

**Summary of Archaeological Research by the
Center for Archaeological Research, Missouri State University—
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by
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Archaeological testing of three sites and limited archaeological survey were undertaken in the Northern and Central Ranges during a period of 14 days. Two sites in the Lopinot Valley were tested, resulting in the recovery of a considerable amount of pottery and lesser amounts of worked lithics. In addition, a workshop site in the Central Range resulted in the recovery of a substantial amount of chipped-stone debitage related to the exploitation of chert cobbles from Malchan Hill. Survey was also undertaken in the vicinity of the cluster of sites (SGE-42–47) identified in 2012 in the Lopinot Valley. Finally, a series of cultivated fields in the neighboring Caura Valley were also surveyed during a two-day period resulting in the discovery of three sites (SGE-48–50). The locations of the two tested sites relative to other loci of Amerindian pottery in the Lopinot Village area are shown in Figure 1.

Testing of the Hernandez Site (SGE-43) in the Lopinot Valley

This site was identified in 2012 on a very high and relatively flat terrace at the base of a mountain on the east side of the Lopinot River (Figure 1). It occurs on property owned by Frank Hernandez after whom the site is named. Forty body sherds, one neck sherd, and one base sherd were recovered in late January 2012 as the result of surface collecting and the excavation of two shovel tests. The site is located in a cacao and citrus plantation at the base of a mountain that has been a controversial target in the past few years for a limestone quarry. The origin of the terrace is uncertain, although it may have been derived at least in part from a large landslide or multiple landslides in conjunction with substantial colluviation. A scatter of limestone boulders is evident on the surface in the eastern part of the site nearer to the base of the mountain.

Three 1-x-1-m units were excavated in March 2013 over a two-day period by as many as eight individuals. The excavation of Units 1, 2, and 3 at the Hernandez site resulted in the recovery of 145, 248, and 145 pieces of pottery, respectively, along with small amounts of flaked and crushed quartz. A considerable amount of pottery occurred along the west wall of Unit 2 at 11–14 cm below surface (bs). Some of the pottery sherds even appeared stacked, and they were among the largest recovered as a result of testing at the Hernandez site. In addition, one piece of charcoal was recovered from along the west wall in the upper part (11–15 cm bs) of Level 2 of Unit 2 as the result of ¼-inch screening. The greatest density of pottery also characterized Level 2 within Unit 1, whereas it characterized Level 1 within Unit 3. The area of Unit 3 appears to have suffered some erosion, and the Amerindian component(s) is concentrated within the upper 10 cm of deposits. The lower levels within all three units contained abundant manganese concretions, some measuring as large as 3–4 cm in diameter.

The pottery bearing deposits in all three units did not extend more than 15–20 cm bs. However, the Hernandez site is fairly large and much of it remains unexamined, including the southern and western portions. With the exception of the concentration along the west wall of Unit 2 within the upper part of Level 2, the ceramics are relatively eroded and small in size. Nonetheless, a sufficient quantity was obtained to characterize the assemblage in broad terms.

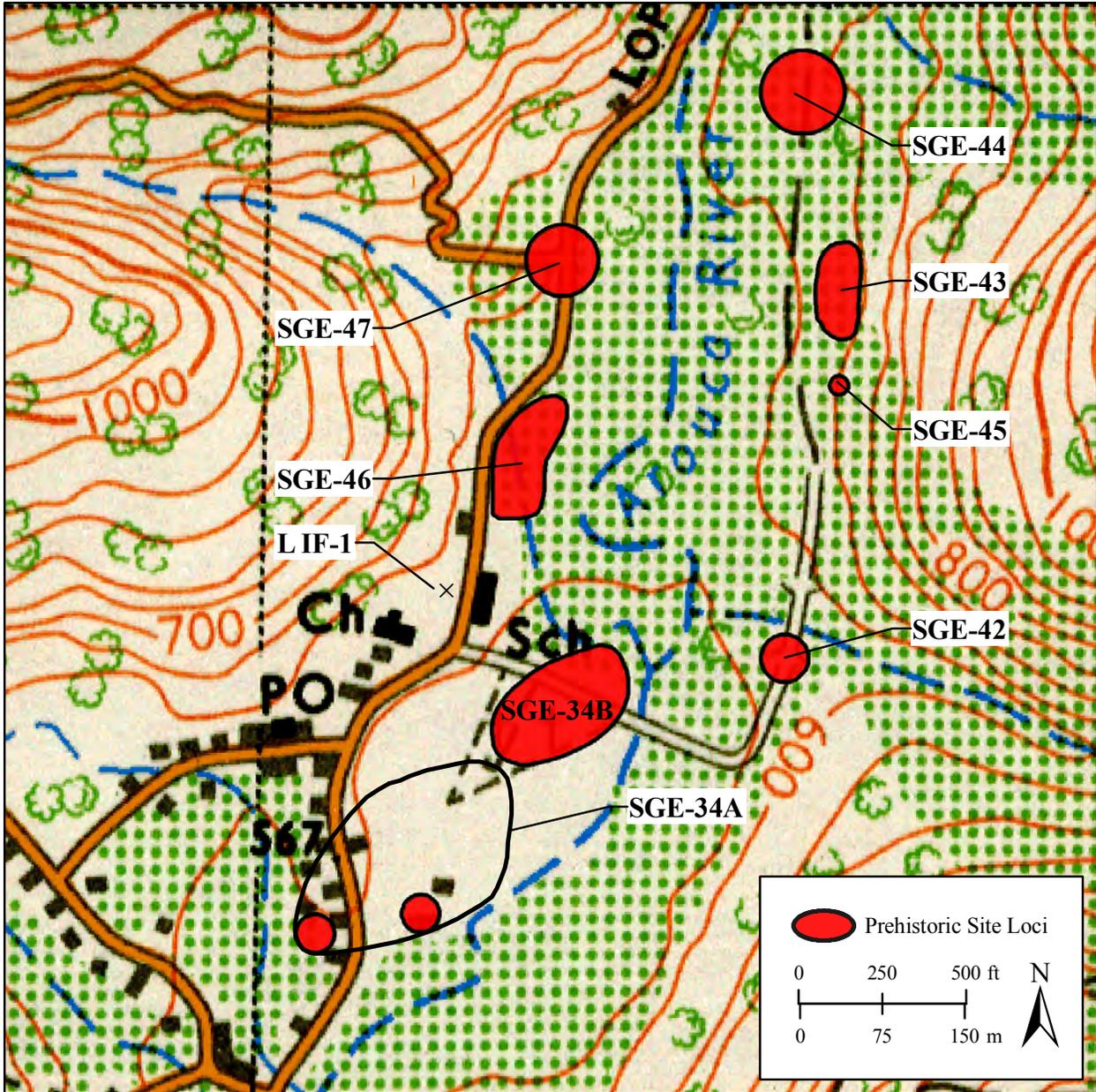


Figure 1. Ceramic-bearing loci in the Lopinot Village area.

The excavation of Unit 1 (Figure 2) at the Hernandez site provided a representative soil profile for the flatter and more uneroded part of the site. The unit was excavated throughout to a depth of 30 cm bs and the northwest one quarter was excavated subsequently to a depth of 60 cm bs. The north wall profile is shown in Figure 3.

No features were identified at the bases of Units 1–3, but it is certain that more extensive excavations at the site would result in the identification of postholes and pit features containing dateable charcoal and more intact ceramics. The single piece of charcoal from Level 2 of Unit 2 was submitted to the Illinois State Geological Survey (ISGS) for Accelerator Mass Spectrometry (AMS) dating. The sample was pretreated at the ISGS and AMS dated at the W. C. Keck Carbon

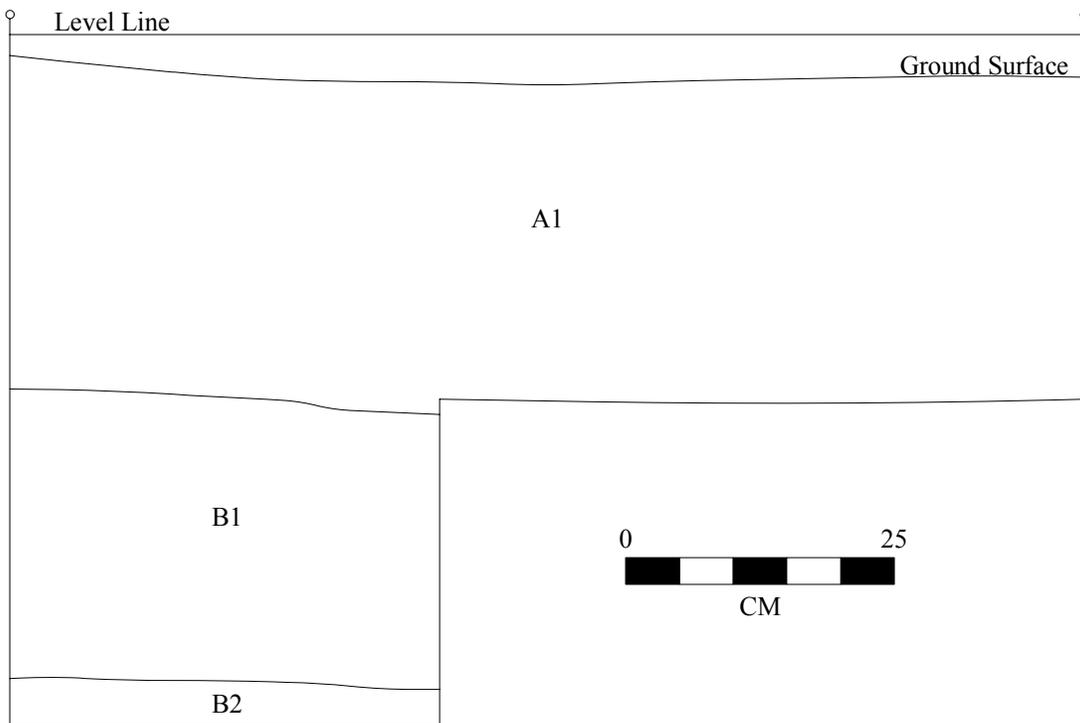


Figure 2. Excavation of Unit 1 at the Hernandez site (view to the west-southwest).

Cycle Accelerator Mass Spectrometry Laboratory at the University of California-Irvine. The piece of charcoal (ISGS-A2630) produced two calibrated age ranges of cal A.D. 1451–1490 and cal A.D. 1603–1610 (one sigma). The most likely of these one-sigma ranges is the earliest date range of cal A.D. 1451–1490 (out of 1.000, the “relative area under probability distribution” [RAUPD] is 0.866). This radiocarbon age is quite recent and additional work should be undertaken there to verify the age(s) of this site. Fortunately, the landowner is amenable for further work at this site, so the chances of obtaining additional radiocarbon samples from good Amerindian contexts is good.

Testing of the Clairboy Site (SGE-44) in the Lopinot Valley

This site was defined in 2012 by pottery found to the north of SGE-43 on a high Pleistocene-age alluvial fan overlooking the Lopinot River (see Figures 1 and 4). The Clairboy site occurs on both sides of a north-south asphalt road referred to locally as the “Back Road” (note: an extension of the road shown in Figure 1 on the east side of the river). A total of 24 sherds (including 1 rim and 1 neck sherd) and a quartz flake were collected as the result of brief surface collecting in a cacao plantation east of the road and the excavation of 5 shovel tests. Four of the shovel tests were excavated in the cacao plantation resulting in the recovery of eight pottery



A1 - 10YR 4/4 silt loam with few to common manganese concretions (5-10%) and few angular schist pebbles; fine granular structure; friable; gradual boundary; gravel (predominantly schist pebbles) 5-10%

B1 - 10YR 6/6 silt loam with common to many manganese concretions (up to 3 cm in diameter); weak subangular blocky structure; firm; gradual boundary; manganese 15-25%; gravel same as for A1

B2 - 10YR 6/6 silty clay loam with many 7.5YR 5/6 strong brown mottles; weak subangular blocky structure; firm; manganese 5-15%; fewer schist pebbles

Figure 3. Stratigraphic profile of north wall of Unit 1 at the Hernandez site (SGE-43).

sherds, and one shovel test was excavated on the grass-and-weed-covered west side of the road resulting in the recovery of six sherds. The nearby Hernandez site was thought to be a more substantial village than that represented at the Clairboy site, but testing in 2013 on the west side of the road proved that this site was also a substantial village, perhaps occupied even more intensively or for a longer duration than the Hernandez site. The part of the Clairboy site west of the Back Road that was surface-collected and tested is owned by St. Clair Mora and Richard Salina, whereas Ricardo Garcia owns that portion of the site east of the road.

Before excavation of two units at the Clairboy site, a surface collection of 54 pottery sherds was obtained from the southwestern part of the site (Figure 4). This part of the site had been plowed for the first time in February with a hand-tiller to about 15 cm below surface. Elsewhere in the Lopinot Valley, plowing has been limited due to the emphasis on cacao, bananas, and



Figure 4. Location of the Clairboy site opposite the Lopinot River (view to the east-southeast).

citrus trees (e.g., orange, grapefruit, guava, lime). Amerindian pottery was relatively abundant on the surface in what had become a plowed bean field following a couple rain showers. However, most pottery was collected from ditches that were dug during the early nineteenth century by slaves, when the site was part of the larger cacao plantation known as La Reconnaissance. One such ditch is shown in Figure 5.

Only two contiguous 1-x-1-m units were excavated at the Clairboy site on the west side of the Back Road, but both indicated a greater density of pottery than for the three units at the Hernandez site. Not including sherds found in features, pottery recovered from Units 1 and 2 at this site consisted of 576 and 589 sherds, respectively. Because a deep postmold (Feature 1) and the eastern edge of a rather amorphous disturbance (Feature 2) was found in Unit 1 (Figure 6), Unit 2 was excavated just to the west of Unit 1 to determine if the amorphous feature and postmolds continued in that direction. The excavation of Unit 2 resulted in the identification of four more postmolds (Features 3–6; see Figure 7) suggestive of the presence of one or more structures at this location. Owing to heavy rains on April 3, only the upper part of Feature 3 was excavated with the purpose of obtaining an AMS sample.

Sixteen sherds, two AMS samples, and a flotation sample (15 liters) were collected during the course of excavating Feature 1, which extended to a depth of 65 cm below the surface (43 cm below the base of the A horizon). Seven sherds and an AMS sample were collected as the result of the partial excavation of Feature 2, whereas only two sherds and a series of charcoal samples were collected during a very brief time during the excavation of the upper 5 cm of Feature 3. Features 4–6 were not excavated because of rains on April 2 and heavy rains throughout most of the day on April 3.



Figure 5. Plowed southwestern part of the Clairboy site with ditch to right (view to west).



Figure 6. Location of Features 1 and 2 in Unit 1 at the Clairboy site.



Figure 7. Planview of Unit 2 showing Features 2–6.

Further excavations at this site around Units 1 and 2 should be undertaken in the future to better define the nature of the structure(s) at this site. The flotation sample resulted in the recovery of a significant amount of plant remains from Feature 1. More importantly, it indicates that more flotation of the fills of other features will result in the collection of a significant amount of carbonized plant remains relating to collecting versus farming activities by local populations. Given the substantial amount of pottery obtained from this site, its age(s) will do a lot to evaluate the intensity of Amerindian occupation in the Lopinot Valley during ceramic times.

Two charcoal samples were submitted to ISGS for AMS dating. These consist of a piece of a seed or some type of nutshell from the Feature 1 flotation sample and a piece of wood charcoal from the surface of Feature 3 just below the base of the A horizon. The sample (ISGS-A2628) from Feature 1 produced multiple 1-sigma ranges of cal A.D. 777–784 (RAUPD=.103), cal A.D. 786–826 (RAUPD=.585) and cal A.D. 841–846 (RAUPD=.312). The singular 2-sigma range is cal A.D. 773–883. The wood charcoal sample (ISGS-A2629) from Feature 3 produced an AMS age range of cal A.D. 1445–1470.

Three aspects of the radiocarbon ages from the Clairboy site bear further study. First, the considerable differences in the two ages are suggestive of a multicomponent site and perhaps multiple overlapping structural remains. Second, the earlier age is roughly concurrent with four AMS ages for the prehistoric component(s) of the La Reconnaissance site, located about 550 m downstream. Did multiple villages exist in this portion of the Lopinot Valley at that time and, if

so, were they politically organized into some larger entity? Third, the relatively young and contemporaneous AMS ages from both the Hernandez and Clairboy sites are suggestive of considerable activity in the valley during late prehistory and maybe even protohistory. Perhaps the late prehistoric occupation of at least the Hernandez and adjacent Clairboy sites represented a dispersed village with each site being occupied contemporaneously by one or a few households.

Testing of the Malchan Hill Workshop Site (SAN-10)

Two 1-x-1-m units were excavated in 2013 at a lithic workshop site associated with the Malchan Hill chert source discovered in 2012 (Figures 8-9). Although two days of work by a crew of four were planned, both units were excavated by a group of eight individuals during a 12-hour period (including travel time) on March 26, 2013. The artifact-bearing deposits were relatively shallow (10–15 cm) and confined to a dark, somewhat disturbed A horizon, but a substantial amount of debitage (N = 654) from chert-processing activities was obtained. Three nonchert items, including one piece of hematite were also recovered. The darker soils of the A horizon are visible at the top of Unit 1 as shown in Figure 10.

The excavation of Level 1 of Unit 1 resulted in the recovery of 412 lithic items alone. This unit was situated closer to Malchan Hill than Unit 2. Unit 1 yielded a total of 589 items or 90% of the recovered lithic debris. The excavations of Unit 1 continued into Level 3 (20–30 cm bs) in the west half (1-x-.5 m) of the unit. It was clear that material density diminished from Level 1 to Level 3 within this unit. Unit 2 produced only 68 lithic items with 43 occurring in Level 1 and the remaining 25 occurring in Level 2. No pottery was recovered as the result of the test excavations at SAN-10

Survey in the Caura Valley

Archaeological survey in the Caura Valley was undertaken on April 1–2. A number of cultivated fields for truck farming occur in the wide opening of the valley (Figure 11). The survey focused on surface collecting in a series of recently plowed fields, as well as those planted in tomatoes, pepper, eggplant, melon, papaya, etc. Within these fields, ground surface visibility ranged from 100% to as little as 15%. The fields that were surveyed are shown in Figure 11.

Our expectations for locating Amerindian sites were very high, but only three sites and one Isolated Find (IF) were discovered. Nevertheless, a considerable amount of new information was obtained as the result of interviewing local residents with collected artifacts. The paucity of identified Amerindian sites was relatively disappointing. However, it is suspected that this is due to the fact that the fields have been plowed quite deeply (Figure 12). In some locations, the ground surfaces may have been covered by sterile subsoil that had been thrown up (from between the crop rows), capping the topsoil that would contain evidence of Amerindian sites. It is possible that the fields have been plowed repeatedly and the subsoil has been thoroughly intermixed with the topsoil, making it difficult to find pottery and lithic artifacts. In the future, local farmers in the Caura Valley should be interviewed with respect to farming practices.

Isolated Find No. 1 (Caura Isolated Find #1[C IF-1]) consists of a single grit-tempered, plain body sherd that was found in a pepper field on the toeslope of a high T3 at the northern end of the survey area. This field is owned by Jason Rampersan. At the time of the survey, ground surface visibility was estimated at 70–80%. After the pepper field and adjacent strips of



Figure 8. Partially quarried Malchan Hill in the Central Range.



Figure 9. Area of workshop debitage noted during 2012 and tested in 2013.



Figure 10. Unit 1 at SAN-10 with Malchan Hill in background.

watermelon atop the T-3 terrace were surveyed, more intensive survey at 3-m intervals was undertaken around the location of C IF-1. Nothing else was found, but we suspect that this isolated find is reflective of a much larger site, some of which extended across the road that cuts through the northern portion of the valley opening.

Site SGE-48 was defined by a small scatter of nineteenth-century debris in a small area measuring only about 20-x-6 m on the east side of the Caura River. Ground surface visibility in this small area was estimated to be about 60–70%, whereas that surrounding it was extremely poor. The collected artifacts consist of 15 whiteware ceramics and 1 basal piece of a “black glass” bottle with a kick-up. The historic ceramics include four blue shell-edge rim sherds, one

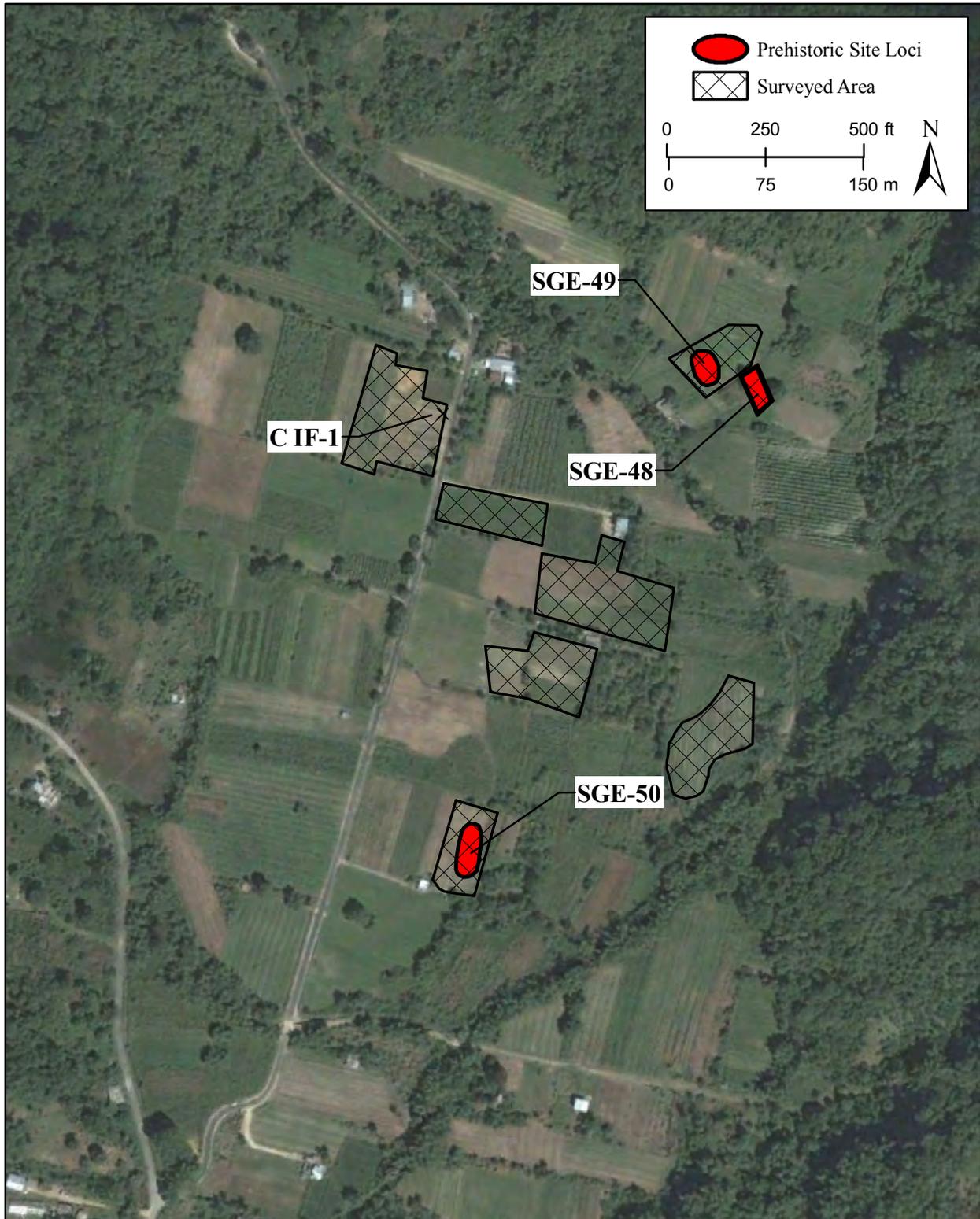


Figure 11. Survey areas and sites in the Caura Valley.



Figure 12. Freshly plowed field near the Caura River.

green shell-edge rim sherd, three blue transfer printed sherds (including a rim from a blue willow plate and one cup base with a different design), and one hand-painted blue-and-gold body sherd. Five plain whiteware sherds (at least three from flat bases) were also collected from this small area. The artifacts are indicative of a nineteenth-century occupation. According to people who farm the area, the site is adjacent to one of two traces to the Lopinot Valley and there was once a barracks for indentured East Indians in the approximate location of SGE-48. This site is undoubtedly much larger than the small area with good surface visibility and deserves additional attention in the future.

Site SGE-49 is an Amerindian site located just to the northwest of SGE-48 on an elevated T-2 terrace that slopes down to the river about 70-80 m to the southwest. Ground surface visibility in the eggplant field was estimated as about 50–60%. During the initial visit on May 1, four pottery sherds and a quartz flake tool were found. As for other fields in the Caura Valley, the location of this site also had been deeply plowed well into the subsoil. According to Naresh Ramcharan, who helps farm this land, the plowing extends to a depth of about 36–38 cm (14–15 inches) below surface. Because of this and the suspicion that SGE-49 was more than that implied by a small number of artifacts, the site was revisited on the morning of May 2. Twelve additional sherds were recovered as the result of a very intensive resurvey at 2–3-m intervals.

Two local residents living in proximity to one another have lithic artifacts of considerable importance in understanding Amerindian settlement of the Caura Valley. Rajandle (Rajan) Ramcharan showed us a number of artifacts that he has collected over the years from farming in the area, including some artifacts from SGE-49. He showed us three celts in his collection



Figure 13. Three small celts in the collection of Rajandle Ramcharan.

(Figure 13). Two (Figure 13a-b) were collected from SGE-49. The other was collected from an unverified location on the west side of the river.

These small celts show some interesting use damage. Two have more polls that were chipped as the result of hammering. The broader poll of the other celt (Figure 13b) is very battered, but so too is the bit. In fact, the battering on the bit has resulted in a flat surface measuring 3–5 cm in width. This suggests that the celt was used as a hammer on some relatively hard material(s). The other two celts have relatively sharp bits, although the specimen shown in Figure 13a also has some bit damage.

One of the celts (Figure 13a) appears to be composed of metamorphic rock that may have been obtained from one of Trinidad's northern beaches. It has irregular, narrow rust-brown quartz veins similar to a broken metamorphic rock from SGE-50. The source for this material is unknown, but the occurrence of the same material at two different sites suggests that the source of the metamorphic rock was not distant. The other two celts (Figure 13, middle and right) are composed of metamorphic rock possibly obtained from Tobago or Venezuela.

One of the most informative specimens in Rajan's collection is a core made of Malchan chert from SGE-49 (Figure 14). It appears to have served as a source of flakes, perhaps struck off when flakes were needed for replacements in cassava graters. Every available face of this core exhibits flake scars such as those shown on two faces in Figure 14. Although relatively small, it does not appear to have been exhausted. Given that direct procurement did not occur, it would appear to reflect exchange for tested cobbles of Malchan Hill chert rather than trade for flake blanks.

Site SGE-50 was found very late during the second day of survey work in the Caura Valley. Surface visibility was relatively poor. Despite our best efforts to find pottery, only five lithic



Figure 14. Core of Malchan chert in the collection of Rajandle Ramcharan.

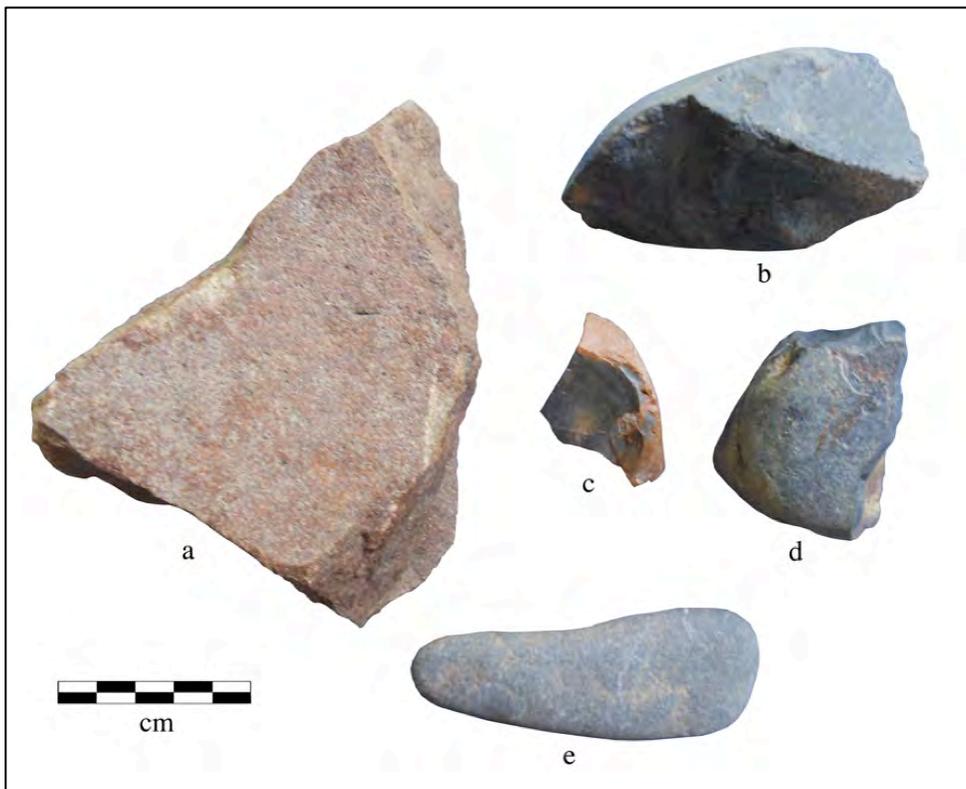


Figure 15. Lithic artifacts from SGE-50.



Figure 16. Manos and polishing stones in collection of Rajandle Ramcharan.

artifacts were found. One consists of a metate fragment (Figure 15a) and another consisted of a piece of Malchan chert (Figure 15c). The other three comprise metamorphic rocks, of which two exhibit evidence of use. Most of the sharp edges of the cobble fragment shown in Figure 15b exhibit battering. This specimen is composed of the same material as mentioned above for one of the celts (Figure 13a). The other utilized specimen is a fragment of a metamorphosed cobble likely derived from an iron-laden siltstone. Although it does not exhibit good conchoidal fracture, it exhibits a few flake scars on one face and some hammering or batter marks on another face.

In addition to the celts and the core of Malchan chert, Rajan Ramcharan also showed us seven polished cobbles that he found in the Caura area (Figure 16). Several of these are polished from use as manos, but the nature of some of the polish would require closer study than that devoted during our brief visit. In addition to Rajan, we also learned about a neighbor who also had some artifacts of interest. These consist of three pestles shown in Figures 17–18.

Survey North and South of Upper Lopinot

No new sites were defined as the result of our 2013 survey to the north of the cluster of six sites identified in 2012. However, one additional piece of Amerindian pottery (designated as Lopinot Isolated Find #1 (L IF-1) was found in a yard in the village just west of Lopinot Road and Lopinot School. Most survey work was undertaken on the west side of the river and north of SGE-46 and SGE-47. Site SGE-47 was identified almost exclusively by 20 pieces (including 1 rim and 1 base) of pottery in 2012 in a road cut on the east side of Lopinot Road. The material



Figure 17. Two pestles in the collection of Khandurah Panchu.



Figure 18. Large pestle in the collection of Khandurah Panchu.

clearly had been pushed up as the result of the construction of the road. Despite repeated survey then and in 2013, only one small piece of pottery was found in a plowed field just to the northwest of the road cut and also immediately northwest of the intersection of Lopinot Road and Briggs Road. This field occupies an alluvial-colluvial fan from a small intermittent tributary draining eastward into the Lopinot River. Interview of a local informant indicated that the area to the west of Lopinot Road in the vicinity had been extensively quarried for limestone during the 1960s and/or 1970s. Evidence of this quarrying activity was evident not only there, but also in yards on the east side of Lopinot road from that intersection northward some 200 m or more. In fact, everything on the west side of the river north of SGE-46 to the valley constriction has been affected by quarry activity. However, at least some archaeological deposits may be buried rather than destroyed.

Future Publication Plans and Prospects for Additional Research

As often happens in archaeology, substantial discoveries typically occur on the last day or last few days of a project. This characterized the 2013 MSU investigations in Trinidad. We not only were shown artifacts in a couple private collections on the afternoon of the last day of planned survey work in the Caura Valley, but we also were unable to excavate a series of exposed features (Features 2–6) in Unit 2 at the Clairboy site because of the lateness of the findings and heavy rains. Regardless, the relatively brief two-week period was highly successful in many respects.

A considerable amount of material, particularly pottery, was collected in 2013. In addition, the testing program at Malchan Hill resulted in the recovery of a large sample of chert artifacts. These materials will undergo detailed analysis during the upcoming summer and fall. It will also be a time to catch up on the analysis of Amerindian materials from previous years since 2009 and integrate those data with that collected as a result of the 2013 survey and testing program. The results of our research will be submitted for publication in two venues. First, Jack Ray and Neal Lopinot will be contributing a chapter on “Procurement and Use of Chert from Localized Sources in the Central Range of Trinidad” for an edited University of Alabama Press book proposed by Basil Reid entitled *The Archaeology of Trinidad and Tobago*. Lopinot will also have an article in this book on the “History and Archaeology of La Reconnaissance, Trinidad.” In addition, a sufficient amount of Amerindian data has accumulated for an article on “Late Prehistoric Settlement and Exchange in the Northern Range of Trinidad,” to be submitted for publication to either the *Journal of Caribbean Archaeology* or the *Journal of Island and Coastal Archaeology*.

Much more work also needs to be undertaken in both the Lopinot and Caura valleys. Six additional avenues of research are proposed for the immediate future. First, data need to be collected to prepare detailed topographic maps of both the Hernandez and Clairboy sites. This is critical for any additional work at the site.

Second, more extensive excavations should be undertaken at the Hernandez site to locate features that penetrate into the subsoil and particularly at the Clairboy site around Units 1 and 2. The work at the Clairboy site should entail the opening of a large block area around those two units using a backhoe with a smooth-edged bucket. Although the A horizon contains a great amount of pottery, the 2013 collections demonstrate that the vast majority of sherds consist of small, plain-surfaced, eroded pieces measuring less than 2–3 cm in size. Given that the site is multicomponent, it is very unlikely that any cultural sequence could be teased apart from the

pottery in the top 15–20 cm. Instead, the best chance of obtaining larger fragments of pottery from good contexts and teasing out a chronology of site use would be from the excavation of features that penetrate into the subsoil. Excavations in the vicinity of Units 1–2 will also help better define the nature of the structure(s) at this site. No excavations in Trinidad have ever resulted in the exposure of the floor plan of a complete structure. Furthermore, the radiocarbon dates from two postholes indicate that two or more structures dating about 700 years apart are represented in a relatively small area of the Clairboy site.

It is also important to emphasize that the flotation sample collected from Feature 1 resulted in the recovery of a significant amount of plant remains. It is strongly recommended that large samples of feature fills be floated in the river in the future. This should enable a better understanding of human-plant relations and the general role of food production in local economies.

Third, time should be spent to fully document the locations of all of the “exotic” artifacts collected by Rajandle Ramcharan and the three pestles of possibly nonlocal material in the collection of Khadurah Panchu. The celts, manos, and pestles likely derive from residential sites, so other sites will likely be discovered in the places that these artifacts were found. Rajan has been an active exotic lithic artifact collector and, during our brief visit, we also taught Rajan about Amerindian pottery and how to find it. I have been informed that he has since been collecting pottery. Besides contacting other local farmers regarding the possibility of additional local artifact collections, some of the farmers in the Caura Valley also should be interviewed with respect to farming practices, such as the duration that the various fields have been plowed.

Fourth, SGE-48 and SGE-50 should be revisited to better define the contents and limits of these two sites. At least for SGE-48, some screened shovel testing at close intervals may be necessary to better define the limits of this site. For SGE-50, a concerted effort should be made to determine whether or not it is an Archaic or Ortoire site.

Fifth, survey to the south of the Estate House at the Lopinot Complex needs to be undertaken. Too little time was available in 2013 to undertake this survey work. Although this area appears to have been much disturbed in the past 60–70 years, some Amerindian loci may still exist there.

Sixth, test excavations at SGE-45 and SGE-46 also should be undertaken, and at least one unit should be excavated at SGE-47 to determine if this site has been buried by quarry debris.

All six goals will not be achievable in one field season even with the help of a number of volunteers and paid local assistants. Mapping data collection at the Hernandez and Clairboy sites could take 5–6 days or more to complete due to the presence cacao and citrus trees throughout most of the sites and the need to establish a good number of datums. In addition, the discovery of an abundance of features at the Clairboy site will prevent additional work in the Caura Valley, particularly if we undertake our typical two-week, 10-work-day visit in 2014. The collection of topographic data and the block investigations at the Clairboy site should take precedence over the work in the Caura Valley and additional survey and testing in the Lopinot Valley.

Acknowledgments

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of the field activities and directed the work at Malchan Hill. Finally, I wish to express my sincere gratitude to my daughters Jennifer and Carrie, and their husbands Ryan and Eli, for their sacrifice in helping with the excavations at the Hernandez site and at Malchan Hill. They could have been liming the whole time, but instead they assisted with that fieldwork. In fact, their help over the course of a long hot day at the workshop site next to Malchan Hill saved us from having to make the long arduous trip back to the Four Roads area on the following day.