

# Supporting Information

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## SI Text: Site Descriptions

**El Abra Shelter.** El Abra (18° 24' 15" N, 99° 27' 35" W, 1100 m asl) is a large (40 m wide × 8 m deep) rock shelter with a very high overhang overlooking a season stream valley that leads from the community of Cieneguillas in a southeasterly direction toward the town of Tlaxmalac (Fig. 1). We excavated 11 m<sup>2</sup> of deposits at this site. El Abra was occupied at least as early as 8330–8160 cal years B.P., indicated by a <sup>14</sup>C AMS date of 7400 ± 40 B.P. on charcoal near the base of a 1 × 2-m test unit in front of the shelter (see [supporting information \(SI\) Table S1](#) for all El Abra <sup>14</sup>C dates). Large numbers of chipped stone artifacts (but no handstones or milling stone bases) were recovered in the excavation levels from 90 to 190 cm below ground surface along with calcined bone, charcoal, and rare small sherds (presumably intrusive). Unfortunately, the 4 additional test units (9 m<sup>2</sup>) placed inside the shelter failed to locate additional undisturbed preceramic deposits. The reworking of the shelter deposits in the late 19th and early 20th centuries has left them thoroughly mixed over most of the site. These mixed deposits included chipped stone artifacts (including a point base, see Fig. 4C) and debris similar to those found at Xihuatoxtla, 7 km distant.

**El Abra 2.** The El Abra 2 rock shelter (18° 24' 13" N, 99° 27' 35" W, 1,097 m asl) is located 110 m southwest of El Abra in the same formation (Fig. 1). The site is only half the size of El Abra (20 m in length × 4 m in depth), but it contained dry deposits that were not noticeably disturbed. We excavated 4 m<sup>2</sup> in this site, finding ceramic-aged minimally disturbed deposits to a depth of 110 cm below surface (see [Table S1](#) for <sup>14</sup>C dates). We recovered many plant remains, including a number of maize cobs and a large section of a grass mat.

**Temascalapa Shelter.** We discovered, but were unable to excavate, the Temascalapa Shelter located west of the Iguala Valley (Fig. 1). A large number of artifacts were recovered from the eroded steep dropoff in front of the shelter. The large number of lithics

( $n = 337$ ), the small number of pre-Columbian sherds ( $n = 17$ ) and obsidian artifacts ( $n = 5$ ), and the recovery of 5 spear points all suggest that the occupation of this site is primarily a preceramic one. Over 90% of the lithic materials, tools ( $n = 33$ ) and manufacturing debris alike, consist of red chert. A stemmed, convex base point, 2 convex base lanceolate points, and a preform were all made of red chert (Fig. 4D and F). These points are similar to points recovered in Archaic contexts in other parts of Mexico (1, 2). However, one basal fragment of a biface made of yellow jasper has the cross-section and basal thinning more commonly seen in a late-stage Clovis fluted point preform (Fig. 4G). The recovery of a steep scraper with an engraving spur of brown chalcedony also points toward the possibility of a Paleoindian occupation predating the Archaic occupation of the site with its heavy reliance on red chert for tool manufacturing. Interestingly enough, there were no grinding tools recovered from the slope in front of the Temascalapa Shelter, suggesting a different subsistence focus than the one documented at the Xihuatoxtla Shelter.

**Cueva del Agua.** Cueva del Agua (18° 21' 22" N, 99° 35' 50" W) is a large (34 m wide, 25 m deep, and 3 m in height) solution cavern in the limestone formation of a high ridge rising 1,000 m above the Iguala Valley (Fig. 1). The site is located at 960 m asl or ~200 m above the valley floor. We excavated a 1 × 2-m unit to a depth of 235 cm below surface, ending in disintegrated bedrock. The deposits were all ceramic in age. An AMS <sup>14</sup>C date of 2620 ± 40 B.P. was run on food residues recovered from the inside of a potsherd from the 50- to 60-cm level; the carbon isotopic signature indicated that the residue was most likely that of maize. A second AMS <sup>14</sup>C date of 2530 ± 40 years B.P. was obtained on a canine recovered from the puma burial (see [Table S1](#) for more information on these and other Cueva del Agua dates). The material remains were dominated by sherds ( $n = 735$ ) with only a modest number of lithics ( $n = 32$ ), including 3 obsidian prismatic blades and an obsidian scraper.

1. Faugère B (2006) *Portales Cave: An Archaic Site in Northern Michoacán, México* (original title in Spanish) (Instituto Nacional de Antropología e Historia, Mexico City).

2. Cassiano G (2005) in *Reflections on Lithic Industries* (original title in Spanish), eds González Arratia L, Mirambell L (Instituto Nacional de Antropología e Historia, Mexico City), pp 49–81.

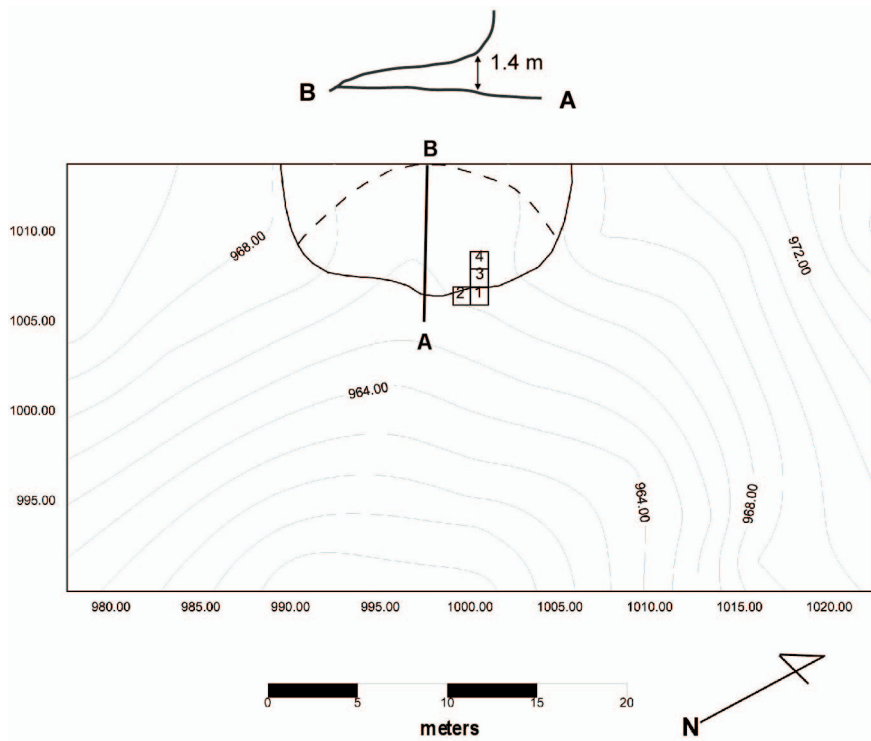
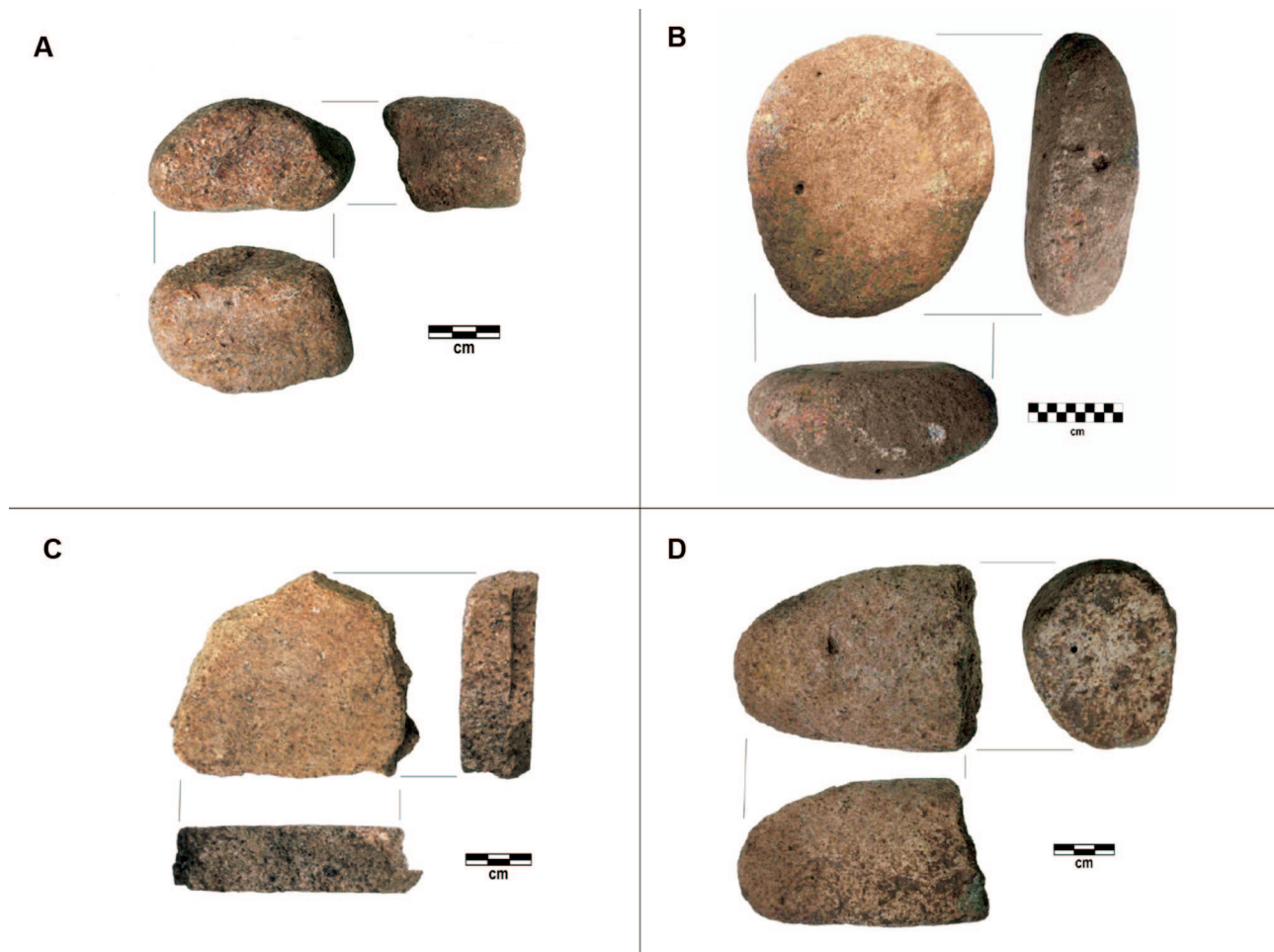
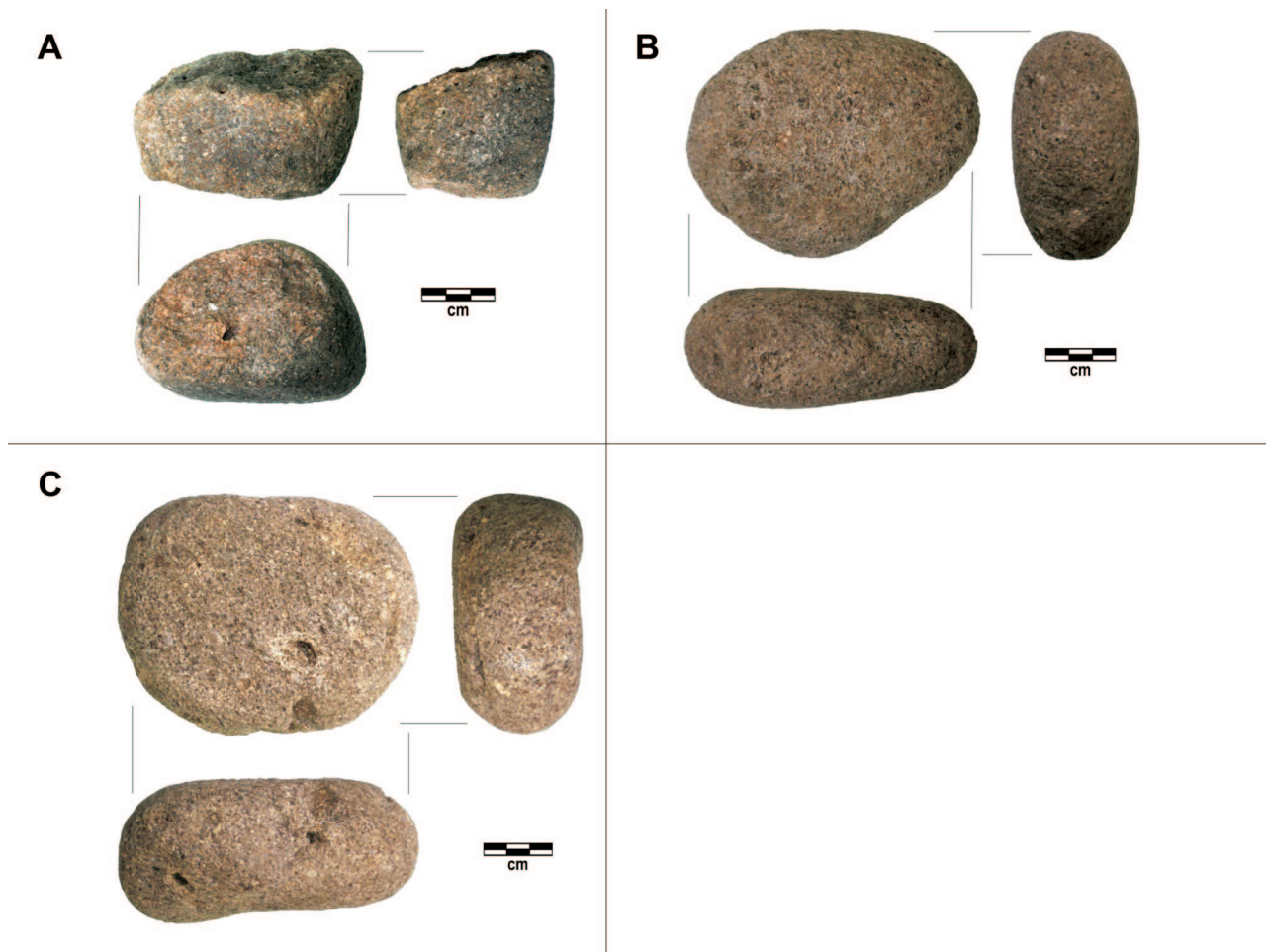


Fig. S1. A planview of the Xihuatoxtla Shelter showing the position of the 1-m<sup>2</sup> excavation units.



**Fig. S2.** (A) A small handstone (365a) from layer C, yielding 24 maize starch grains and maize cob phytoliths recovered in direct association with a large charcoal fragment that returned a  $^{14}\text{C}$  date of  $4730 \pm 40$  B.P. (B) A complete milling stone base (316d) recovered from layer D that yielded 68 maize starch grains as well as 4 yam (*Dioscorea* sp.), 3 legume, and 1 Marantaceae starch grains. (C) A milling stone base fragment (316c) from layer D that yielded 2 maize starch grains, maize cob phytoliths, and 29 squash phytoliths. (D) A handstone fragment (318d) from layer E that yielded 22 maize starch grains, maize cob phytoliths, and 28 squash phytoliths.



**Fig. S3.** (A) A small handstone fragment (318e) from layer E that yielded 80 maize starch grains as well as maize cob phytoliths and 29 squash phytoliths. (B) A handstone from layer E (319d) that yielded 8 maize starch grains, maize cob phytoliths, and 37 squash phytoliths. (C) A handstone (322c) from the bottom of layer E (85–90 cm below surface) that yielded 11 maize starch grains, maize cob phytoliths, and 7 squash phytoliths.

**Table S1. Radiocarbon dates from Xihuatoxtla, El Abra, El Abra II, and Cueva del Agua**

Site	Provenience	<sup>14</sup> C age, B.P.	<sup>13</sup> C/ <sup>12</sup> C o/oo	2 Sigma calibrated age, B.P.	Material dated	Lab no.
Xihuatoxtla	Unit 2, layer B 20–30 cm bs	1200 ± 40	−25.3	1240–1040 and 1030–1000	Charcoal	Beta-216366
Xihuatoxtla	Unit 2, layer B 30–40 cm bs	2790 ± 40	−25.2	2970–2780	Charcoal	Beta-210893
Xihuatoxtla	Unit 2, layer C 49 cm bs	4730 ± 40	−26.2	5590–5440 and 5410–5320	Charcoal	Beta-208115
Xihuatoxtla	Unit 1, layer D 65 cm bs	7920 ± 40	−22.7	8990–8610	Charcoal	Beta-203459
El Abra	Unit 1, 110–120 cm bs	120 ± 40	−7.5	280–0	Maize cob	Beta-210888
El Abra	Unit 9–10, 150–170 cm bs	890 ± 40	−26.0	910–690	Charcoal	Beta 210889
El Abra	Unit 1–4, 130–140 cm bs	1980 ± 40	−22.8	2000–1860	Bottle gourd rind	Beta-210891
El Abra	Unit 1–4, 150–160 cm bs	2140 ± 40	−20.9	2310–2240 & 2180–2000	Bottle gourd rind	Beta-210892
El Abra	Unit 9–10, 170–190 cm bs	7400 ± 40	−26.3	8330–8160	Charcoal	Beta-210890
El Abra II	Unit 2, 75 cm bs	360 ± 40	−9.9	510–310	Charred maize cob	Beta-203460
El Abra II	Unit 1–2, 80–90 cm bs	2080 ± 40	−10.4	2140–1940	Charred maize cob	Beta-203461
Cueva del Agua	Unit 1–2, 50–60 cm bs	2620 ± 40	−13.8	2730–2780	Sherd residue	Beta-180935
Cueva del Agua	Unit 1–2, 78–100 cm bs	2530 ± 40	−19.0	2475–2750	Puma canine	Beta-180936
Cueva del Agua	Unit 1–2, 120–130 cm bs	2540 ± 40	−26.2	2690–2755 2485–2660	Charcoal	Beta-180934
Cueva del Agua	Unit 1–2, 170–180 cm bs	3470 ± 40	−25.6	3635–3845	Charcoal	Beta-180937

