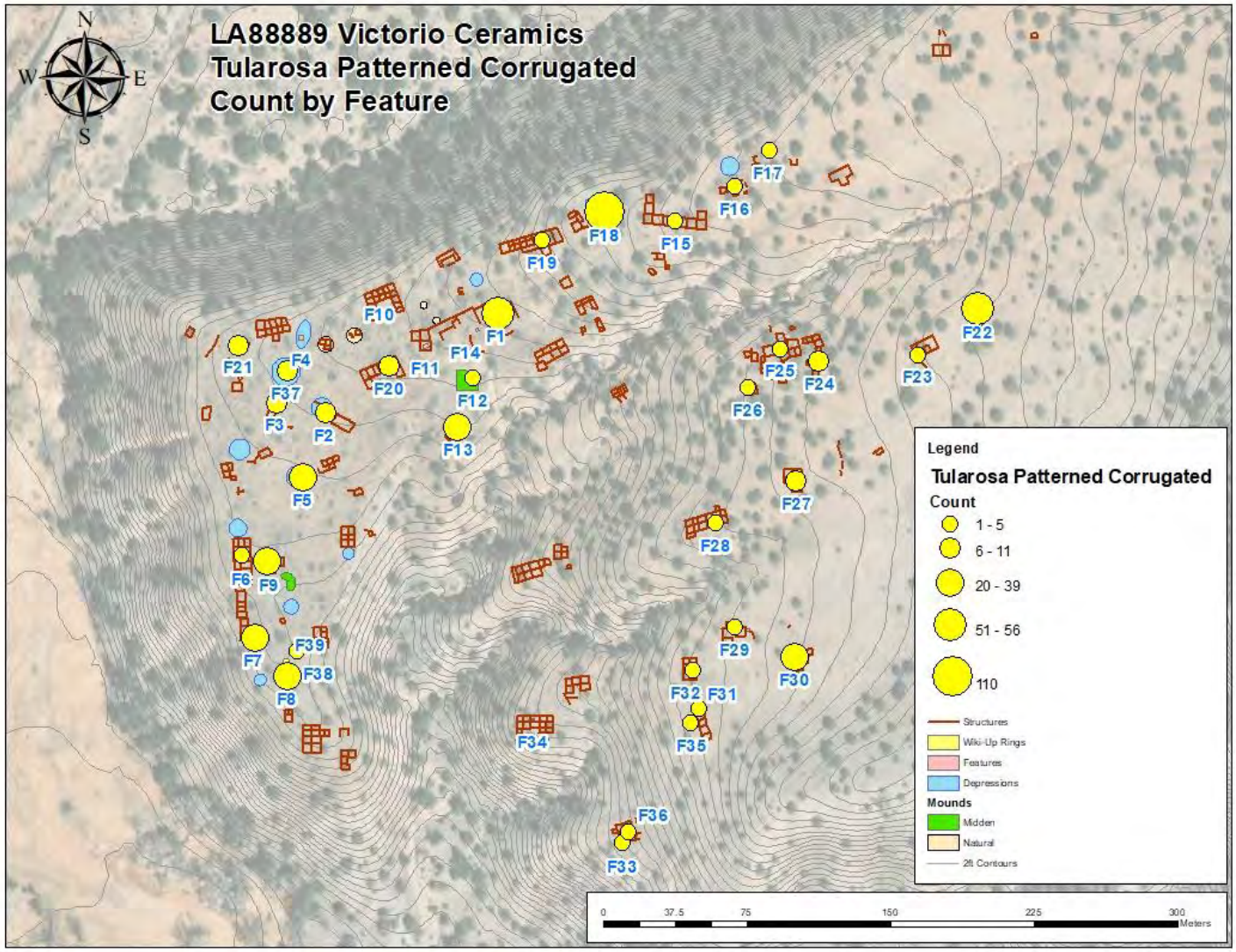

Figure 513. Distribution of Tularosa Patterned Corrugated on the Victorio Site.

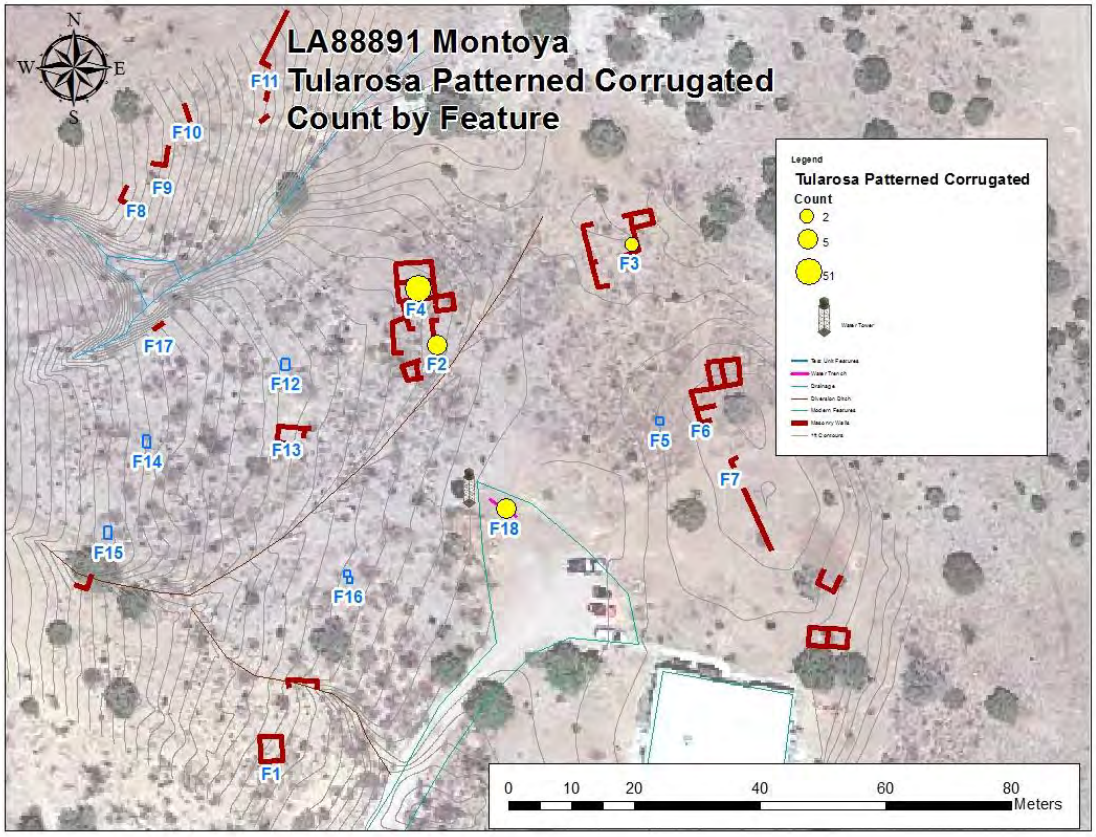

Figure 514. Distribution of Tularosa Patterned Corrugated on the Montoya Site.

Figure 515. LA 88889: Tularosa Patterned Corrugated Jar Rim (07-78).

Figure 516. LA 88889: Tularosa Patterned Corrugated Jar Sherd (09-495).

Figure 517. LA 88889: Tularosa Patterned Corrugated Jar Rim and Body Sherd (99-995).

Figure 518. LA 88889: Tularosa Patterned Corrugated Jar Rim (99-1046).

Figure 519. LA 88889: Tularosa Patterned Corrugated Jar Rim (06-203).

Figure 520. LA 88889: Tularosa Patterned Corrugated Bowl Rim (06-619) Exterior and Smudged Interior Views.

Figure 521. LA 88889: Tularosa Patterned Corrugated Near Complete Jar (07-154).

Figure 522. LA 88889: Tularosa Patterned Corrugated Near Complete Jar (07-154).

Figure 523. LA 88889: Tularosa Patterned Corrugated Partial Bowl (07-506).

UNDIFFERENTIATED BROADLINE RED-ON-BROWN
(MOGOLLON BROWN WARE?)

Key Attributes. Adequately smoothed, unslipped polished surfaces with opposing surfaces that are rough scraped or poorly smoothed and undulating; simple broadline linear elements done in iron-based clay or mineral paint pigment.

Dates. CAP Period/Phase dates: Possibly Early Pit House Period, circa A.D. 400 – 600. There are no published dates specifically for "broadline red-on-brown." A broadline red-on-brown style of pottery appears to be the earliest progenitor to several early red-on-brown painted types from southern New Mexico to southeastern Arizona. Wheat (1955:72) states that within the earliest horizon for the Mogollon Culture, there are polished brown and red wares, and he refers to the earliest painted wares, with "crudely executed broad-line red designs" occurring in his Mogollon II period which he dates circa A.D. 400 to 600. Both Wheat (1955:84) and Haury (1936:9) refer to four broadline red-on-brown sherds found in Georgetown Phase contexts (circa A.D. 550-650) at the Harris Village. Haury stated that these were basically Alma Plain with red-painted broadline linear elements and thought they might be ancestral to San Lorenzo Red-on-brown. However, the San Lorenzo Phase as proposed by Haury has essentially been dropped from use (Bullard 1962; Anyon, Gilman, and LeBlanc 1981:216; LeBlanc 1989; Lekson 1990) and San Lorenzo Red-on-brown has been subsumed under the type name of Mogollon Red-on-brown. Mera (1943:7) believed that the early Western Mogollon brown ware and red-slipped pottery complexes gave rise to the "basic pottery types" in eastern and southeastern New Mexico. It's probable that San Andres Red-on-brown, the earliest Three Rivers Red Ware, beginning around circa A.D. 650+ (Wiseman: 2014:381), was inspired by Mogollon Red-on-brown or something like it. Broadline red-on-brown pottery is also the first painted pottery in southern Arizona (Hohokam Buff Ware) and southeastern Arizona as represented by Dos Cabezas Red-on-brown local to the San Simon Valley (Whittlesey and Heckman 2000:8). Hence, broadline red-on-brown pottery is a phenomenon common to the southern portions of the greater Southwest and appears, across the area, around A.D. 650.

Basis of the Present Description. Four undifferentiated broadline red-on-brown sherds (Table 70) were recovered from the Montoya Site (LA888891). Figure 524 shows the distribution of the sherds. Figures 525-527 display representative sherds.

Table 70. Count of Undifferentiated Broadline Red-on-brown.

Type	1125	2292	88889	88891	Grand Total
Undifferentiated Broadline Red-on-brown				4	4

Artifact #01-531 was found in Level 6, a Mimbres context of Feature 3 which was a large open ramada with hearth. Artifact #01-608 was located in Level 3 in a mixed Socorro-Tularosa context within Feature 4 which started as a Mimbres period jacal structure then was remodeled later, possibly as a kiva. This sherd was likely associated with the Mimbres component or something earlier, but over time ended-up in the Socorro-Tularosa context but it does not date to the Socorro-Tularosa phases. And lastly, Artifact #04-581 includes two sherds both found in a Mimbres context in Level 4 of Feature 11 which was a structure with a floor. These sherds are described as follows:

Artifact #01-531 is a bowl rim. Construction was by hand coiling and scraping. The interior surface is well smoothed with a lustrous polish on it. Surface color is a yellow brown color with a single sloppy or blotchy linear element that runs from the rim down into the body—this too is polished over. The exterior is rough scraped like Alma Rough. Temper is large, chunky particles of rhyolite being approximately 2mm diameter mixed with small angular particles of the same material. Paste color is a medium brown. The exterior surface shows patches of oxidation.

Artifact #01-608 is also a bowl rim. Construction was by hand coiling and scraping. The interior surface has been well smoothed and has a lustrous, but somewhat streaky polish on it. There are no red slip or designs on the interior surface. The interior surface is a dark, reddish brown. The exterior is very dark—a really dark brown. The coils of manufacture have been obliterated but the surface is rough, but with no scrapping stria, and unpolished. There are red, almost maroon colored linear elements on the exterior. These have no polish on them and they appear dull and course. The linear elements are like unit designs as they appear to stand alone. The paste is dark brown. Temper consists of mixed particles of sand, 1mm diameter and smaller and is abundant, and the particles are predominately angular.

Artifact #04-581 includes two sherds. One is a bowl rim sherd. Construction was by hand coiling and scraping. The interior surface is well smoothed and polished. A red colored broad design element runs from the rim down into the interior surface. The exterior, like the jar sherd (#04-581) described below, is rough

scraped. The color of this surface is now marred by fire clouding but was likely a light medium brown. The paste has a dark gray core sandwiched between the light brown color of the two outer surfaces. Mixed particle sizes (1mm and smaller) of angular quartz sand makeup the temper. The rim form is direct. The lip is somewhat flattened.

The second sherd (also #04-581) is a jar body sherd. Construction was by hand coiling and scraping. The interior surface has been well smoothed to remove the original coils of manufacture and there is visible polishing stria across this surface. On the other hand, the exterior surface is rough scraped with no polishing stria. The surface color on both sides is a light brown. The paste has a dark gray core sandwiched between the light brown colors of the two surfaces. The temper is mixed particle sizes of angular quartz sand. Particle size ranges from 1mm to smaller. The paste texture is moderately coarse. The smoothed and intermittently polished interior surface is undecorated. The rough scraped exterior has a single, broad, solid element done in a red, iron-based pigment. The rough scraping is very reminiscent of same texturing seen on Alma Rough. Rough scraping is uncommon on Three Rivers Red Ware.

Remarks. Three of the "undifferentiated" broadline red-on-brown sherds described above (#01-531 and #04-581 which includes two sherds) all have rough scraping on the exterior surface of both jar and bowl forms. Rough scraping is commonly seen in the earliest Mogollon contexts of the early pithouse period and attributed to a pottery type called Alma Rough. Brown wares with red painted designs were developed in the early part of the Late Pithouse Period and are distinguished by linear designs done with a red, iron-based pigment and were called San Lorenzo Red-on-brown, described as being similar but less refined and diversified design-wise than Mogollon Red-on-brown (Haury 1936:6,12) and Mogollon Red-on-brown (Mera and Stallings 1931; Haury 1936:10). The type name San Lorenzo Red-on-brown is rarely used today and has been basically subsumed under the name Mogollon Red-on-brown. None of the four "undifferentiated" sherds could typologically be classified as Mogollon Red-on-brown. These sherds are a broadline red-on-brown and in this writer's opinion, a variety of Alma Plain or Alma Rough. The fourth sherd, Artifact #01-608 is the odd one. The sherd itself looks like a dark brown colored Alma Plain with a polished interior surface. The red colored linear design elements on the brown surface renders a look similar to poorly done Mogollon Red-on-brown. However, these designs are located on the exterior surface of the bowl. This is contrary to descriptions of Mogollon Red-on-brown bowls which are commonly described as having an exterior red slip that is generally well polished and design executed on the interior surface in the same

red pigment used to slip the exterior surface. What "type" this sherd is will likely remain undetermined, but it could be an aberrant Mogollon Red-on-brown, or some temporally equivalent type such as Estrella Red-on-gray (Haury 1976:220-222) from southern Arizona, Dos Cabezas Red-on-brown (Whittlesey and Heckman 2000:8) from southeastern Arizona, or possibly Anchondo Red-on-brown (DiPeso 1974:57-59) from the Casas Grandes region of northern Chihuahua. The only problem with suggesting any of these types is that all of them have painted designs predominately on the interiors of bowls.

Setting aside the locational problem of red-on-brown designs on the one bowl sherd, the presence of broadline red-on-brown pottery in the Montoya Site is significant. As mentioned above, broadline red-on-brown style of pottery appears to be the earliest progenitor to several early red-on-brown painted types from southern New Mexico to southeastern Arizona and these appear, across the area, around 650 A.D. These few sherds of broadline red-on-brown could indicate that there may be an early, Mogollon component under the Mimbres occupation that was not exposed during excavation of the Montoya Site. And, with the presence of late Archaic corn found deep under the Montoya Site, may indicate that this locale was viable place for not only early horticulturalists but for the earliest Mogollon people who used painted pottery.

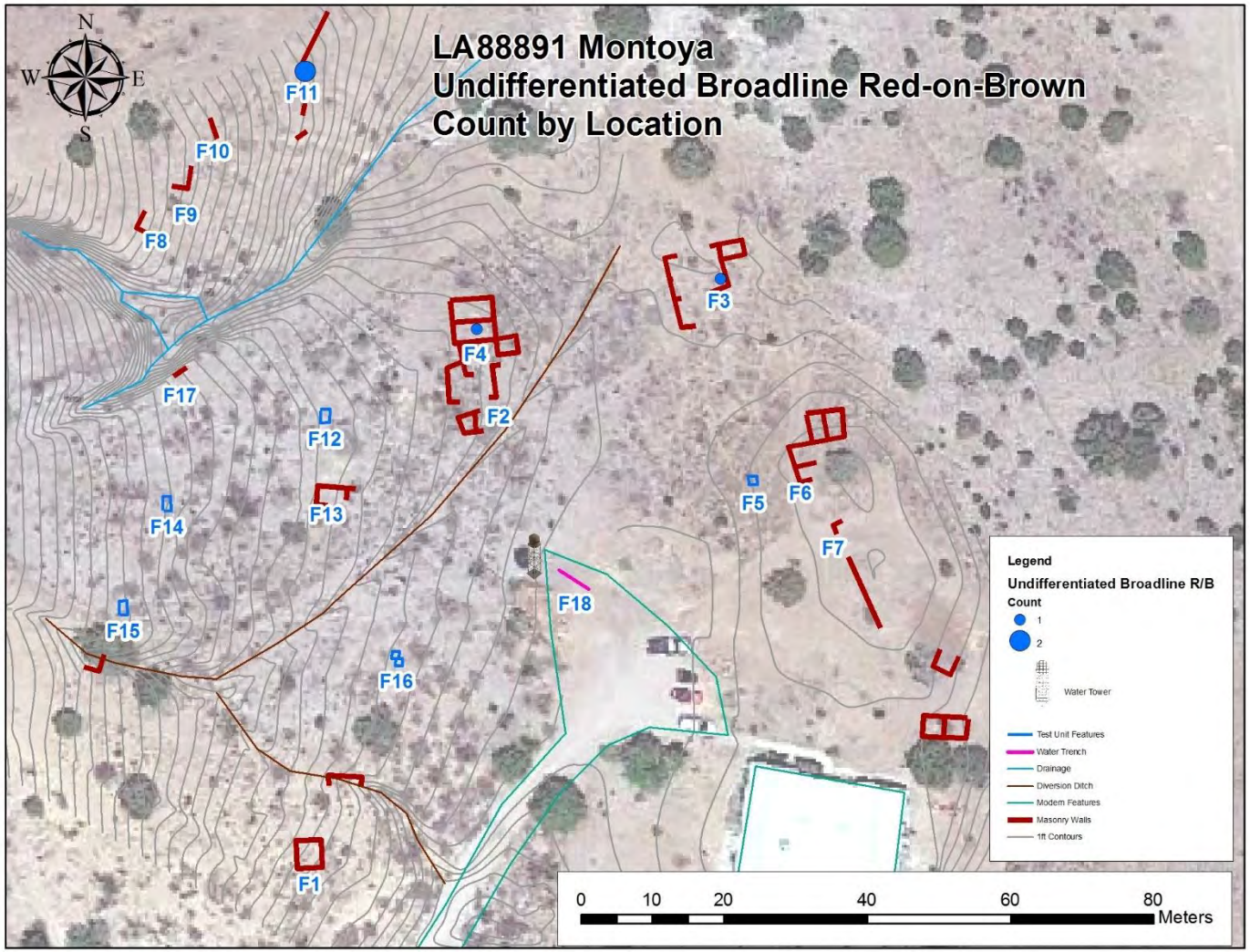

Figure 524. Distribution of Undifferentiated Broadline Red-on-brown on the Montoya Site.

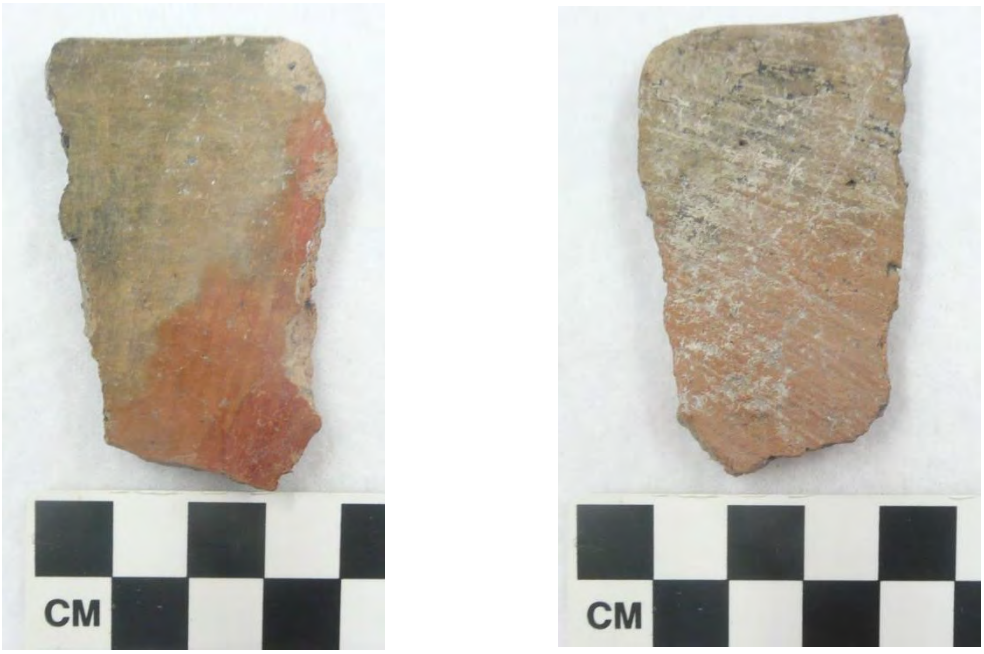

Figure 525. LA 88891: Undifferentiated Red-on-brown Bowl Rim (01-531), Interior and Exterior Views.

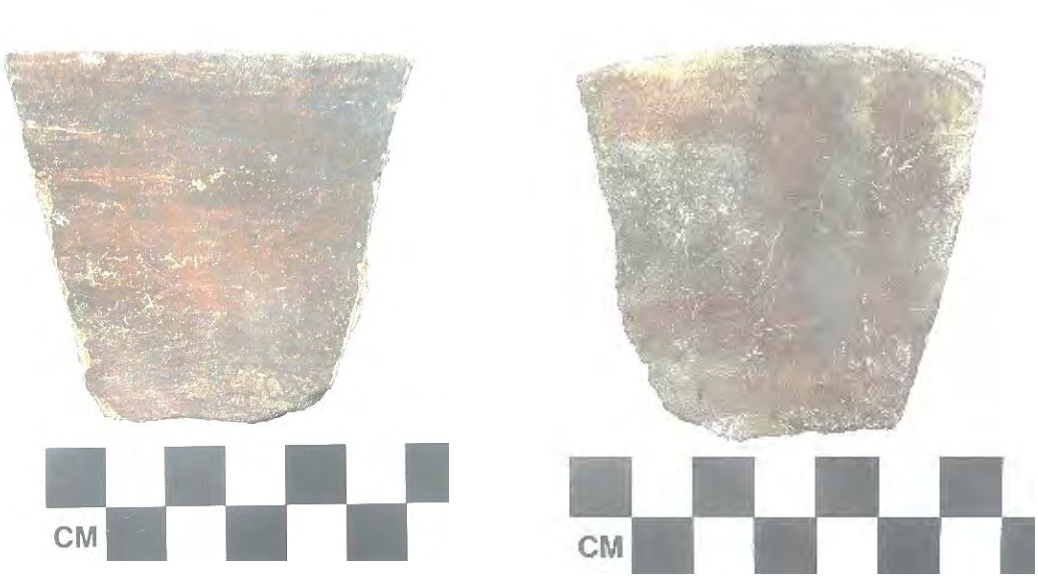

Figure 526. LA 88891: Undifferentiated Red-on-brown Bowl Rim (01-608), Interior and Exterior Views Brightened and Contrasted to Show the Painted Lines.

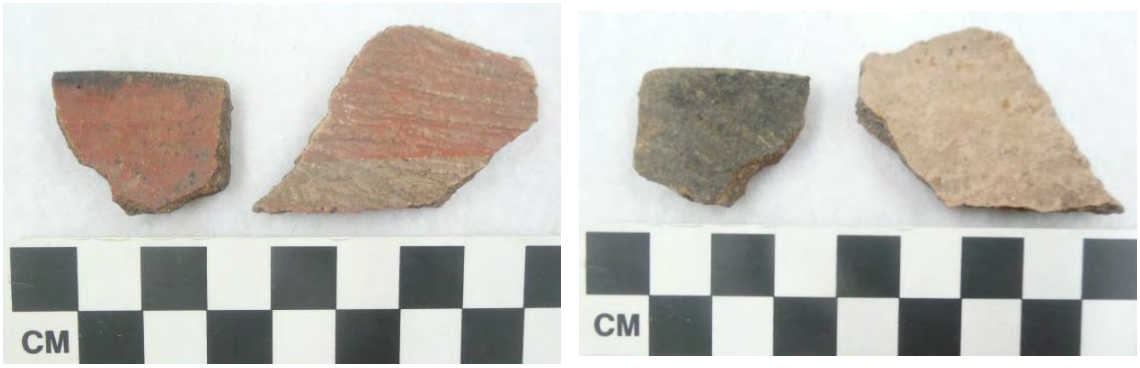

Figure 527. LA 88891: Undifferentiated Red-on-brown (04-581).
(Upper image shows a broad red colored linear element nearly covering the entire interior surface of a bowl rim (l); and the painted and rough scraped exterior surface of a jar sherd body sherd (r). The second image (below) shows the opposite surfaces of the two sherds.)

WINGATE BLACK-ON-RED
(WHITE MOUNTAIN RED WARE)

Key Attributes. Polished red slip, mineral based paint pigment, and prepared sherd, sand, and rock detritus temper. Decoration is laid-out in a band and consists primarily of opposed solid and hatched designs on the interiors of bowls, and plain slipped exteriors.

Dates. Accepted: A.D. 1050/1100 to 1200. CAP Period/Phase dates: Early Pueblo Period, Socorro Phase A.D. 1130 – 1200. Across the four sites, Wingate Black-on-red was found predominately in three temporal contexts including the Socorro Phase (N=17; A.D. 1100 – 1200), mixed Socorro-Tularosa Phase (N=36), and the Tularosa Phase (N=21; 1200 – 1290) temporal contexts.

Basis of the Present Description. There are one hundred eighteen sherds of Wingate Black-on-red in the Cañada Alamosa assemblage (Table 71). Forty-five were excavated from the Kelly Canyon Site (LA 1125), one from the Pinnacle (LA 2292), sixty from the Victorio Site (LA 88889), and twelve from the Montoya Site (LA 88891). Figures 528-531 display sherd locations. Figures 532-539 exhibit representative sherds. When found in an excavated context, Wingate Black-on-red is consistently found associated with Mimbres Classic B/w (Mimbres Style III) and Socorro B/w. See also Gladwin (1931), Mera (1934), Hawley (1936), Colton and Hargrave (1937), Carlson (1970), and Hays-Gilpin (1998).

Table 71. Count of Wingate Black-on-red.

Type	1125	2292	88889	88891	Grand Total
Wingate Black-on-red	45	1	60	12	118

Construction. Hand coiling and scraping.

Paste. Light colored paste may be white, light gray, buff, and pinkish white. Carbon streaks occur. The paste is hard and the texture may range from fine to coarse, depending on the size and quantity of the temper particles. Temper material consists of prepared sherd, sand, and rock detritus.

Surface Color. Jar exteriors and bowl interior and exterior surfaces have a red to orangish-red slip that may appear thin or thick. The slip is evenly applied and polished after drying and before applying decoration.

Surface Finish. Slipped and painted surfaces are generally well smoothed but surfaces will occasionally have minor undulations. Slipped surfaces typically have

an uneven (intermittent) polish. Bowl exteriors are scraped smooth but may undulate slightly.

Vessel Forms. Hemispherical bowls and jars with high or low straight necks, high shoulders, globular bodies, and strap handles. Rims are direct or slightly incurving and beveled towards the interior or they may be rounded or slightly flattened.

Decoration. Wingate Black-on-red decoration on the interior surface of bowls and exteriors of jars is very similar to that seen on Reserve Black-on-white. Designs were laid-out in a banded fashion with motifs held between two framing lines. Designs were boldly drawn and with a degree of openness between elements and motifs. The most common design motifs are solid, rectilinear broad lines opposed by diagonal hatching with the hatched motifs being wider than opposing solid motifs. Solid triangles and sawteeth, solid stepped elements, and interlocking key elements are commonly integrated with the basic motif of solids with opposed hatching. Bowl exteriors are slipped red but are not decorated. The interior surface of jar necks is commonly slipped. See Carlson's discussion of Wingate style (1970:89-90).

Paint. An iron-based mineral pigment was utilized to create decoration in black on bowl interiors. This pigment may appear as a true black or range to a dark brown color.

Remarks. Although Wingate B/r is frequently perceived as being a little later in time than Puerco B/r, the two types actually overlap. Carlson (1970:11) states that Puerco B/r is the earliest of the all of the White Mountain Red Wares, but this as yet cannot be demonstrated stratigraphically. It may be that Puerco B/r and Wingate B/r are the same type, with Puerco B/r possibly being a regional variety having predominately rectilinear solid motifs while Wingate B/r design style is dominated by diagonal hatching opposed by solid linear motifs.

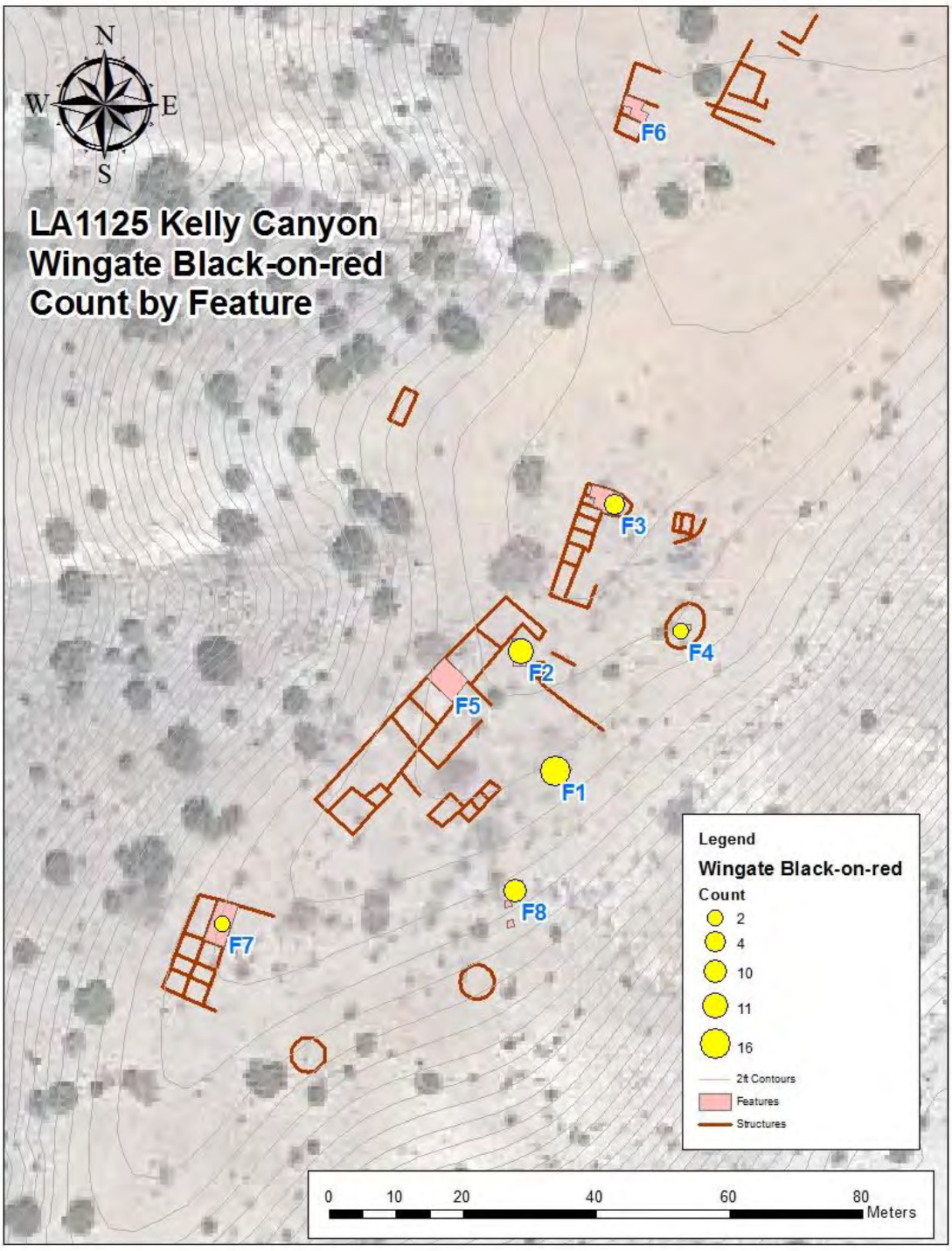

Figure 528. Distribution of Wingate Black-on-red on the Kelly Canyon Site.

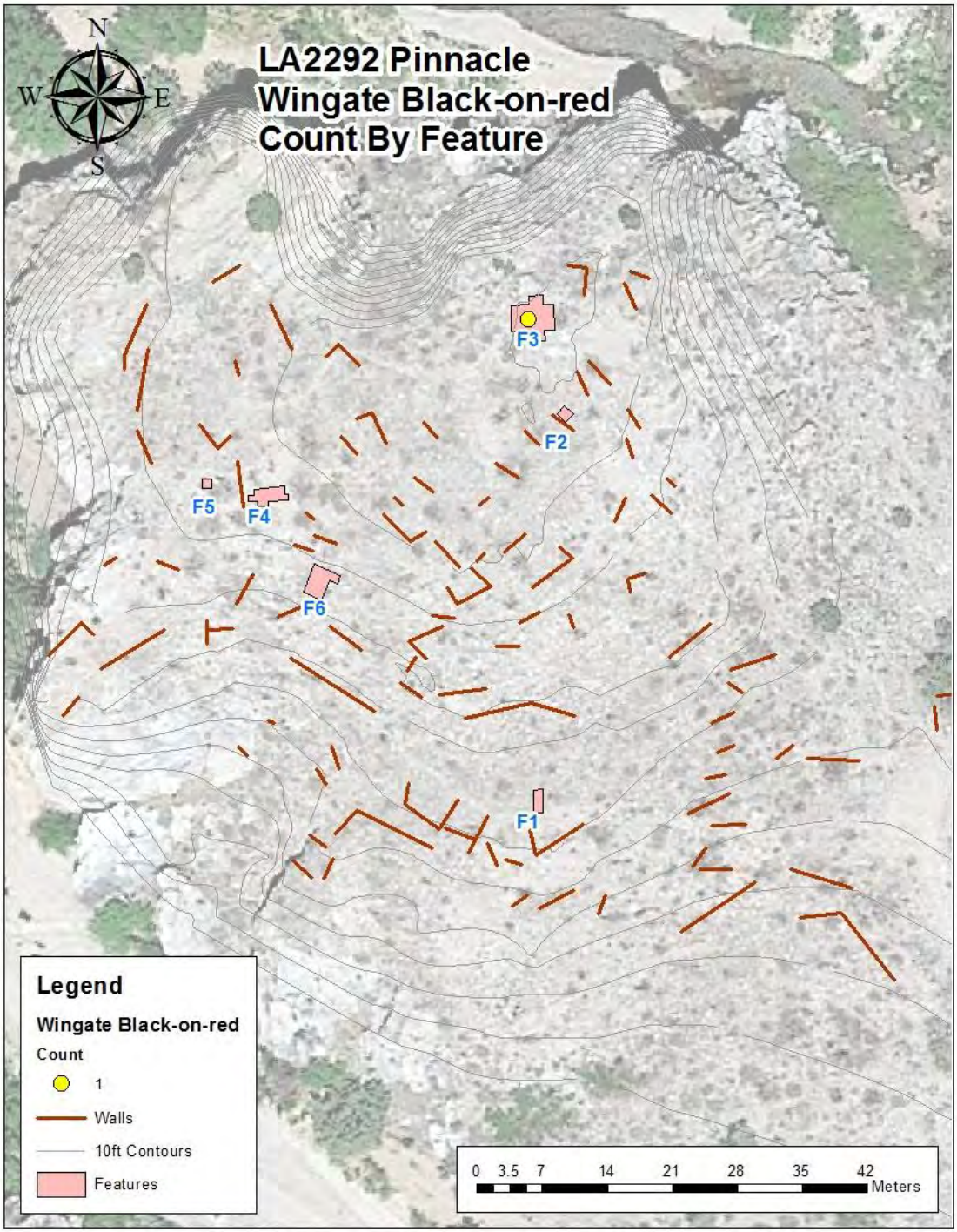

Figure 529. Distribution of Wingate Black-on-red on the Pinnacle.

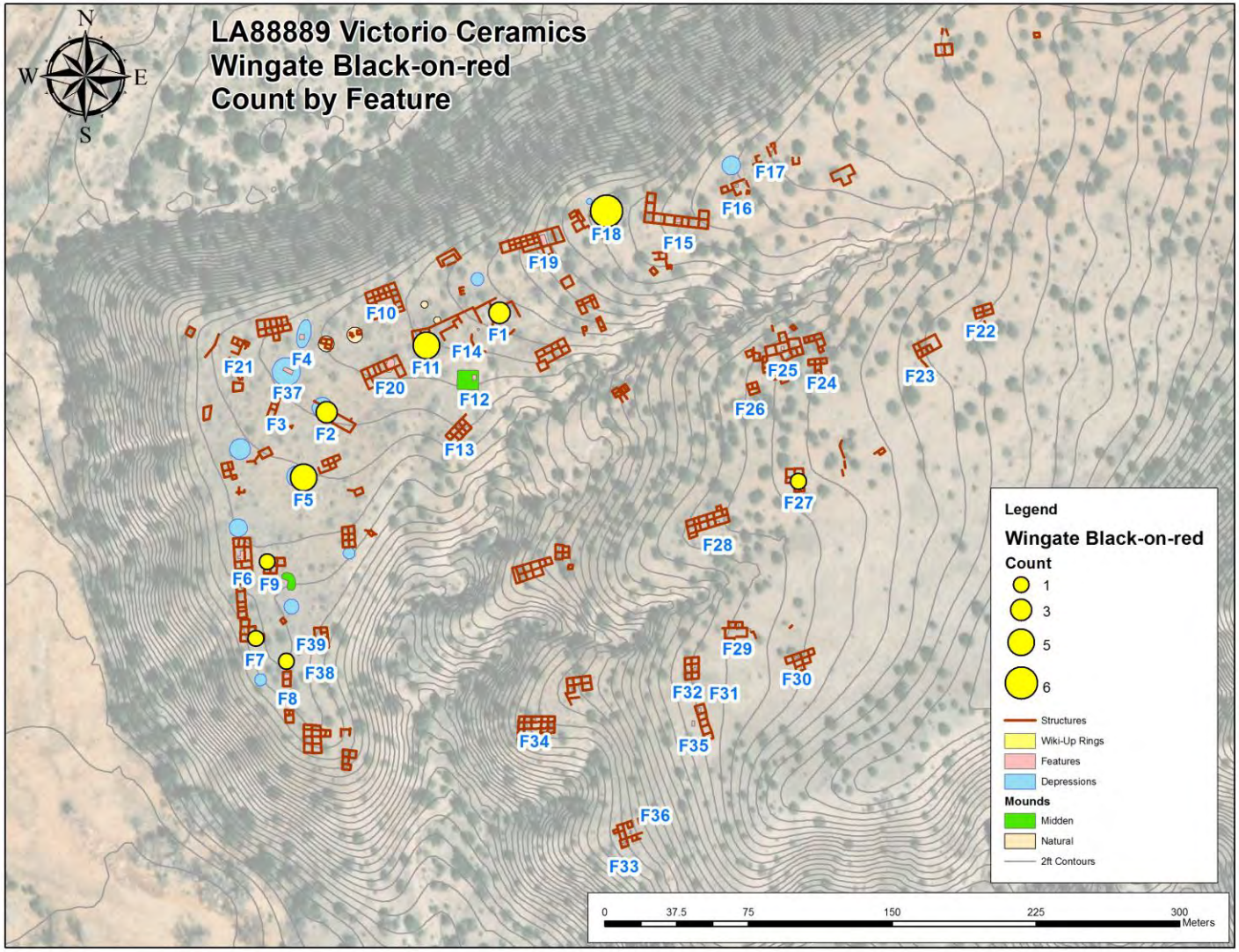

Figure 530. Distribution of Wingate Black-on-red on the Victorio Site.

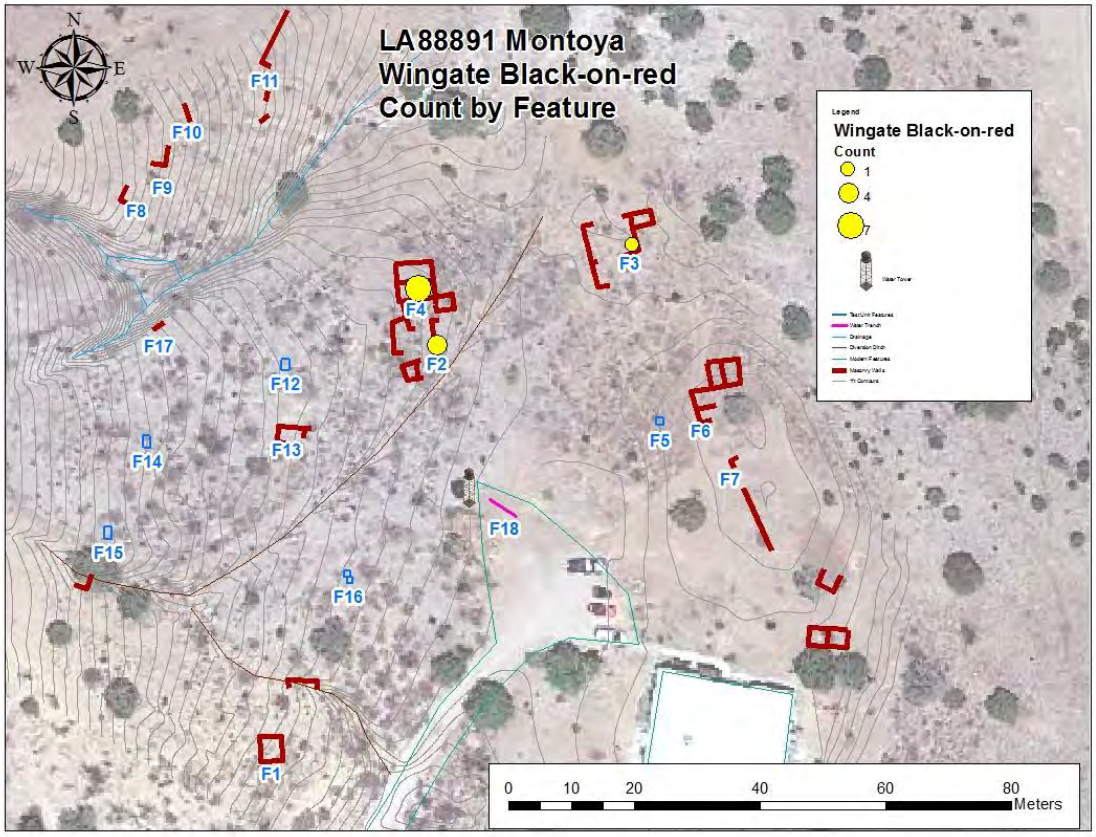

Figure 531. Distribution of Wingate Black-on-red on the Montoya Site.

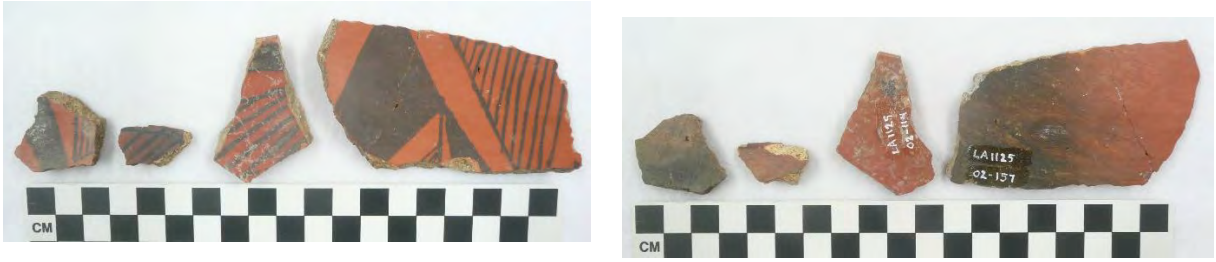

Figure 532. LA 1125: Wingate Black-on-red Bowl Sherds (02-650, 02-86, 02-114, 02-157), Interior and Exterior Views.

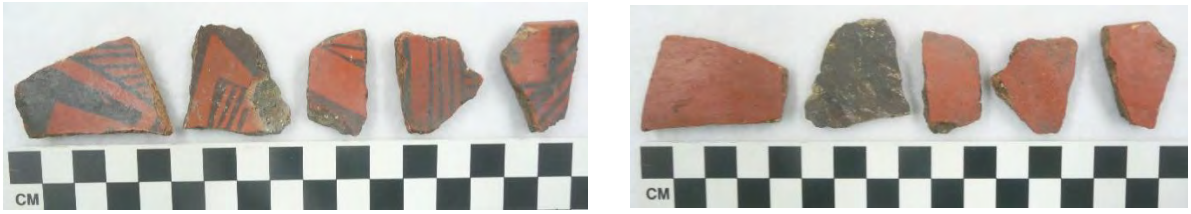

Figure 533. LA 1125: Wingate Black-on-red Bowl Sherds (03-390 body, 03-191 body, 03-347 both body, 03-609 bowl rim), Interior and Exterior Views.

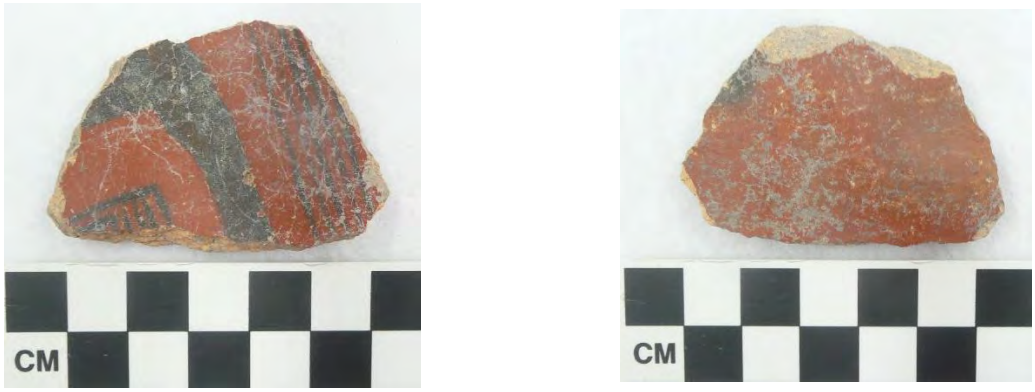

Figure 534. LA 88891: Wingate Black-on-red Bowl Sherd (01-595), Interior and Exterior Views.

Figure 535. LA 88891: Wingate Black-on-red Bowl Sherds (04-238 rim, 04-359 body, 04-41 rim), Interior and Exterior Views.

Figure 536. LA 88889: Wingate Black-on-red bowl Body Sherd (06-77).

Figure 537. LA 88889: Wingate Black-on-red Bowl Sherds (09-673 rim, 09-433 body), Interior and Exterior Views.

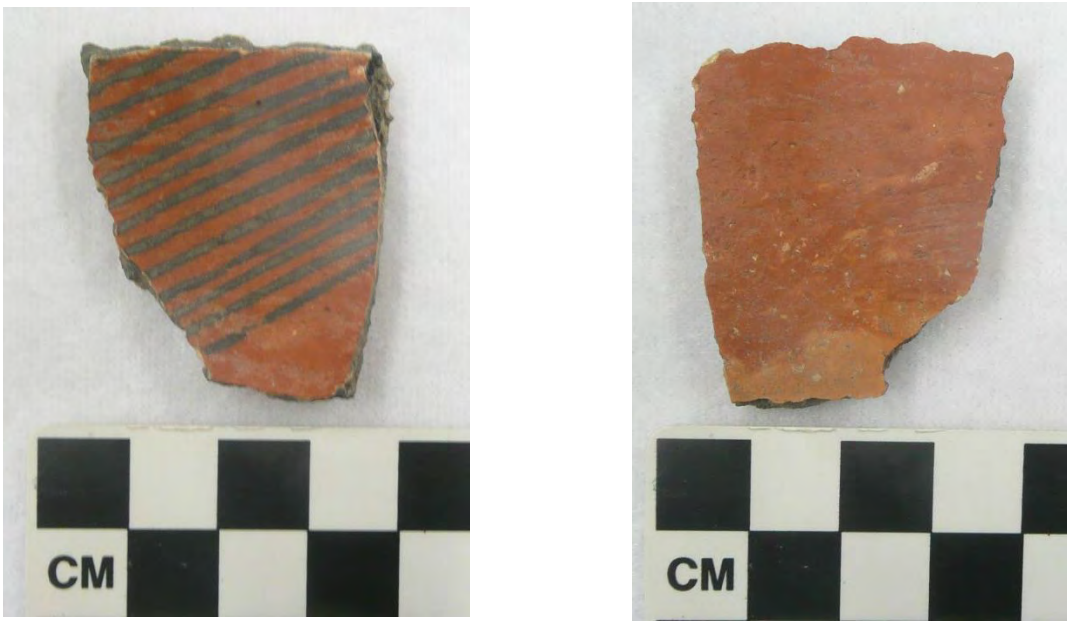

Figure 538. LA 88889: Wingate Black-on-red bowl Body Sherd (10-600), Interior and Exterior Views.

Figure 539. LA 2292: Wingate Black-on-red Bowl Body Sherd (01-20).

WINGATE POLYCHROME
(WHITE MOUNTAIN RED WARE)

Key Attributes. Polished red slip, mineral based paint pigment, and prepared sherd, sand, and rock detritus temper. Decoration is laid-out in a band and consists primarily of opposed solid and hatched designs on the interiors of bowls; the exteriors of bowl forms have one of three variations of coloration and design.

Dates. Accepted: A.D. 1125 to 1200. CAP Period/Phase dates: Early Pueblo Period, Socorro Phase A.D. 1130-1200. The best temporal context for Wingate Polychrome came from the Kelly Canyon Site where two sherds of the type were recovered from the Socorro Phase context (A.D. 1130 – 1200) and seven from the mixed Socorro-Tularosa Phase context (A.D. 1130 – 1290).

Basis of the Present Description. Eleven sherds of Wingate Polychrome are in the Cañada Alamosa assemblage (Table 72). Nine sherds were from the Kelly Canyon Site (LA 1125), none were identified at the Pinnacle (LA 2292), one from the Victorio Site (LA 88889), and one from the Montoya Site (LA 88891). Figures 540-542 show the distribution of sherds on the sites. Figures 543-547 display representative sherds. See also Gladwin (1931), Roberts (1932), Hargrave (1932), Mera (1934), Hawley (1936), Colton and Hargrave (1937), and Carlson (1970).

Table 72. Count of Wingate Polychrome.

Type	1125	2292	88889	88891	Grand Total
Wingate Polychrome	9		1	1	11

Construction. Hand coiling and scraping.

Paste. A light-colored paste is typical in hues of white, light gray, buff, and pinkish white. Carbon streaks do occur. The paste is hard and the texture may range from fine to coarse, depending on the size and quantity of the temper particles. Temper material consists of prepared sherd, sand, and rock detritus.

Surface Color. Jar exteriors and bowl interior and exterior surfaces have a red to orangish-red slip that may appear thin or thick. The slip is evenly applied and polished after drying and before applying decoration.

Surface Finish. Slipped and painted surfaces are generally well smoothed but surfaces will occasionally have minor undulations. Slipped surfaces typically have an uneven (intermittent) polish. Bowl exteriors are scraped smooth but may undulate slightly.

Vessel Forms. Predominately bowl forms. Rims are direct or slightly incurving and beveled towards the interior or they may be rounded or slightly flattened.

Decoration. Like Wingate Black-on-red, Wingate Polychrome decoration on the interior surface of bowls is very similar to that seen on Reserve Black-on-white. Designs were laid-out in a banded fashion with motifs held between two framing lines. Designs were boldly drawn and with a degree of openness between elements and motifs. The most common design motifs are solid, rectilinear broad lines opposed by diagonal hatching. Solid triangles and sawteeth, solid stepped elements, and interlocking key elements are commonly integrated with the basic motif of solids with opposed hatching.

There are three varieties of Wingate Polychrome that differ from one another in the decoration on the exterior surface of bowls:

1. Wingate variety is characterized by and overall red colored slip upon which were painted white-colored bold and broadline rectilinear or curvilinear motifs done in a continuous pattern around the exterior surface.

2. Houck variety has no slip on the exterior surface but has broadline rectilinear or curvilinear motifs done in red pigment applied directly to the unslipped surface.

3. Querino variety has an exterior surface that is slipped white, with broadline rectilinear or curvilinear motifs done in red (the same slipping material that was applied to the interior surface). Like Wingate Polychrome/Wingate Variety, both Houck and Querino varieties have exterior designs that encircle the exterior surface of bowls.

Paint. An iron-based mineral pigment was utilized to create decoration in black on bowl interiors of all varieties of Wingate Polychrome. This pigment may appear as a true black or range to a dark brown color. Red slipping material was used to produce designs on the exterior surface of both Houck and Querino Polychromes and slip on the exterior surface of Wingate Polychrome. White designs on the exterior surface of Wingate Polychrome and exterior slip on Querino Polychrome is presumed to be derived from kaolin clay.

Carlson (1970:19) comments that occasionally, the black motifs on bowl interiors, will be outlined in white (applied after the black paint). Artifact #02-643 recovered from the Kelly Canyon Site LA 1125) and typed as Wingate Polychrome had a white slipped exterior and a design done in red pigment laid-down on the white

slip. This sherd has hatching with opposed solids on interior surface, and there are remnants of what appears to be white outlining a black hatched motif.

Remarks. Carlson (1970:25-27) suggests that these technological differences within the one type, Wingate Polychrome, are valid and they have temporal merit. He sees each of the coloration variations as related but evolving during a time of experimentation with color patterns. Beginning with Wingate Black-on-red, he sees the earliest exterior variation from this parent type as being red designs on an unslipped surface (Houck Variety) and the overall white slipped exterior surface with red designs (Querino Variety) as being the latest development in the design evolution. Hence, he lumps them together under the name Wingate Polychrome. With future research, Carlson's perspective may be validated, but on the other hand, research may illustrate that that the three varieties have separate and unique temporal and distributional histories and should be separated-out as three individual types.

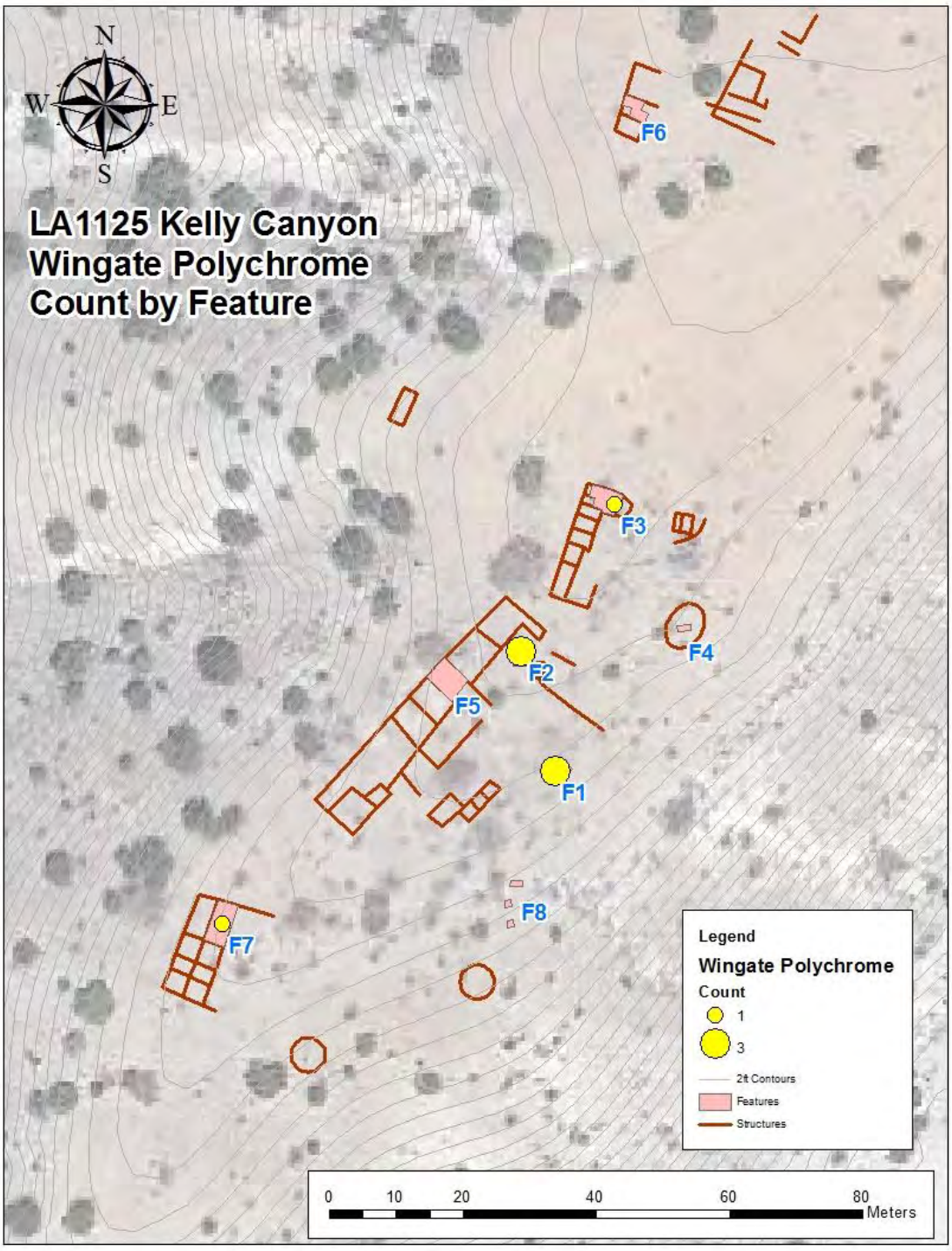

Figure 540. Distribution of Wingate Polychrome on the Kelly Canyon Site.

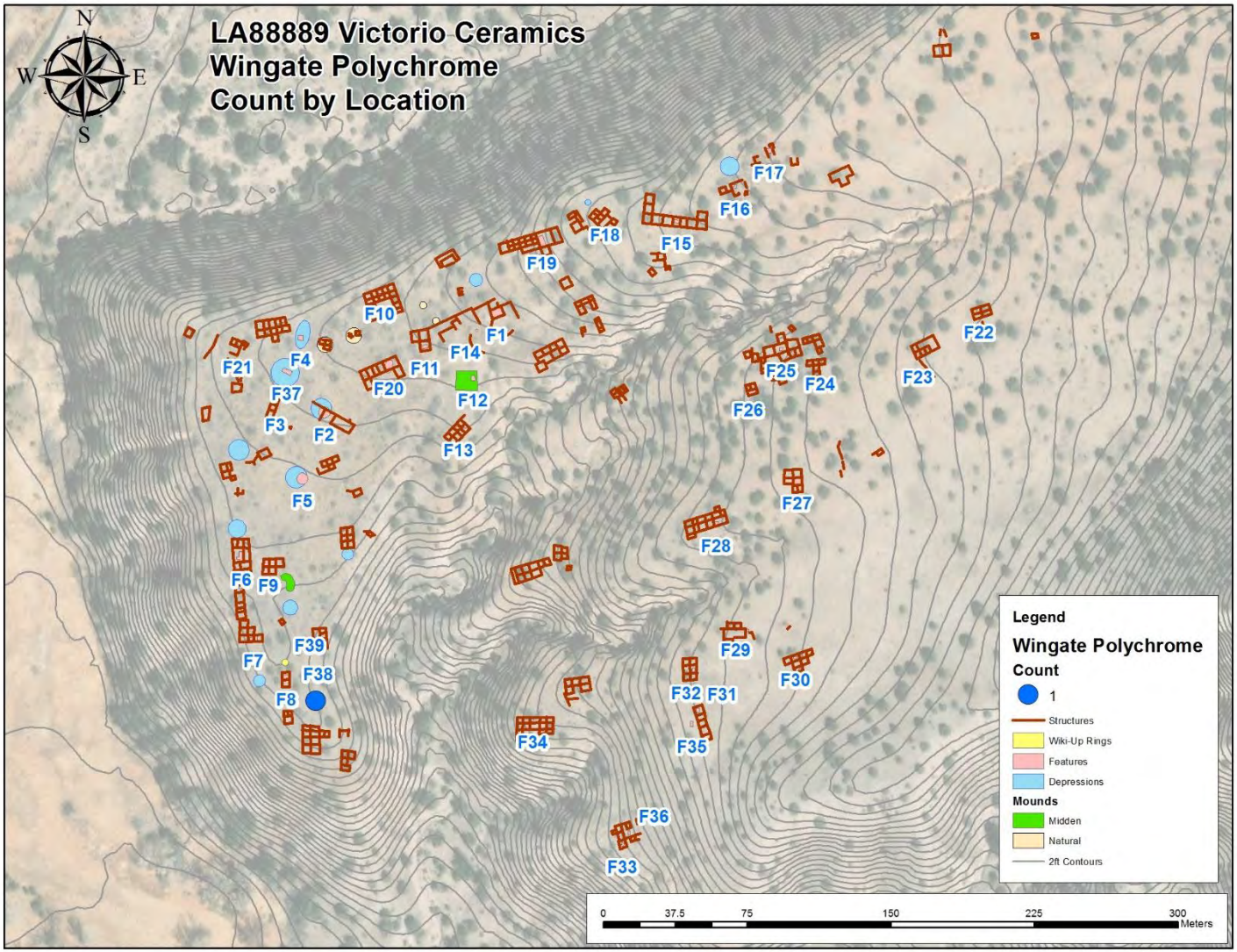

Figure 541. Distribution of Wingate Polychrome on the Victorio Site.

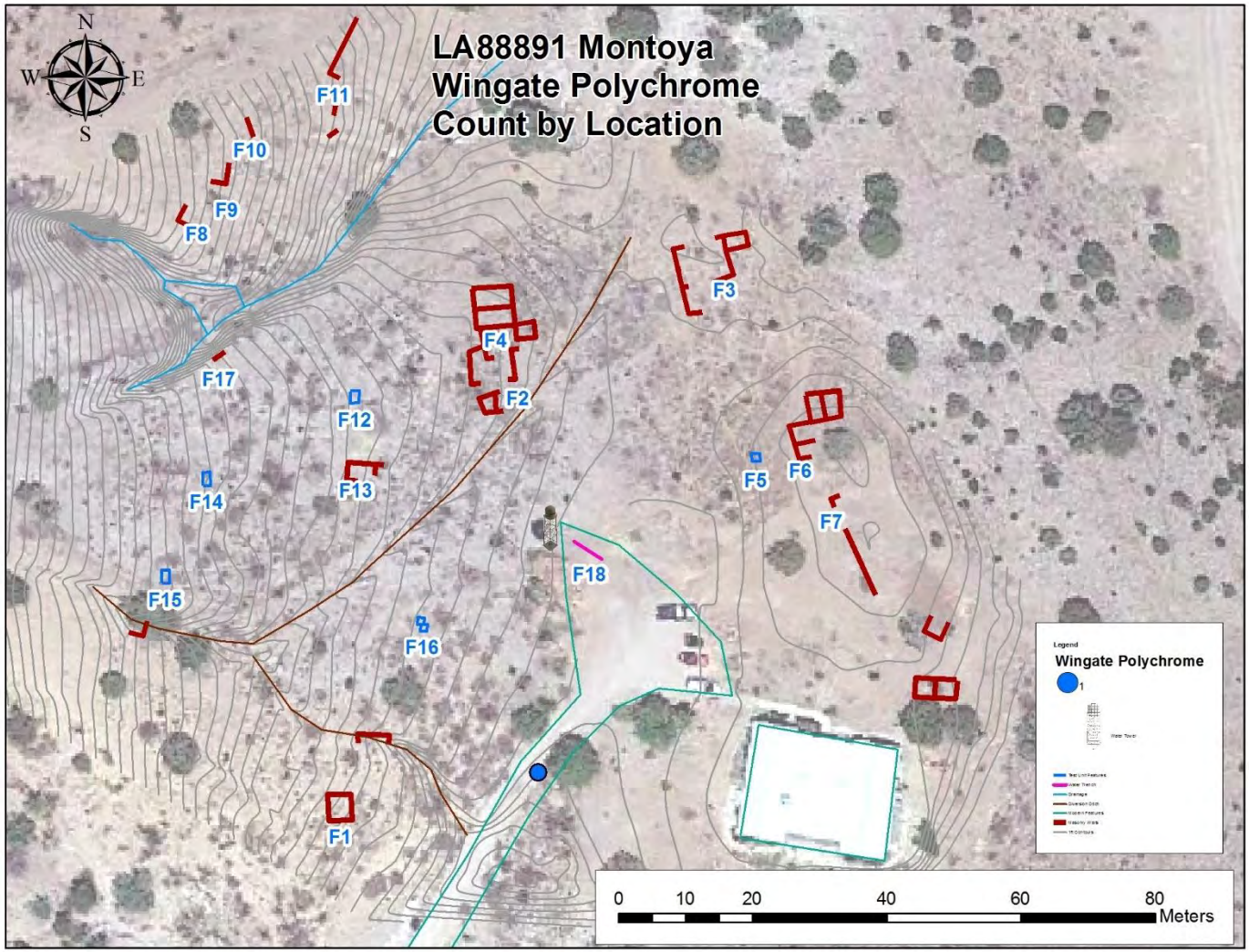

Figure 542. Distribution of Wingate Polychrome on the Montoya Site.

Figure 543. LA 1125: Wingate Polychrome Bowl Body Sherds (02-643, 02-676, 02-661), Interior and Exterior Views.
(Note on the exteriors of these sherds, from left to right, 02-643 has a white slipped surface and is the Querino Variety, the last two sherds 002-676 & 02-661, are unslipped and are the Houck Variety of Wingate Polychrome.)

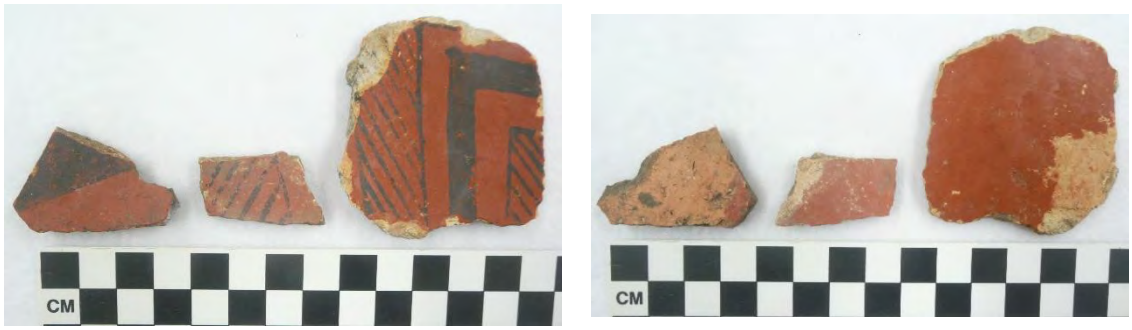

Figure 544. LA 1125: Wingate Polychrome, Houck Variety, Bowl Sherds (02-202, 02-362, 02-659) Interior and Exterior Views.

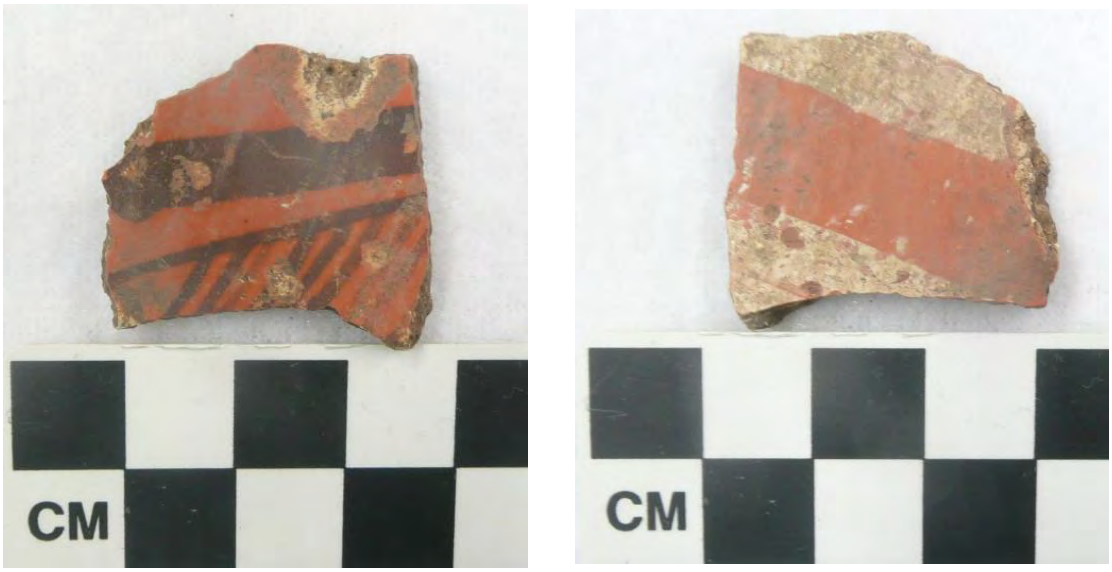

Figure 545. LA 1125: Wingate Polychrome, Houck Variety, Bowl Sherd (03-545).

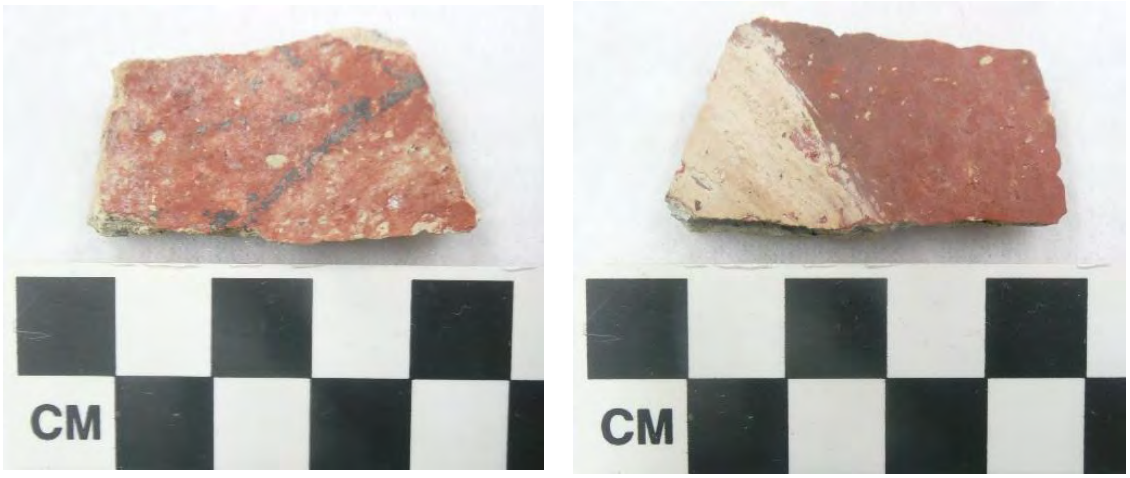

Figure 546. LA 1125: Wingate Polychrome, Wingate Variety, Bowl Sherd (03-01).

Figure 547. LA 88889: Wingate Polychrome, Houck Variety, Bowl Body Sherd (05-25).

TEMPORAL CONTEXTS FOR CAÑADA ALAMOSA CERAMICS

ARCHAEOLOGICAL CONTEXT AT THE CAÑADA ALAMOSA SITES

Taken together, the four sites comprise a reasonably unbroken sequence from the Late Archaic through the pit house and pueblo periods and capped by Apache camps. The Victorio Site is the most complex with seven distinct phases (San Francisco/San Marcial, Three Circle, Mimbres Transitional/Red Mesa, Mimbres, Socorro, Tularosa, and Apache.

Site formation is a messy process and while there are clearly contexts that contain only materials from a specific period, there are many contexts that have been mixed, sometimes from natural processes and, more often, from the activities associated with later components. The latter includes remodeling of existing structures, use of abandoned structures for habitation or trash deposits, and collection of earlier materials for reuse or because they were attractive. The former includes erosion and slope wash, both particularly prevalent on the steep slopes of the Pinnacle.

It is important to recognize these situations and the tables presented here refer to contexts as "Glaze-mixed" or Tularosa-mixed, etc. For example, the Glaze period population at Pinnacle built on top of the previous Magdalena Phase component. As a result, some Magdalena Phase contexts were sealed by stratified deposits while others were uprooted, resulting in many Magdalena Phase artifacts being jumbled with the later Glaze material.

In another situation, Tularosa Phase (13th century) rooms were built across 8th century (San Francisco Phase) pit structures that were used as trash pits during the 9th century (Three Circle Phase). In that case the material in the lower levels of the underlying pit structure were assigned to the San Francisco Phase, the fill in the upper portion of the pithouse was assigned to a generic Late Pithouse as it contains both San Francisco and Three Circle materials, and the area near and above the Tularosa Phase floor level was termed Tularosa-mixed.

In yet another scenario, Socorro Phase rooms (particularly on the Victorio Site) often have an arguably pristine context in the floor or floor fill but the upper levels (presumably post Socorro Phase) contain materials from the succeeding Tularosa Phase. Excavated features with little depth are particularly susceptible to having a mixed array of artifacts from earlier or later contexts. The Apache wiki-up rings are a prime example where Apache artifacts of stone or even ceramic might not be

recognized in an assemblage of earlier pueblo material already on the ground when the wiki-ups were constructed.

Tables 73-80 reflect these situations. When we are reasonably certain that a context is pristine for a particular temporal period, we label it Mimbres, or Magdalena or Socorro. When we know that there has been mixing, for one or all the reasons given above, the context is reviewed as "mixed." In some cases, such as Pinnacle, where most, if not all of the Glaze period material, is mixed with the earlier Magdalena Phase artifacts, the Glaze Period context is referred to as Glaze Mixed. Likewise, on the Victorio Site when Tularosa material is located on top of earlier components, the provenience is described as Tularosa-mixed. In other words, when the primary component of the assemblage from that provenience is known (Glaze, Tularosa, etc.) but it is also known that the provenience contains earlier materials, the word mixed is added to the name. Finally, "Mixed" refers to those contexts, usually surficial, which can literally contain any and all of the known components on the site.

Table 73. Context for Late Pithouse (San Francisco Phase) Ceramics.

Late Pithouse—San Francisco—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Alma Plain	513	3020	125	197	42	118	235	300	4792	3497	3	23	161	2308	15334
1125							40	38							78
2292											3	23			26
88889	513	3020	125	57		118	195	231	4792	3497			161	1995	14704
88891				140	42			31						313	526
Alma Neck Banded	12	44	1	2			1	4	159	8		1	1		292
1125								3							3
2292												1			1
88889	12	44	1				1	1	159	8			1	59	286
88891				2											2
El Paso Brown	1	5					1		12					3	22
88889	1	5					1		12					3	22
Lino Gray	4	3	1						15						23
88889	4	3	1						15						23
Kiatuthlana Black-on-white		3	1					1	16	1			1	32	55
88889		3	1					1	16	1			1	32	55

Late Pithouse—San Francisco—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Mogollon Red-on-brown	28	225	4	1			8	8	334	16			10	163	797
1125							7	5							12
88889	28	225	4	1			1	3	334	16			10	163	785
San Francisco Red	280	1759	55	16	3		8	62	3120	110			59	1465	6937
1125							1	1							2
88889	280	1759	55	5			7	57	3120	110			59	1452	6904
88891				11	3			4						13	31
San Marcial Black-on-white	59	271	5	2		2	4	14	591	40			6	295	1289
88889	59	271	5	2		2	4	14	591	40			6	294	1288
88891														1	1
San Marcial White Ware	38	183	8	1			1	6	367	13			6	163	786
88889	38	183	8				1	6	367	13			6	163	785
88891				1											1
Undifferentiated Red-on-brown				2				1						6	9
1125														1	1
88889														4	4
88891				2				1						1	4

Table 74. Context for Late Pithouse (Three Circle Phase) Ceramics

Late Pithouse – Three Circle – Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Kana'a Neck Banded					1				4						5
88889									4						4
88891					1										1
Three Circle Neck Corrugated		4							37	1				6	48
88889		4							37	1				3	45
88891														3	3
Three Circle Red-on-white		23							8					4	35
88889		23							8					4	35
Mimbres Boldface Black-on-white	5	75		6		1	1	4	334	17			1	66	510
88889	5	75				1	1	3	334	17			1	61	498
88891				6				1						5	12
Kana'a Black-on-white													1		1
88889													1		1

Table 75. Context for Early Pueblo (Mimbres Transitional Phase) Ceramics

Early—Pueblo Mimbres Transitional/Red Mesa—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Mimbres Transitional Black-on-white		1		3	1			1	49	1				14	70
88889		1							49	1				11	62
88891				3	1			1						3	8
Red Mesa Black-on-white	1	1	3	7			3	2	31	4			2	47	101
1125							3	1							4
88889	1	1	3					1	31	4			2	38	81
88891				7										9	16
Tohatchi Neck Banded				2											2
88891				2											2

Table 76. Context for Early Pueblo (Mimbres Classic Phase) Ceramics.

Early Pueblo Mimbres Classic Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Mimbres Classic Black-on-white	1	9	4	56	5	21	59	64	187	44		3	5	166	624
1125							46	35						1	82
2292												3			3
88889	1	9	4	12		21	13	9	187	44			5	123	428
88891				44	5			20						42	111
El Paso Bichrome				1			1	3	12	3		6		9	35
1125							1	3							4
2292												6			6
88889									12	3				9	24
88891				1											1
Reserve Black-on-white				20	2	2	15	40	28	30		12		90	239
1125							13	21							34
2292												12			12
88889				2		2	2	9	28	30				80	153
88891				18	2			10						10	40

Early Pueblo Mimbres Classic Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Mimbres Corrugated	1	27	6	386	16	20	55	218	365	68	2	13	15	339	1531
1125							42	40							82
2292											2	13			15
88889	1	27	6	8		20	13	18	365	68			15	144	685
88891				378	16			160						195	749
Mimbres Polychrome										1					1
88889										1					1
Mimbres Red Wash	3	12	3	50	2	3	3	56	201	30			14	110	487
1125							1	2							3
88889	3	12	3			3	2	8	201	30			14	86	362
88891				50	2			46						24	122

Table 77. Context for Early Pueblo (Socorro Phase) Ceramics.

Early Pueblo—Socorro—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Socorro Black-on-white	2	7		35	5	6	1062	1306	201	28	2	17	46	349	3066
1125							952	1219						5	2176
2292											2	17		1	20
88889	2	7		4		6	110	45	201	28			46	308	757
88891				31	5			42						35	113
Puerco Black-on-red				2		1	4	8	5	1		1		12	34
1125							4	7							11
2292												1			1
88889						1			5	1				12	19
88891				2				1							3
Puerco Black-on-white		2						1	4					6	13
1125								1							1
88889		2							4					6	12

Early Pueblo—Socorro—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Wingate Black-on-red				1			17	36	21	3	1		1	38	118
1125							17	28							45
2292											1				1
88889								1	21	3			1	34	60
88891				1				7						4	12
Wingate Polychrome							2	7						2	11
1125							2	7							9
88889														1	1
88891														1	1
Gallup Black-on-white									1			1			2
2292												1			1
88889									1						1
Los Lunas Smudged	1	1		14	10	7	498	707	293	45		2	14	253	1845
1125							476	488						3	967
2292												2			2
88889	1	1		5		7	22	38	293	45			14	202	628
88891				9	10			181						48	248

Early Pueblo—Socorro—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Pitoche Rubbed Ribbed	4	3		17	5	11	707	1319	317	25			14	274	2696
1125							658	1180						7	1845
88889	4	3		2		11	49	37	317	25			14	209	671
88891				15	5			102						58	180
Reserve Indented Corrugated	19	29	3	67	3	63	382	741	2721	273	272	1937	112	1433	8055
1125							256	430						1	687
2292											272	1937		40	2249
88889	19	29	3	40		63	126	136	2721	273			112	1314	4836
88891				27	3			175						78	283
Reserve Plain				1			3	6	40	36	4	17		1	108
1125							3	5							8
2292											4	17			21
88889									40	36					76
88891				1				1						1	3

Early Pueblo—Socorro—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Reserve Plain Corrugated	49	22	21	103	19	97	1253	1345	2257	237	45	414	100	1488	7450
1125							949	1091						9	2049
2292											45	414		17	476
88889	49	22	21	42		97	304	122	2257	237			100	1388	4639
88891				61	19			132						74	286
Reserve Punched Corrugated		1		3		1	8	12	15	5		1		31	77
1125							8	1							9
2292												1			1
88889		1				1			15	5				22	44
88891				3				11						9	23
Playas Red					1		2	4	69	15	25	151		27	294
1125							2								2
2292											25	151			176
88889								4	69	15				27	115
88891					1										1

Early Pueblo—Socorro—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Playas Red Cord Marked									1			1			2
2292												1			1
88889									1						1
Playas Red Incised		1		1		1	8	15	150	2	11	29	5	81	304
1125							1	7							8
2292											11	29		1	41
88889		1		1		1	7	6	150	2			5	80	253
88891								2							2
Playas Red Punctate	1						6	2	33	4	9	29	2	18	104
1125								1							1
2292											9	29			38
88889	1						6	1	33	4			2	18	65

Table 78. Context for Late Pueblo (Tularosa Phase) Ceramics.

Late Pueblo—Tularosa—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Tularosa Black-on-white	2		1	3		5	14	48	352	82	11	10	14	287	829
1125								25							25
2292											11	10		2	23
88889	2		1	3		5	14	17	352	82			14	281	771
88891								6						4	10
Chupadero Black-on-white	2			1		4	2	4	121	25	10	34	2	68	273
2292											10	34		3	47
88889	2			1		4	2	4	121	25			2	62	223
88891														3	3
Socorro Black-on-white	2	7		35	5	6	1062	1306	201	28	2	17	46	349	3066
1125							952	1219						5	2176
2292											2	17		1	20
88889	2	7		4		6	110	45	201	28			46	308	757
88891				31	5			42						35	113
Springerville Polychrome								1	1	3					5
1125								1							1
88889									1	3					4

Late Pueblo—Tularosa—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
St. Johns Black-on-red	1		1			3	4	12	76	15	19	8	1	39	179
1125								5							5
2292											19	8			27
88889	1		1			3	4	7	76	15			1	39	147
St. Johns Polychrome	1	2	1	9		10	9	48	284	44	65	19	6	216	714
1125							1	19							20
2292											65	19		1	85
88889	1	2	1	7		10	8	28	284	44			6	213	604
88891				2				1						2	5
Techado Polychrome								1	8					5	14
88889								1	8					5	14
Three Rivers Red-on-terracotta									3	1	1	7		6	18
2292											1	7			8
88889									3	1				6	10
Tularosa Fillet Rim							2	1	8		3	1		3	18
1125							2	1							3
2292											3	1			4
88889									8					3	11

Late Pueblo—Tularosa—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Tularosa Patterned Corrugated	5	1	3	3		3	134	88	338	27	6	42	5	113	768
1125							37	39							76
2292											6	42		2	50
88889	5	1	3			3	97	1	338	27			5	99	579
88891				3				48						12	63
Playas Red					1		2	4	69	15	25	151		27	294
1125							2								2
2292											25	151			176
88889								4	69	15				27	115
88891					1										1
Playas Red Cord Marked									1			1			2
2292												1			1
88889									1						1
Playas Red Incised		1		1		1	8	15	150	2	11	29	5	81	304
1125							1	7							8
2292											11	29		1	41
88889		1		1		1	7	6	150	2			5	80	253
88891								2							2

Late Pueblo—Tularosa—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Playas Red Punctate	1						6	2	33	4	9	29	2	18	104
1125								1							1
2292											9	29			38
88889	1						6	1	33	4			2	18	65
Early El Paso Polychrome					3				10	2	5	21		6	47
1125					2										2
2292											5	21			26
88889					1				10	2				6	19

Table 79. Context for Late Pueblo (Magdalena and Glaze A) Ceramics.

Late Pueblo—Magdalena and Glaze—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Magdalena Black-on-white									5		99	905		27	1036
2292											99	905		26	1030
88889									5						5
88891														1	1
Kwakina Glaze Polychrome									1			31		2	34
2292												31		2	33
88889									1						1
Lincoln Black-on-red												7			7
2292												7			7
Los Padillas Glaze Polychrome												23			23
2292												23			23
San Clemente Glaze Polychrome												8			8
2292												8			8
Maverick Mountain Polychrome												3			3
2292												3			3

Late Pueblo—Magdalena and Glaze—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Pinnawa Glaze-on-white												1			1
2292												1			1
Ramos Polychrome												7			7
2292												7			7
Babicora Polychrome												1			1
2292												1			1
Red Slipped Corrugated Ware		1						4	1	1	4	70		2	83
1125								1							1
2292											4	70		1	75
88889		1						3	1	1				1	7
Red Slipped Smudged Ware											1	31		12	44
2292											1	31			32
88889														12	12

Late Pueblo—Magdalena and Glaze—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Seco Corrugated			1	2		3	3	1	42	6	122	2175		24	2379
1125							3								3
2292											122	2175		7	2304
88889			1			3			42	6				16	68
88891				2				1						1	4
Early El Paso Polychrome					3				10	2	5	21		6	47
1125					2										2
2292											5	21			26
88889					1				10	2				6	19
Late El Paso Polychrome								**1**				**3**			**4**
2292												3			3
88889								1							1
Gila Polychrome												**7**			3
2292												3			3
Gila White-on-red												2			2
2292												2			2

Late Pueblo—Magdalena and Glaze—Ceramic Type by Component	Late Pithouse San Francisco Phase	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache Mixed	Mixed	Grand Total
Heshotauthla Black-on-red											1	35		3	39
2292											1	35		3	39
Heshotauthla Glaze Polychrome	**6**						1		2			66		1	70
1125							1								1
2292												66			66
88889									2						2
88891														1	1
Pinedale Black-on-red									**1**			**35**			**43**
2292												35			42
88889									1						1
Pinedale Polychrome									**1**			**22**			**23**
2292												22			22
88889									1						1

Table 80. Context for Protohistoric Ceramics.

Protohistoric Ceramic Type by Component	Late Pithouse San Francisco/ San Marcial	Late Pithouse includes 3 Circle	Mimbres Transitional/ Red Mesa	Mimbres Classic	Mimbres-Socorro	Mimbres-Tularosa	Socorro	Socorro-Tularosa	Tularosa	Tularosa-Mixed	Magdalena	Glaze-Mixed	Apache- Mixed	Mixed	Grand Total
Apache									1					1	2
88889									1					1	2
Matsaki Polychrome														3	3
88889														3	3
San Lazaro Glaze Polychrome														4	4
88889														4	4

WHOLE AND PARTIAL CERAMIC VESSELS

A total of forty-six whole and partial ceramic vessels were recovered from the four prehistoric sites studied by the Cañada Alamosa Project. With four large sites, the initial thinking was that throughout the occupation of each site, the majority of the ceramics would be locally produced. Therefore, we anticipated recovering a significant number of whole/partial vessels. Instead, local ceramic production was largely limited to utility ware with the exception of limited production of Mogollon Red-on-brown, Mimbres Boldface B/w, and Magdalena B/w. Throughout the occupation of each site, painted ceramics were imported from other production areas. Relying on outside pottery producers resulted in a dearth of available painted pottery over time. This is reflected in the low number of painted whole/partial vessels excavated from the sites and the observation that after pots were broken, large and small pieces of pottery were being used over and over again. This phenomenon is seen in the ceramic assemblage of all four sites which is composed of tiny sherds, particularly painted sherds, that are not much larger than a thumbnail. Painted ceramics average only 10.3% of the ceramic assemblage for all four sites. Pinnacle and the Kelly Canyon Site have the highest percentage of painted wares with 16% and 14.3% respectfully. The Victorio and Montoya sites register at 9% and 7.5%.

The analysis had to stretch the definition of what constitutes a partial vessel in order to include as many vessels as possible for interpretive purposes. A partial vessel may consist of only a few refitted sherds that make up at least 20% to 30% of the original. This may mean that only a portion of the rim and side wall is intact, or a few sherds composing a sidewall and bottom are intact, or there may be two large, reconstructed pieces that could not be attached to one another but are plainly part of the same vessel. Many of the whole, or near intact vessels have pieces or large portions missing from them, and their rims are frequently chipped or significantly damage. Table 81 (pg. 612) accounts for all of the whole and partial vessels, including miniatures, recovered from the four sites and includes information related to vessel capacity and how much of the vessel is intact.

Pinnacle, LA 2292

Three partial vessels were recovered from the Pinnacle. A large partial bowl of St. Johns Polychrome was found set into Floor #2, a Magdalena Phase floor, in Feature 3 (Figure 548) Note that this vessel displays parallel hatching, a characteristic of the Tularosa style which is most common on St. Johns Polychrome (Carlson 1970:91). The bottom portion of the St. Johns Polychrome was missing. In its place, five sherds from a St. Johns Black-on-red jar lined the interior of the

broken St. Johns Polychrome bowl (Figure 549). A one-sigma date of A.D. 1260 to 1290 and another of A.D. 1260 – 1280, were recovered from Floor #1, just a few inches above Floor #2. Given that the St. Johns Polychrome bowl was purposefully set into the floor (Figure 550), it may have served as a receptacle for ground products coming off of a metate.

Figure 548. St. Johns Polychrome Bowl from Magdalena Phase Floor 2, Room Feature 3, Pinnacle.

Figure 549. St. Johns B/r Sherds Found Inside the Partial Bowl of St. Johns Polychrome.

Figure 550. St. Johns Polychrome Bowl in Situ on Floor 2, Room Feature 3, Pinnacle.

The other partial vessel recovered from the Pinnacle was a sidewall of a Three Rivers Red-on-terracotta bowl (Figure 551). It was found in Feature 4 on the floor in association with charred corncobs. The corn cobs were in an ash layer inside the partial bowl. Each cob fragment (both were 12 row cobs) was broken in-half

longitudinally which is unusual. One cob was carbon-dated at one-sigma, A.D. 1300 - 1400. The partial bowl and the associated cobs may have been part of a closure activity for the feature.

Figure 551. Three Rivers Red-on-terracotta Reconstructed Bowl Sherd Found on a Glaze Period Floor, Feature 4, Pinnacle.

The Montoya Site, LA88891

A beautifully formed and highly polished Alma Plain small jar (Artifact 03-739) with a restricted orifice, commonly referred to as a "seed jar" was found in Feature 4 (Figure 552). Feature 4 is a large, long rectangular room formed by an intrusive dividing wall that bisected a nearly square structure which may have been a Mimbres kiva. The jar was positioned on the Mimbres Phase floor (Floor #2) under a layer of burned wood and ash roof fall, with an associated one-sigma radiocarbon date of A.D. 1000 - 1030. As rim sherds of Mimbres Classic B/w Middle Style III were also found on this floor, it is suggested that the burning occurred after A.D. 1060 or later. The seed jar was adjacent to the dividing wall that bisected the feature (Figure 553). The quality of the seed jar and its context suggest it served as part of a ritual closing of the room and/or kiva, which was burned.

Figure 552. Alma Plain Seed Jar on the Mimbres Phase floor, Feature 4, Montoya Site.

Figure 553. Alma Plain Seed Jar in Situ, Feature 4, Montoya Site.

Kelly Canyon Site, LA1125

Artifact #s 2002/136-178-282-304-344-506-510-528-599-664-687-731-823 consists of a partial reconstruction of a bowl rim (no image) and represents a bowl form of Los Lunas Smudged. There are additional sherds belonging to this vessel but these cannot be pieced together and the bottom-most pieces are missing. Found just above the floor (Level 4) in Feature 3, it is in association with other Socorro Phase ceramics.

A well-drafted, large, fragmented olla of Socorro Black-on-white (Artifact #s 2002/11-135-212-231-251-281-304-314-325-344-506-609-659-703-732-767) was recovered from Feature 3 (Figure 554). Although many of the sherds belonging to the olla were found in the floor fill, most of the olla was on the floor. The associated radiocarbon date for this context was at 1 sigma, A.D. 1040 - 1185. It is thought that after the olla was broken, its base was taken away and reused.

Figure 554. Socorro Black-on-white Olla from Room Feature 3, Kelly Canyon Site.

The upper one-half of a Pitoche Rubbed Ribbed jar (Artifact #s 2002/512-755-756) was found within Levels 3 and 4 of Feature 3 (Figure 555). Found lying on its side on the floor, it was likely left behind when the room was abandoned. It was associated with the Socorro Black-on-white olla described above which had an associated date of (1 sigma) A.D. 1040 – 1185. Figure 556 displays the provenience of the Socorro B/w olla and the Pitoche Rubbed Ribbed jar.

Figure 555. Pitoche Rubbed Ribbed Jar from Room Feature 3, Kelly Canyon Site.

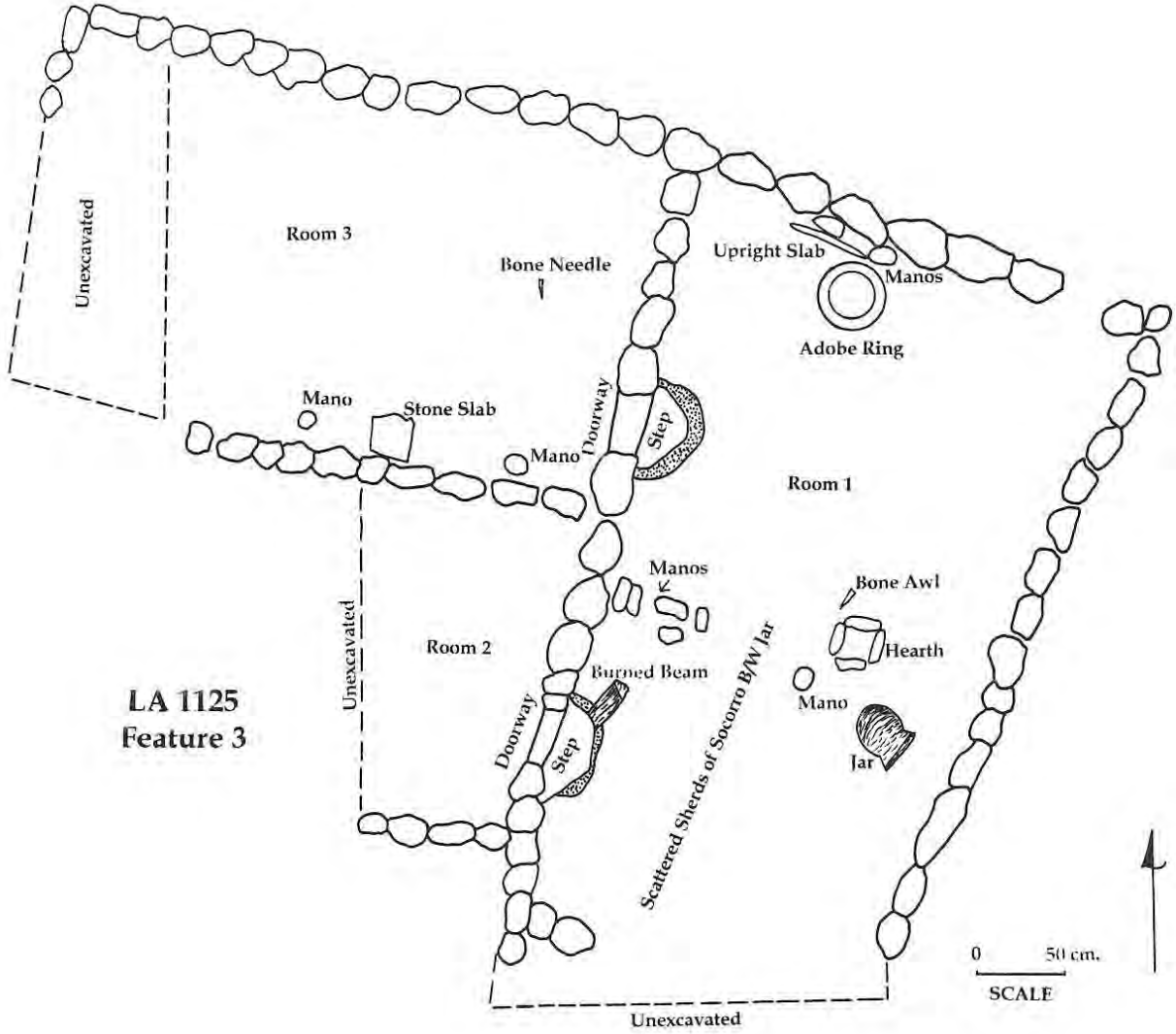

Figure 556. Drawing of Room 3, Kelly Canyon.

A partially reconstructed bowl of Los Lunas Smudged (Artifact #s 2003/76-93-113-118-148-222-225-227-281-287) was recovered from Feature 6 in Levels 1 through 4 (Figure 557). There were no chronometric dates associated with this vessel, but it was associated with Socorro Phase ceramics.

Figure 557. Los Lunas Smudged Bowl from Feature 6, Kelly Canyon Site.

Artifact #03-587 is an Alma Plain bowl (no image) consisting of a rim & two body pieces that fit together. There were additional sherds available but these may not belong to this vessel. It was found in Feature 8 midway in a shallow midden in Level 4 of Feature 8 with a one sigma date of A.D. 1155 – 1215.

Victorio Site, LA 88889

The following six whole and partially reconstructed vessels were all excavated from Feature 1. The associated radiocarbon dates within the feature at 1 sigma, are A.D. 1285 - 1450 for the roof fall and also at 1 sigma is a A.D. 1030 - 1235 date from the floor hearth. An archaeomagnetic date was taken from the same hearth, which came in at A.D. 1115 - 1290.

Sherds that were reconstructed into a Tularosa Black-on-white partial bowl (Artifact #s 1999/139-651-686-785-1059-1174-1302) were recovered from multiple layers from roof fall to the floor of Feature 1 (Figure 558). It is likely this vessel was abandoned on the roof and subsequently fell into the room after the roof collapsed.

Figure 558. Tularosa Black-on-white Bowl from Feature 1, Victorio Site.

With the exception of a few pieces missing from the rim and upper side wall, Artifact #1999-501 is a near complete, reconstructed olla of Reserve Plain Corrugated (Figure 559). Found in Feature 1, Level 2D, which was roof fall, it is likely that this vessel was abandoned on the roof.

Figure 559. Reserve Plain Corrugated Jar from Feature 1, Victorio Site.

A Los Lunas Smudged partial bowl (Artifact #1999-1267) was recovered from Feature 1 (Figure 560). It was found set into a prepared adobe depression in the floor (Level 4). The bottom portion of the bowl was missing. However, a flat rock was placed into the depression below the bowl, and occupied the space between the bottom of the depression and the bowl, ultimately creating a "base" for the bowl. Bowls that are set into the floor like this one are thought to serve as a receptacle for ground products being swept off of a metate. The Los Lunas Smudged bowl set into the floor and the radiocarbon and archeo-magnetic dates from this room suggest that the room was constructed during the Socorro Phase with continued use through the Tularosa Phase.

Figure 560. Los Lunas Smudged Bowl Set in Floor of Feature 1, Victorio Site.

Artifact #1999-1317 is a single, large bowl sherd of Reserve Indented Corrugated (Figure 561). It represents about one third of a complete vessel. Found in Level 3 (floor fill) of Feature 1, this piece was possibly discarded as trash.

Figure 561. Reserve Indented Corrugated from Feature 1, Victorio Site.

Found less than a meter away from Artifact #1999-1317 described above in Feature 1 floor fill, sherds of Reserve Indented Corrugated (Artifact #1999-978) were partially reconstructed to a bowl form (Figure 562).

Figure 562. Reserve Indented Corrugated from Feature 1, Victorio Site.

Sherds leading to the reconstruction of a portion of the rim and upper sidewalls of a Tularosa Black-on-white bowl (Artifact #s 1999/345-371-376-426-557-591-704-936-970-1092) were found from the roof fall to the floor in Feature 1 (Figure 563). This vessel was likely abandoned on the roof and subsequently came into the room when the roof collapsed.

Figure 563. Reconstructed Rim of Tularosa Black-on-white Bowl from Feature 1, Victorio Site.

A near complete jar of Tularosa Patterned Corrugated (Artifact #2007-154) with only a few rim pieces missing was found in Level 4 of Feature 8 (Figure 564). There is a significant crack in the side wall and the soil that remains inside of the vessel holds it together. The radiocarbon date associated with this vessel at one sigma is A.D. 1290 – 1420. Also found in Feature 8, Level 4, is a near complete Reserve Indented Corrugated bowl (Artifact # 2007-507) and a partially reconstructed bowl of Tularosa Patterned Corrugated (Artifact # 2007-506). Both of the bowls (Figures 565 and 566) were set into the floor next to one another and the jar of Tularosa Patterned Corrugated was found positioned inside one of the Tularosa Patterned Corrugated bowl (Figure 567). All three of these vessels were found opposite of two metate rests. The late date suggests that this room block was constructed after most of the Victorio Site was abandoned.

Figure 564. Tularosa Patterned Corrugated Jar from Room Feature 8, Victorio Site.

Figure 565. Reserve Indented Corrugated Bowl from Feature 8, Victorio Site.

Figure 566. Tularosa Patterned Corrugated Bowl from Feature 8, Victorio Site.

Figure 567. A Reserve Indented Corrugated Bowl and a Jar of Tularosa Patterned Corrugated Found Positioned Inside of a Tularosa Patterned Corrugated Bowl, All in Situ in Feature 8.

Artifact # 2007-881 was found positioned on a pot rest on the Tularosa Phase floor of Feature 15 (Figure 568). It is a near complete restoration of a bowl of Reserve Indented Corrugated with several pieces missing from the rim and a piece missing from the sidewall. Figure 569 shows the bowl in situ next to a multi-sided slab hearth.

Figure 568. Reserve Indented Corrugated Bowl from Feature 15, Victorio Site.

Figure 569. Reserve Indented Corrugated Bowl in Rest Adjacent to Multi-Sided Slab Lined Hearth in Feature 15.

A partially restored bowl of Reserve Indented Corrugated (Artifact # 2007-1309) was found as sherds scattered throughout the fill of Feature 21 (Figure 570). A radiocarbon date from the room temporally places it at A.D. 1150 – 1210. However, a sherd of Techado Polychrome suggests that there was use of the room into the late 1200s.

Figure 570. Reserve Indented Corrugated Bowl from Feature 21.

A partially reconstructed bowl of Reserve Indented Corrugated (Artifact # 2008-1336), in two pieces, of was recovered from Feature 32 (Figure 571). The bowl was set into an unprepared, Tularosa Phase adobe floor. Although there was very little on the floor in association with the bowl, the fill above the floor had sherds of Tularosa B/w, Socorro B/w, and St. Johns Polychrome. Feature 32 is in a room block that may have begun in the late 1200s.

Figure 571. Reserve Indented Corrugated Bowl from Room Feature 32.

A near complete bowl of Reserve Punched Corrugated (Artifact # 2008-474) was found in Feature 28 which was filled with numerous large stones and disturbed material (Figure 572). It was set into a pot rest in the floor adjacent to a large flat slab and another pot rest which did not have a vessel in it. The bowl had been supported by large and small stones set in the sterile subsurface and then the adobe was formed around the bowl to hold it in place.

Figure 572. Reserve Punched Corrugated Bowl from Feature 28, Victorio Site.

Two bowls of Reserve Indented Corrugated were recovered from Feature 23, both were set into the floor. There was another empty pot rest in the room. Artifact #2008-1066 was an intact vessel except for some chipping around the rim and a small perforation into the sidewall (Figure 573). Artifact # 2008-1067 was a near complete bowl with sherds missing from the sidewalls and bottom (Figure 574). What was interesting was that this bowl contained two bone awls, a hammerstone, a core and some flake tools. An archaeomagnetic date from a hearth in Feature 23 is at A.D. 1175 – 1265. Figure 575 shows them in situ with a plastered hearth.

Figure 573. Reserve Indented Corrugated Bowl from Room 23, Victorio Site.

Figure 574. Reserve Indented Corrugated Bowl from Room 23, Victorio Site.

Figure 575. Both Bowls and the Adobe Hearth from Room Feature 23, Victorio Site.
(Note hammerstones and bone awls in one of the bowls.)

Artifact # 2008-334 was a Reserve Indented Corrugated jar recovered from the floor of Room 25 which contained a multi-sided hearth and an ash pit (Figure 576). More than half of the jar is missing. It was found in association with a sherd of Tularosa B/w and nine sherds of Chupadero B/w, and there were sherds of St. Johns Polychrome in the upper fill. A radio carbon date of 1 sigma A.D. 1270 – 1290 was obtained from the hearth.

Figure 576. Reserve Indented Corrugated from Floor of Room Feature 25, Victorio Site.

Two near complete bowls of Seco Corrugated (Artifact # 2009-989 and Artifact # 2009-991) were found in Feature 27 (Figures 577 and 578). Both vessels were set on the floor with adobe built up around each bowl to "set" them into place (Figure 579). They are interpreted as being an addition to an already extant room. They were in association with late Tularosa Phase ceramics including a sherd of Pinedale Polychrome and one sherd each of Pinedale Black-on-red and Techado Polychrome. Two dates came from a hearth in the room including a radiocarbon date of (1 sigma) A.D. 1260 – 1290 and an archaeomagnetic date of A.D. 1210 – 1270.

Figure 577. Seco Corrugated Bowl from Feature 27.

Figure 578. Seco Corrugated Bowl from Feature 27.

Figure 579. Two Seco Corrugated Bowls in Situ in Feature 27.

Five different vessels were recovered from Feature 18. All were found on Floor #1 (the latest floor) in association with late Tularosa Phase fill. Artifact # 2009-1336 is a near complete jar of Alma Plain with some rim and sidewall pieces missing (Figure 580). Artifact # 2009-1029 is a Seco Corrugated bowl in two half pieces that cannot be joined (Figure 581). This bowl was found set into a raised adobe collar at floor level. Sherds 09-493 and 09-1518 belong to this vessel but cannot be refitted. Artifact # 2009-1027 & 1028 is a large Reserve Indented Corrugated olla reconstructed from many pieces (Figure 582). There is a significant gap in the rim and sidewall that weaken the stability of vessel. Given the context and how this olla was found (there's a large hole in one side) suggesting that it may have been intentionally broken. Figure 583 displays the broken vessel on floor 1 (top) of Room Feature 18. Artifact #s 2007-1239 & 1240, 2009/2, 6, 8, 9, 376, 485, 496, 924, 935, 1038, 1247, 1493, 1526 is a large jar of Playas Red Incised (Figure 584). It's shape, characterized by a small orifice, slopping shoulder, and a bulging mid-section that turns sharply to a narrow base is very reminiscent of jar shapes for early Rio Grande Glaze Wares. This and the crudely rendered, sloppy incised decoration and the coarse sand paste suggest this vessel was produced in the local region outside of the Cañada Alamosa but not in the Paquimé (northern Chihuahua) region. Researchers have shown that there was local manufacture of Playas Red in the Tularosa Basin (Kurota, Smith, and Dello-Russo 2018: 42/65; Kurota 2008: 151-186) and the Sierra Blanca and Roswell areas (Wiseman 1981; Wiseman 2004) of southern and southeastern New Mexico. Local versions of Playas Red Incised appear to have what are described as local pastes, meaning those that are similar to El Paso Brown Ware having granitic detritus temper, and the presence of a common temper found in Three Rivers Red Ware consisting of gray felspar within syenite rock temper. Artifact # 2009-1544 is a partially restored portion of a Reserve Indented Corrugated bowl (Figure 585). An archaeomagnetic date from the hearth on Floor #1 is A.D. 1185 – 1280.

Figure 580. Alma Plain Jar from Room Feature 18, Victorio Site.

Figure 581. Reconstructed Sherds of a Seco Corrugated Bowl from Room Feature 18, Victorio Site.

Figure 582. Reserve Indented Corrugated Jar from Room Feature 18, Victorio Site.

Figure 583. Sherds of the Reserve Indented Corrugated Jar Shown in Figure 580 rest on the Uppermost Floor of Room Feature 18, Victorio Site.

Figure 584. Playas Red Incised Jar with a "Rio Grande Glaze" Vessel Shape from Room Feature 18, Victorio Site.

Figure 585. Partially Reconstructed Reserve Indented Corrugated Bowl from Room Feature 18, Victorio Site.

The base of a large jar, consisting of several sherds, probably from a vessel of Reserve Indented or Plain Corrugated (Artifact #2009-1041), was recovered from the late Tularosa floor of Feature 18 (Figure 586). The outer-most edge of the refitted piece was found to be shaped by chipping or it was beautifully shaped by accident in one long break when the original pot was broken. Although there is no evidence, this artifact, while it was complete, possibly served as a plate, bowl, or even a puki.

Figure 586. Base of Large Plain or Corrugated Jar, Possibly Shaped, from Room Feature 18, Victorio Site.
(May have served as a plate or a puki.)

A large olla of Reserve Indented Corrugated (Artifact #s 2007-600 & 700) was found in Feature 11 (Figure 587). About one half of the vessel was restored; one rim sherds and six large body sherds are associated with the vessel but could not be included in the reconstruction. The olla was found on a Tularosa Phase floor.

Figure 587. Reserve Indented Corrugated Jar Reconstructed from Sherds Found Scattered on the Floor of Room Feature 11, Victorio Site.

Three partially restored bowls were found on the floor in Feature 11 (Figures 588, 589, and 590). All were found in association with Tularosa Phase material. Artifact # 2009-1667 is Reserve Plain Corrugated. At least 85% of the bowl is missing including rim, sidewalls, and bottom. Artifact # 2009-1813 is Reserve Indented Corrugated. About 60% of the bowl is missing including rim, sidewalls, and bottom. Artifact # 2009-1668 is Reserve Indented Corrugated. Only a portion of the rim & bottom have been reconstructed and these do not articulate.

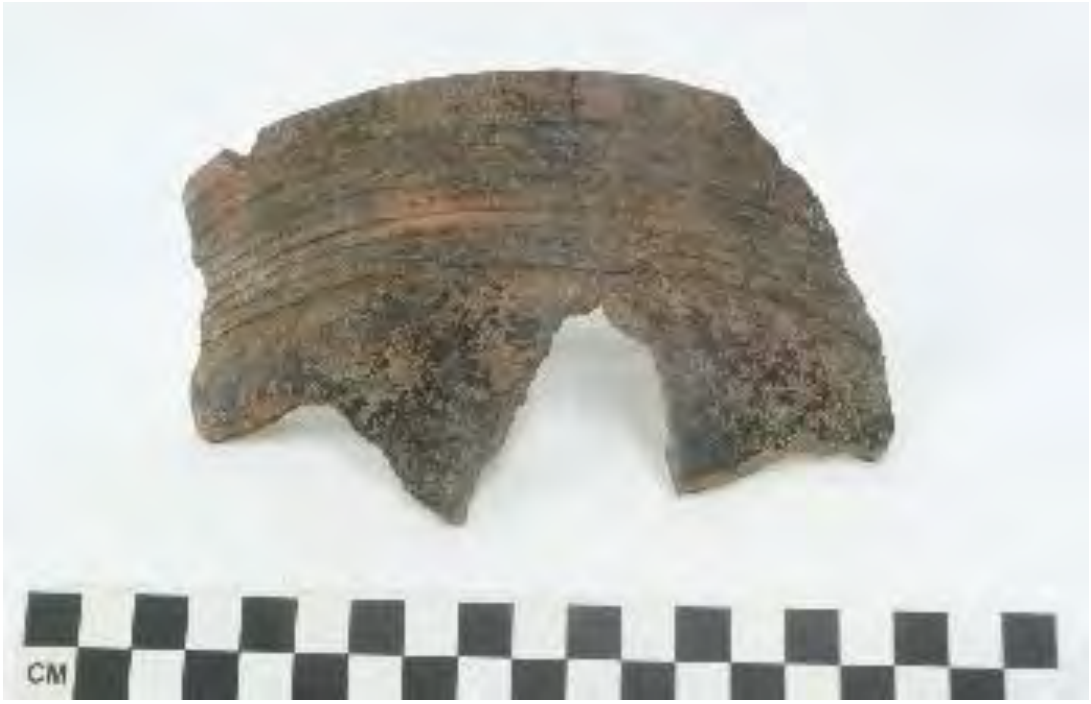

Figure 588. Reserve Plain Corrugated Bowl from Feature 11, Victorio Site.

Figure 589. Reserve Indented Corrugated Bowl from Room Feature 11, Victorio Site.

Figure 590. Reserve Indented Corrugated Bowl Rim from Room Feature 11, Victorio Site.

A near complete bowl of Reserve Indented Corrugated (Artifact # 2007-1430) was found set into the Tularosa Phase floor in Feature 20 (Figure 591). The rim and sidewalls are intact but the vessel bottom is missing. Adjacent to this bowl, lining the bottom of another pot rest in the floor, were twenty-six sherds (Artifact #2009-1112) of Reserve Plain Corrugated. These sherds are thought to be the remnants of

a vessel bottom that occupied the space between the bottom of the pot rest creating a "base" for a bowl that was once set into the pot rest.

Figure 591. Reserve Indented Corrugated Bowl Found Set in Floor of Room Feature 20, Victorio Site.

Artifact # 2010-405 is a partially restored bowl of Reserve Punched Corrugated (Figure 592). About 55% of the bowl is missing including pieces from the rim, sidewalls, and bottom. It was found in Feature 20, in pieces on the Tularosa Phase floor (Floor #1). Also, in Feature was Artifact #2009-1430, a bowl of Reserve Indented Corrugated which was found set into the Tularosa Phase floor.

Figure 592. Reserve Punched Corrugated Bowl Found on the Floor of Tularosa Phase Room Feature 20.

Miniature Vessels

Small artifacts often bring the greatest excitement and miniature vessels seem to have this effect. Testing at two sites at the Cañada Alamosa Project produced nine miniature vessels. These small ceramic creations evoke thoughts of children at play, mimicking the activities of daily life carried out by their parents and other adults.

The Montoya Site, LA88891

Artifact #04-473 is a partially reconstructed miniature jar (Figure 593). It was constructed by hand-shaping and pinching to create the walls. The yellow brown color of the clay and sand temper is suggestive of the materials used to make local utility ware. It is very crude in appearance and has no polish, slip, or decoration and is thought to be unfired. The is no indication of use wear. It was recovered from Feature 4 within the level 4, Socorro Period floor fill.

Figure 593. Hand-shaped Miniature Vessel from Feature 4, Montoya Site.

The Victorio Site, LA88889

Artifact # 99-766 is a complete miniature jar composed of fired clay tempered with sand. It was constructed with hand-shaping and pinching to extend the vessel walls (Figure 594). There is patterned, punctate-like decoration on the exterior surfaces created by indenting a fingernail into the plastic clay. Beyond the textured decoration there is no polish, slip, or paint. There is no evidence of use ware. The miniature vessel appears very similar to local utility wares and the punctate-style decoration is similar to that occasionally seen on Alma Plain. The vessel was found in Feature 1, Level 2C, Tularosa period upper fill.

Figure 594. Hand-shaped Miniature Vessel with Fingernail Marks from Room Feature 1, Victorio Site.

Artifact #99-786 is an intact miniature bowl with damage to a portion of the rim (Figure 595). There is no polish, slip, or decoration. Although the little vessel may be unfired, it appears to be constructed by hand-shaping and pinching from similar material used to produce local utility wares. There is no evidence of use ware. It was also found in Feature 1 (within inches of artifact #99-766) within the Level 2C fill, which represents the Tularosa Phase. It is thought that Level 2C represent roof-fall and it's possible that the two miniature vessels were left on the roof.

Figure 595. Hand-Shaped "Pinch Pot" Found in Room Feature 1, Victorio Site.

Artifact #08-1467 is a well-made, intact jar with a restricted orifice ("seed jar") and may be an example of Alma Plain (Figure 596). The vessel was constructed using hand-shaping and pinching and there was focused effort to nicely smooth the exterior surfaces and round the rim edges. Although the surfaces are nicely smoothed, there is no evidence of stone polishing. This miniature vessel is all but identical to a small jar found at the Montoya Site (artifact #04-739) which has been identified as Alma Plain. The miniature jar found on the Victorio Site was recovered from Feature 34, Level 5 within a Socorro Phase floor fill. This vessel was found with a miniature bowl, Artifact# 08-1468, which served as a "cap" or lid for the seed jar. The seed jar and its lid are not of expedient manufacture as a degree of skill was necessary to produce them. Given the context in which they were found suggests these two small vessels were used as an offering in closing the room. If there was something inside the seed jar, that evidence is long gone.

Figure 596. Plain Ware Seed Jar Found on Floor in Room Feature 34, Victorio Site.

Artifact #08-1468 (Figure 597) is a partially reconstructed miniature bowl that was found on top of Artifact #08-1467 (see Figure 596), and appeared to serve as a lid for that jar. It is well formed via hand-shaping and pinching, and skillfully smoothed and shaped and looks like a specimen of Alma Plain. The vessel is not polished or decorated, but it was fired. Figure 598 shows the seed jar in situ on the floor of Room Feature 34.

Figure 597. Small Plainware Bowl that Served as Cap to Seed Jar (see Figure 596) in Room Feature 34, Victorio Site.

Figure 598. The Seed Jar (Figure 596) in Situ on the Floor of Room Feature 34.

Artifact #08-192 is a partial miniature vessel consisting of a side wall and bottom and was probably a jar (Figure 599). The clay color and sand inclusions are reminiscent of local utility ware. It was constructed with hand-shaping and pinching and appears to be crudely done. The vessel is not fired. The random decoration consists of a single, incised linear element bounded on either side with slightly elongated punctated elements. This partial miniature vessel was found in Feature 26, in the mixed Mimbres and Tularosa Phase upper fill of Level 1 (a Mimbres room with an over-burden of Tularosa Phase material).

Figure 599. Miniature Vessel, probably a Jar Bottom, Found in Room Feature 26, Victorio Site.

Artifact #08-194 is a partial miniature vessel consisting of the base and some sidewall and probably represents a jar form (Figure 600). It was formed by hand-shaping and pinching and was likely fired. The appearance of the fired clay suggests a local resource for the clay. There is no evidence of polish, slip, or decoration. This partial vessel was found in close proximity to artifact #08-192 in Feature 26, in the mixed Mimbres and Tularosa Phase upper fill of Level 1 (a Mimbres room with an over-burden of Tularosa Phase material).

Figure 600. Miniature Vessel, probably a Jar Bottom, Found in Room Feature 26, Victorio Site.

Artifact #09-1811 is an intact, whole miniature vessel (Figure 601). This nicely formed (via hand-shaping and pinching), smoothed and intermittently polished shouldered jar looks like an example of Alma Plain in miniature. It was found in Feature 9, Level 8, Floor #3, in association with artifact #09-1812 with an early Mimbres, Late Transitional Phase radiocarbon date of ca A.D. 980-1020 (one-sigma).

Figure 601. An Intact, Well Formed, Miniature Jar from Mimbres Transitional Phase Room Feature 9 on the Victorio Site.

Artifact #09-1812 is an intact miniature jar. Looking like a specimen of Alma Plain, it was well-formed and smoothed by hand-shaping and pinching and has intermittent polishing (Figure 602). It was found one meter apart from artifact #09-1811 Late Transitional in Feature 9, Level 8, Floor #3 (see Figures 601 and 603), with an Mimbres Phase radiocarbon date ca. A.D. 980-1020 (one-sigma).

Figure 602. An Intact, Well Formed, Miniature Jar from Mimbres Transitional Phase Room Feature 9 on the Victorio Site.

Figure 603. Miniature Jar from Room Feature 9, Victorio Site, in Situ.

All of the miniature vessels, both whole and partial, appear to be of local production and not traded into the Cañada Alamosa. The choice of clay (fired and unfired), the temper in a few of the little vessels, the punctate/incised linear elements for decoration, and the visible polishing on two vessels are all reminiscent of the technology used to produce Alma Plain.

Miniature vessels likely represent ceramics that were an attempt to create pottery by unskilled potters, and/or they were children's toys, or they were ritual items.

Production of pottery by unskilled individuals (who may have been children) or that produced for use as children's toys will be reflective of the vessel forms and finishing technology seen in the pottery tradition of the community. It is thought that the cruder, less well-made miniature vessels such as artifacts 04-473, 99-766, 99-786, 08-192, and 08-194 were made by unskilled potters and were used as toys. The depositional context into room-fill of these particular miniature vessels suggests they were simply abandoned or tossed in the trash.

If the miniature vessels were not intended to be used for play, it was likely that they were used by adults for storing and dispensing small amounts of material for domestic or ritual use. Also, in a ritual context, miniature vessels were used as offerings such as artifacts 08-1467, 08-1468, 09-1811, and 09-1812. These were found in floor fill or floor contact and were deposited in specific features as an act of ritually closing the space. These particular miniature vessels were of higher quality in shape and appearance when compared to the five cruder vessels thought to have been used by children for play. It should be noted that an extraordinary small vessel, thought to be a room closing offering in Feature 4 of the Montoya Site is described in the section on "Whole and Restorable Vessels."

Table 81. Whole, Partial, and Miniature Vessels: Dimensions, Volume, and Comments

LA Number	Year	Feature No.	Ceramic Type	Bowl	Jar	Height	Circumference (jars only)	Diameter	Radius	Volume	Comments
2292	2001	3	St. Johns Polychrome	1		15.4cm		30.5cm	15.25cm	7.427L	most of rim and sidewalls intact, bottom missing, extra sherds may be from bottom
2292	2004	4	Three Rivers Red-on-terracotta	1							Consists of four sherds glued together; no other pieces
1125	2002	3	Los Lunas Smudged	1				32cm	16cm		Several sections of the rim have been reconstructed; additional sherds available, bottom missing
1125	2002	3	Socorro Black-on-white		1						Orifice, neck, & 1/4 of upper shoulder restored; 2 pieces of mid-vessel side walls restored, no restored pieces connect with one another. Many additional sherds. Bottom missing.
1125	2002	3	Pitoche Rubbed Ribbed		1						One half of the rim and neck is intact, most of the vessel body and bottom are missing.
1125	2003	6	Los Lunas Smudged	1		10.5cm		20.9cm	10.45cm	2.300L	3/4 of rim intact, most of sidewalls & bottom intact
1125	2003	8	AS (Alma Plain)	1							A rim & 2 body pieces fit together; additional sherds available but may not belong to this vessel
88891	2004	4	AS (Alma Plain)		1	5cm	18cm	5.729cm	2.864cm	0.0984L	Intact miniature globular "seed jar" with a restricted orifice.
88891	2004	4	none (miniature plain)	1		2.5cm		2.8cm	1.4cm	0.005L	Unfired, molded miniature bowl with 3/4 of rim & most of the side walls & bottom present; all in fragments.

LA Number	Year	Feature No.	Ceramic Type	Bowl	Jar	Height	Circumference (jars only)	Diameter	Radius	Volume	Comments
88889	1999	1	Tularosa Black-on-white	1		10.2cm		21cm	10.5cm	2.424L	About 1/4 of rim is intact and 1/2 of the vessel is restored; five additional sherds are available.
88889	1999	1	Reserve Plain Corrugated		1	29.5cm	30.2cm	35.03cm	17.515cm	22.5L	A near full restoration with 1/4 of rim and nine body sherds missing
88889	1999	1	Los Lunas Smudged	1				27.0cm	13.4		90% of rim intact, bottom of vessel is missing; additional body sherds are available.
88889	1999	1	none (miniature plain)	1		1.9cm		3.5	1.75cm	0.011L	Intact miniature open bowl with finger- nail texturing on the exterior surface.
88889	1999	1	none (miniature plain)		1	4.2cm	12cm	3.82cm	1.91cm	0.002L	Intact miniature jar with finger-nail texturing throughout the exterior surface
88889	1999	1	Reserve Indented Corrugated	1				28cm	14cm		Only 1/3 of vessel is intact & includes portions of the rim and side wall; an additional 50 small pieces are available.
88889	1999	1	Reserve Indented Corrugated	1		11cm		27cm	13.5	5.152L	About 75% of the vessel is intact with portions of the rim and side walls missing.
88889	1999	1	Tularosa Black-on-white	1				26cm	13cm		Four sherds make up a portion of a reconstructed rim; 11 additional sherds available; bottom missing.
88889	2007	8	Tularosa Patterned Corrugated		1	17.7cm	65cm	20.7cm	10.35	4.644L	Near complete jar with some rim pieces missing; major crack down one side; soil within vessel holds it together.

LA Number	Year	Feature No.	Ceramic Type	Bowl	Jar	Height	Circumference (jars only)	Diameter	Radius	Volume	Comments
88889	2007	8	Reserve Indented Corrugated	1		11.5cm		31cm	15.5cm	7.799L	Near complete restored bowl with about 1/8th of the rim/side wall missing.
88889	2007	11	Reserve Indented Corrugated		1						About 1/2 of vessel is restored; one rim piece and six large body sherds are available.
88889	2007	20	Reserve Indented Corrugated	1				34cm	17cm	10.289L	Rim and sidewall intact, entire bottom unrestored; additional sherds (likely from bottom) are available.
88889	2007	15	Reserve Indented Corrugated	1		14cm		28cm	14cm	5.747L	Near complete restoration with several pieces missing from rim and one side wall piece missing.
88889	2007	8	Tularosa Patterned Corrugated	1		Estimated 15cm		30cm	15cm	7.068L	Vessel is in two restored pieces; 1/3 of the vessel is not restored and there are additional body sherds available.
88889	2007	21	Reserve Indented Corrugated	1		Estimated 13cm		Estimated 33cm	Estimated 16.5cm	Estimated 9.408L	Seven sherds makeup this piece that represents about 1/3 of the whole vessel. No additional sherds available.
88889	2008	34	AS (Alma Plain)		1	4.9cm	17.7cm	5.634cm	2.81cm	0.0929L	Intact miniature jar with restricted orifice.
88889	2008	34	AS (Alma Plain)	1		3.0cm		6.4cm	3.2cm	0.068L	Near complete miniature bowl; found in situ as a "cap" over 08-1467 (RV-25). Red colored stain on interior.
88889	2008	26	AS (Alma Plain)		1	3.3cm		Estimated 4.0cm	Estimated 2.0cm	Estimated 0.016L	Most of rim and 1/2 of the sidewall on one side missing.

LA Number	Year	Feature No.	Ceramic Type	Bowl	Jar	Height	Circumference (jars only)	Diameter	Radius	Volume	Comments
88889	2008	26	AS (Alma Plain)		1	Estimated 2.2cm		Estimated 4.0cm	Estimated 2.0cm	Estimated 0.016L	3/4 of the mini vessel is missing. Has incised exterior designs appended from the rim.
88889	2008	32	Reserve Indented Corrugated	1		Estimated 10cm		30cm	15cm	7.068L	Consists of sidewall sherds and a few pieces of the rim; bottom is missing
88889	2008	28	Reserve Punched Corrugated	1		15cm		33cm	16.5cm	9.408L	Near complete bowl with only four rim pieces missing.
88889	2008	23	Reserve Indented Corrugated	1		16.3cm		36cm	18cm	12.214L	Near complete bowl with sherds missing from sidewall and bottom. Additional sherds are available.
88889	2008	23	Reserve Indented Corrugated	1		11.6cm		30cm	15cm	7.068L	Intact vessel except for some chipping on the rim and a small perforation into the sidewall.
88889	2008	25	Reserve Indented Corrugated		1	Estimated 24cm	Estimated 90cm	Estimated 28.6cm	Estimated 14.3cm	Estimated 12.24L	More than half the jar is missing which includes a portion of the rim, sidewall, and bottom. An additional rim sherd is available.
88889	2009	9	AS (Alma Plain)		1	3.3cm	12cm	3.8cm	1.91cm	0.029L	Intact miniature jar; note red coloration on one side.
88889	2009	9	AS (Alma Plain)		1	3.0cm	10.3cm	3.27cm	1.63cm	0.018L	Intact miniature jar; note red coloration on one side.
88889	2009	27	Seco Corrugated	1		11cm		26cm	13cm	4.601L	Near complete bowl with small pieces missing from rim and sidewall. Fractures in the body around the bottom and one radiating to the rim are held in place with soil. Very fragile.

LA Number	Year	Feature No.	Ceramic Type	Bowl	Jar	Height	Circumference (jars only)	Diameter	Radius	Volume	Comments
88889	2009	18	AS (Alma Plain)		1	14cm	47cm	14.96cm	7.480cm	1.753L	Near complete jar with some rim and sidewall pieces missing.
88889	2009	18	Seco Corrugated	1		Estimated 11.5cm		Estimated 31cm	Estimated 15.5cm	Estimated 7.8L	Bowl is in two half pieces that cannot be joined. Sherds 09-493 and 09-1518 belong to this vessel & cannot be attached.
88889	2009	27	Seco Corrugated	1		13.8cm		32cm	16cm	8.58L	Near complete bowl with sherds missing from rim, sidewall and bottom. Additional sherds are available.
88889	2009	18	Reserve Indented Corrugated		1	31.5cm	114cm	36.28	18.14cm	25.015L	Reconstructed from many pieces; significant gap in rim and sidewall weakens stability of vessel.
88889	2007 & 2009	18	Playas Red Incised		1	27cm	120.5	38.35cm	19.17cm	29.545L	Reconstructed from many pieces. Vessel shape characterized by a small orifice, slopping shoulder, and a bulging mid-section than turns sharply to a narrow base.
88889	2009	18	Reserve Indented Corrugated	1		Estimated 12cm		Estimated 24cm	Estimated 12cm	Estimated 3.6L	Three quarters of the bowl are missing including rim, sidewalls, and bottom. Enough rim present to get est. diam.
88889	2009	11	Reserve Plain Corrugated	1		Estimated 15cm		Estimated 29cm	Estimated 14.5cm	Estimated 6.3L	At least 85% of the bowl is missing including rim, sidewalls, and bottom. Enough rim present to get est. diam.
88889	2009	11	Reserve Indented Corrugated	1		Estimated 17cm		Estimated 32cm	Estimated 16cm	Estimated 8.6L	About 60% of the bowl is missing including rim, sidewalls, and bottom. Enough rim present to get est. diam.

LA Number	Year	Feature No.	Ceramic Type	Bowl	Jar	Height	Circumference (jars only)	Diameter	Radius	Volume	Comments
88889	2009	11	Reserve Indented Corrugated	1		Estimated 14cm		Estimated 25cm	Estimated 12.5cm	Estimated 4.09L	Only a portion of the rim & bottom have been reconstructed (these do not articulate. Enough rim present to get est. rim diam.
88889	2010	20	Reserve Punched Corrugated	1		Estimated 9.2cm		Estimated 24cm	Estimated 12cm	Estimated 3.86L	About 55% of the bowl is missing including pieces from the rim, sidewalls, and bottom. Enough rim present to get est. rim diam.

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APPENDIX A

ISOTOPIC SOURCING OF LEAD ASSOCIATED WITH GLAZE-PAINTS AND MINERAL PIGMENTS ON DECORATED POTTERY RECOVERED FROM CAÑADA ALAMOSA, NEW MEXICO

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Lead was the main constituent and primary fluxing agent used to produce most of the glaze-paints (vitrified pigments) that decorated a variety of late pre-contact and early colonial period (1275-1700 CE) Ancestral Pueblo pottery in the American Southwest (Shepard 1942; De Atley 1986; Herhahn 2006). Lead isotope analysis has the potential of identifying the geologic sources of the lead used in these mineral-based pigments, because the ratios of the four staple isotopes of lead (Pb204, 206, 207, and 208) create a chemical "fingerprint" for those sources (Flegal and Smith 1992). The ratios of these lead isotopes do not appear to be affected by human processes of manufacture, such as those used to make glasses, glazes, or bronzes, so that the lead in these materials can generally be traced back to their geological sources quite accurately, as long as the isotopic ratios of probable sources are known (Habicht-Mauche et al. 2000). However, mixing of lead from multiple sources during the manufacturing process can make these sourcing analyses more challenging.

Galena (lead sulfide) and other lead bearing minerals are widely available in various near surface deposits throughout New Mexico and Arizona, but previous studies (Eckert et al. 2024; Giomi 2022; Habicht-Mauche et al. 2000; Huntley et al. 2007; Huntley 2008; Huntley et al. 2012) have shown that Ancestral Pueblo potters were highly selective in terms of which lead sources were utilized to produce glaze-paints. Local sources were often overlooked in favor of specific, more distant sources, such as the Cerrillos (Cerrillos Hills) and Hansonburg (Sierra Oscura) mining districts in New Mexico, which appear to have been widely-known and widely-used by glaze ware potters throughout the Southwest. Since it is unlikely that the source of lead would have had any significant impact on the physical properties or final appearance of glaze-paints, the reasons for this selectivity may have had more to do with how these specialized technological practices and knowledge spread, cosmological associations of materials with specific places on the landscape, or other aspects of cultural or ritual significance, rather than economic convenience.

However, which of these major sources was favored and how or if lead from different sources was mixed to make paints does appear to have differed among

glaze-paint producers from different regions within the Southwest. For example, potters in the northern Rio Grande and Galisteo Basin used Cerrillos lead almost exclusively, while potters from the central and southern Rio Grande and some Western Pueblo areas (e.g. Zuni and the Upper Little Colorado) appear to have utilized a more eclectic mix of lead from both the Cerrillos and the Hansonburg districts. In contrast, potters in the Silver Creek area of Arizona appear to have favored the use of lead from the Cerrillos Hills. There may have been a trend away from the use of Cerrillos lead and toward the use of Hansonburg lead in some Western Pueblo areas and in the southern Rio Grande through time. Similarly, we see what looks like some systematic use of lead from the Magdalena district near Socorro, mostly during the early colonial period. However, these possible temporal trends and what they may signify, in terms of political, economic, and demographic changes across the Ancestral Pueblo World, have not been well studied. Very rarely a glaze-paint sample will isotopically match to another random known or unknown lead source in the Southwest, suggesting at least some experimentation by individual paint makers. The isotopic analysis of glaze-paints from the Cañada Alamosa Project, especially those from Pinnacle Ruin (LA 2292) fit well within this overall pattern. The isotopic analysis of lead from mineral pigments on some of the black-on-white pottery recovered from the region, however, hints at the possibility of a parallel tradition for producing lead inclusive mineral pigments, characterized by technological knowledge and practices distinct from the wide-spread glaze ware tradition.

Forty-three (43) sherds from the Cañada Alamosa Project were submitted to the Ceramic Materials Research Laboratory at the University of California, Santa Cruz (UCSC) for lead isotope analysis. A small amount of glaze paint or mineral pigment was removed from the surface of each sherd and dissolved in 1% nitric acid. Lead concentrations were measured using ICP-OES instrumentation at the Plasma Analytical Facility (PAF) in the Institute for Marine Sciences at UCSC and then diluted with blank acid to a standard dilution. To measure lead isotope ratios, Habicht-Mauche used the ElementXR high-resolution ICP-MS instrument at PAF. The results from these analyses were compared with existing ore data compiled by Habicht-Mauche and her lab group to trace the sources of lead used by Ancestral Pueblo potters to produce vitrified glaze paints (Habicht-Mauche 2020). The full list of measured isotope ratios for the pigments analyzed for this project (Habicht-Mauche 2024a), as well as images of the standard isotope/isotope plots by pottery type for this project (Habicht-Mauche 2024b) are archived with open public access on tDAR.

Thirty-nine (39) of the sherds analyzed were from LA 2292 (Pinnacle Ruin) and included sherds identified as Agua Fria Glaze-on-red (Rio Grande Glaze Ware), Heshotauthla Glaze Polychrome and Kwakina Glaze Polychrome (Zuni Glaze Ware), and Pinedale Black-on-red and Pinedale Polychrome (White Mountain Red Ware). These are all early glaze ware types that date variably to the late thirteenth through early fifteenth centuries, overlapping in their production and use during the early decades of the fourteenth century. Early Zuni Glaze Wares (Heshotauthla and Kwakina glaze polychromes) are usually associated with the Zuni district, but previous Neutron Activation Analyses (NAA) have shown that these types were widely produced outside of the Zuni district as well, in the Upper Little Colorado, in the Ancestral Western Keres (Acoma) district, and in the central, and probably southern, Rio Grande (Duff 2002; Eckert et al. 2017; Habicht-Mauche and Eckert 2021). Using NAA, Duff (2002) also demonstrated that while early White Mountain Red Ware (Pinedale Black-on-red and Pinedale Polychrome) is often thought to have been primarily produced in the Silver Creek district, along the Mogollon Rim in Arizona, it was also made by potters in the Upper Little Colorado district, often at the same villages that were making early Zuni Glaze Ware. Ferguson (2024:21,23,41) interprets the NAA from the current project as suggesting that most of the Zuni Glaze Ware and White Mountain Red Ware pottery recovered from the Pinnacle Ruin was produced in the Lion Mountain/Gallina Springs area of the Gallinas Mountains. However, I would argue, based on both the chemical data and known culture history, that it is equally likely that this pottery originated in the Upper Little Colorado district, where we have clear evidence of all these types being made and from which we have evidence of them being exchanged to other areas, including eastwards as far as the central Rio Grande (Duff 2002; Habicht-Mauche and Eckert 2021). Agua Fria Glaze-on-red (Glaze A Red) was widely produced at villages throughout the central and southern Rio Grande. It was not produced anywhere in the Western Pueblo region. Production sources can usually be determined by mineralogical analyses of the non-plastic inclusions in the ceramic paste (ceramic petrography). NAA is rarely used by archaeologists to source pottery in the Rio Grande region, so there is little data to which to compare the Pinnacle Ruin samples making source identification using this method extremely difficult and probably highly inaccurate.

Overall, the dominant source for lead found in the glaze-paints from Pinnacle Ruin are from the Hansonburg source, which is located east of the Rio Grande and approximately 80 miles from Pinnacle Ruin. Only two Pinedale B/r sherds contained paint made with lead from the Cerrillos Hills, located over 150 miles to

the north. However, about a third of the paints analyzed appear to have been made with variable mixes of Cerrillos and Hansonburg lead, suggesting that the potters who produced the glaze wares recovered from this site had greater knowledge of and access to this northern Rio Grande source than is reflected in this sample. Two paint samples were made with lead from an isotopically similar unknown source, probably located in southern New Mexico. Paints with similar isotopic signatures have been analyzed from other sites in the central and southern Rio Grande (see Eckert et al. 2024; Giomi 2022; Habicht-Mauche personal communication). It is possible that lead with these signatures was actually acquired from somewhere in the Hansonburg district, which may be more diverse isotopically than our current characterization, based on ore from a single mine area (Blanchard Mine), indicates (see Giomi 2022 for a similar interpretation). There was no measurable lead in one sample of paint from a fragment of Pinedale B/r, suggesting that the primary flux in this vitrified pigment was not lead, but copper. Paints with very low levels of lead, but high copper have been recorded on early White Mountain Red Ware types from the Silver Creek area (Fenn et al. 2006).

Table 1. Sources of Lead in Glaze Paints on Early Glaze Ware from Pinnacle Ruin.

Ceramic Type and Site	Cerrillos	Hansonburg	Cerrillos-Hansonburg Mix	Unknown	No Lead	Grand Total
Agua Fria Glaze/Red		6	5			11
Pinnacle		6	5			11
Heshotauthla Glaze Polychrome		5	4			9
Pinnacle		5	4			9
Kwakina Glaze Polychrome		6	2	1		9
Pinnacle		6	2	1		9
Pinedale Black/Red	2	2	1		1	6
Pinnacle	2	2	1		1	6
Pinedale Polychrome		2	1	1		4
Pinnacle		2	1	1		4
Grand Total	2	21	13	2	1	39

Two sherds of Chupadero Black-on-white from the neighboring Victorio Site (LA 88889) were also submitted for lead isotope analysis, as were two sherds of Socorro Black-on-white, one from Veteado Pueblo north of Quemado, New Mexico and another from the Kelly Canyon Site at the Cañada Alamosa. Chupadero B/w is a long-lived (1050-1550 CE) and widely-distributed pottery

type, whose production appears to have been centered in the Chupadero Mesa and Sierra Blanca areas of southcentral New Mexico (Ferguson, et.al. 2024:15-18). Lead from the mineral pigments on the Chupadero B/w sherds from the Victorio Site were sourced to the Cerillos and New Placers (San Pedro Mountains) districts. The production and distribution of Socorro B/w appears to be centered further west in the Lower Rio Puerco of the East and the Rio San Jose, but extended eastward to the central and southern Rio Grande and westward to the Rio Salado and the lands of the Ancestral Western Keres (Acoma-Laguna). Ferguson (2024:68-72) sources most of the Socorro B/w in the Cañada Alamosa area as coming from the Lower Rio Salado/Gallinas Mountains. It was also a long-lived type, being produced from at least the tenth through the early fourteenth centuries. There was no lead in the sample of Socorro B/w from the Kelly Canyon Site and the mineral pigment on the Socorro B/w sherd from the Veteado Site yielded lead that appears to have come from the New Placers source in central New Mexico. It was somewhat surprising that we were able to extract measurable lead from pigments on any of these black-on-white sherds. It is generally thought that these types were usually painted with iron-based mineral pigments. The paint on Socorro Black-on-white is often described as "vitrified" or "sub-glaze" (Wilson 2012), but that is generally not the case for Chupadero Black-on-white. However, the results from the analyses of these few black-on-white sherds suggests that the pigments on these types, even those with a matte paint appearance, may be composed of a more diverse mix of minerals, including lead, than is usually assumed. This hypothesis could be tested with compositional analyses of these pigments, using analytical techniques such as LA-ICP-MS. Lead from the San Pedro Mountains is almost never used by Glaze Ware potters to make glaze paints, so the use of lead from these sources in two out of four of the black-on-white pigments analyzed is surprising. Either this represents a skewed by-product of our extremely small sample, indicating some experimentation with non-typical lead sources. Or, it may suggest that there existed a parallel tradition for producing lead-based pigments on black-on-white pottery from central and southern New Mexico that was distinct from the better-known and more widespread glaze ware tradition. While these results are intriguing, the current sample is far too small to suggest any clear interpretations.

Table 2. Sources of Lead in Mineral Pigments on Black-on-White Pottery from Pinnacle Ruin.

Ceramic Type and Site	Cerrillos	Hansonburg	Cerrillos-Hansonburg Mix	New Placers	No Lead	Grand Total
Chupadero Black/White	1			1		2
Victorio	1			1		2
Socorro B/W				1	1	2
Kelly Canyon					1	1
Veteado				1		1
Grand Total	1			2	1	4

Figure 1. Location of Cañada Alamosa and Some Relevant Identified Lead Sources.

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