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Archaeological Field Report
Tanggapan Cave Biak na Bato, Bulacan

Project: Archaeological Test Excavation of Tanggapan Cave, Biak na Bato National Park, San Miguel Bulacan and survey of contiguous cave sites
Period: March 19 – 30, 2017
Proponent: This is a joint project between the Archaeological Studies Program, University of the Philippines and the Center for Bulacan Studies, Bulacan State University.
Personnel:
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The team conducted the traditional courtesy calls to different local government units. The team visited Governor Wilhelmo Sy-Alvarado at his office in the provincial capital on March 20, 2017. The team also did a courtesy call with the DENR Region 3 in particular to PENRO Celia Esteban and PASU Ofelia Conag. The team proceeded to the Municipal Hall of San Miguel for a meeting with Mayor Marivee Mendez Coronel.

The team was initially planning to conduct a test excavation at Yungib 2 or the Pinag-ospitalan, but when the team was accidentally brought by a guide to the nearby Tanggapan Cave, we decided to shift the effort to this cave (Figure 1 and 2). Tanggapan Cave litters with artefacts in the surface making it more viable to excavate than Yungib Cave 2 which has no surface finds.

Tanggapan Cave is an East to West trending cave with the main mouth oriented to the east (Figure 3 and 4) and with a coordinate of 121° 3' 48.75" E and 15° 7' 4.26 N. At the west end, the cave is connected to a rockshelter. The southern ceiling of the rockshelter had collapsed forming the shelter. Tanggapan Cave was mapped using a Nikon Total Station (Figure 5).

Figure 1 The team trekking to Tanggapan Cave

Figure 2 Tanggapan Cave main entrance facing east.

Figure 3 Location of the caves in Biak na Bato, San Miguel, Bulacan

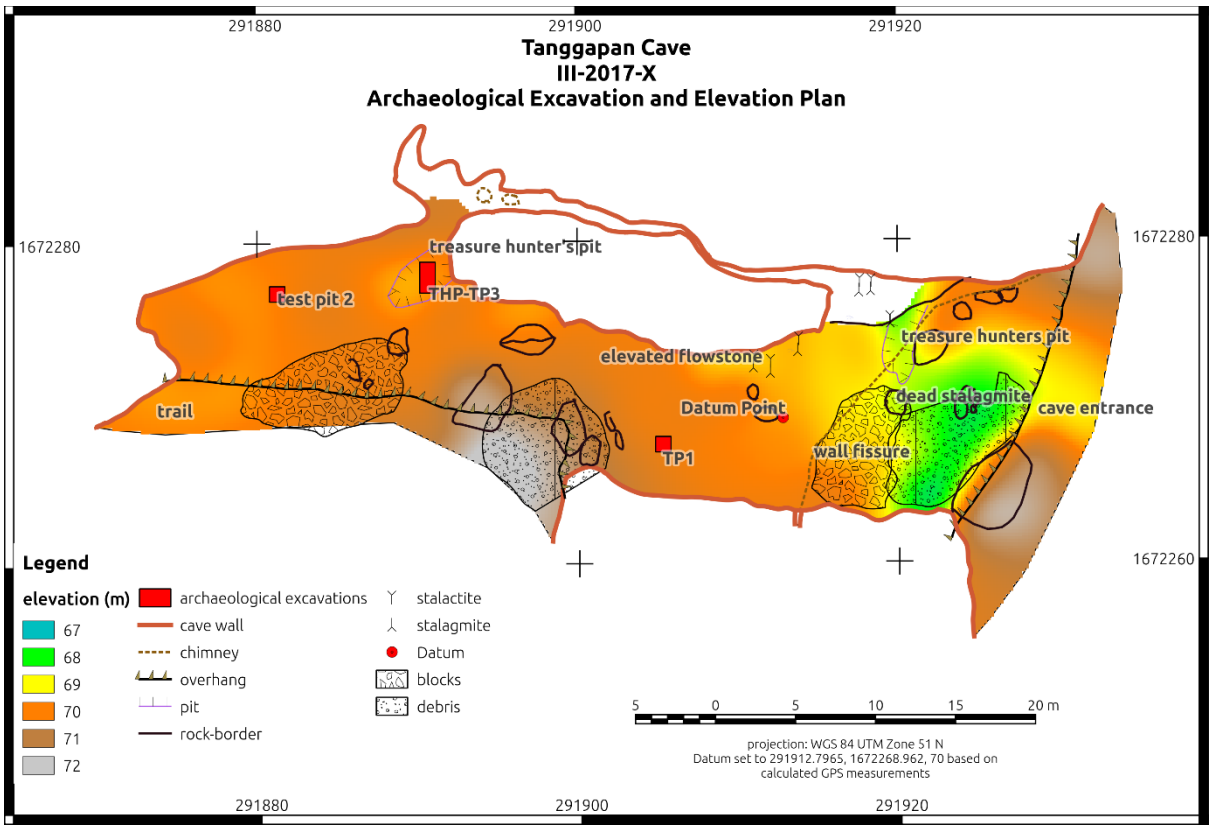
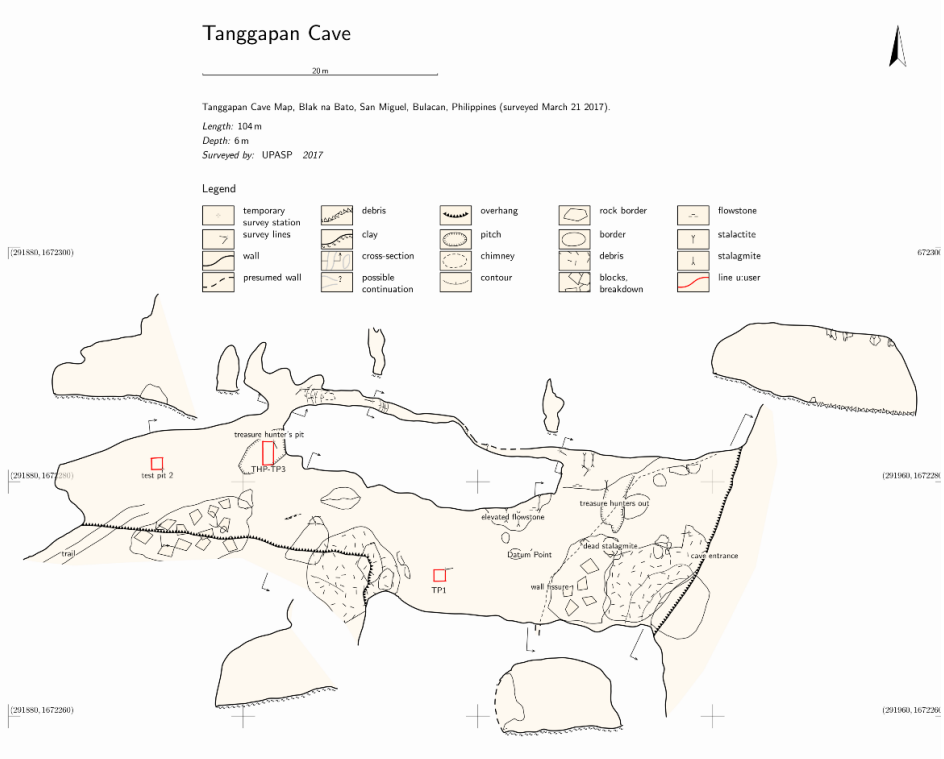


Figure 4 Map of Tanggapan Cave showing the test excavation pits



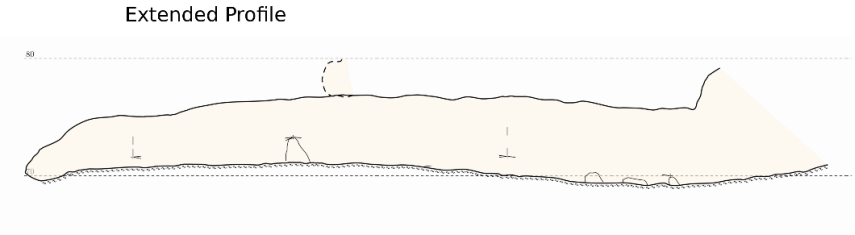


Figure 5 Lay out and ceiling structure of Tanggapan Cave

The western rockhelter of Tanggapan Cave is near the Balaong River which is at the base of the hill. Carabao owners who use the river for bathing their animals actually use the cave as a trail to and from the river (Figure 3).

Both the cave and the rockshelter have been heavily damaged by treasure hunters. At the main cave, one could see the outline of the treasure hunter's excavation near the north and south walls of the cave. At the rockshelter, treasure hunters dug the eastern end of the shelter while charcoal makers used the western end for cooking charcoal. The team initially

sieved the sediments from the treasure hunter's pit in the rock shelter to recover artefacts and discern what archaeological materials are in the cave. Although out of context, we recovered chert and chalcedony flakes, earthenware pottery, animal remains mostly Cervidae and riverine shells.

Three test pit units were prepared for excavation (Figure 5). Test Pit 1 (TP1), a 1 x 1 meter square, was set up in the center of the cave but near the western end. TP2 was set up near the western end of the rock shelter and is also a 1 x 1 meter unit. TP3 was set up in the cleaned and sieved treasure hunter's pit in the east side of the rockshelter. After removing the back fill dirt from the treasure hunting activity, we were able to expose an undisturbed area where we set up a 1 x 2 m unit with the east side as its longest axis.

The test excavation used spit system with 10 cm thickness per spit. The NE corner was also designated as local datum point (LDP). LDP is measured at ground level except for TP 3 which is already 26 cm below ground level due to the removal of the treasure hunter's back dirt.

Test Pit 1

Test Pit 1 was set up in the back (west) of the cave and around the middle of the platform (Figure 6 and 7). The team had exposed a north dipping lime stone flow starting at Spit 2. Excavation stopped when the whole unit was covered by the lime stone flowstone. The maximum depth is at 47 cm below surface in the north wall.

Figure 6 Test Pit 1 in the main cave area

There are very few materials recovered from TP 1 and all are from Spit 1. These are earthenware sherds, riverine shells, a Suid molar and a bone fragment.

Figure 7 Excavating Test Pit 1

Test Pit 2

Test Pit 2 is in the west side of the rockshelter in a small embankment formed due to the nearby charcoal making mound (Figure 8 and 9). The upper spits contains a thick layer of charcoal sediment in the southwest and brown clay in the Northeast corner.

Figure 8 The rockshelter in the west end of the cave with Test Pit 2 on the left and TP3 on the right

Figure 9 Excavating Test Pit 2

Spit 1 to Spit 6 contains riverine shells and animal remains (Cervid and Suids). A fragment of a modified bone which might have been a pendant was recovered at Spit 6. In terms of artefacts the team recovered brown and black earthenware shreds and rims, some with incised decoration. There is large amount of flake tools made from chalcedony, chert, quartz and andesite raw materials. There were few possible hammer stone and red ochre gravel.

At Spit 7 to 12, the team still recovered animal remains (Suid and Cervid) and riverine shells. Flake tools were still recovered but no earthenware sherds.

The team identified six stratigraphic layers (Figure10a, 10b and Table 1). Layers 1 to 3 (Spit 1-7) are possibly a Neolithic layer dating to c. 3000 BP. While Layers 4 and 5 (Spit 8 to 11) is possibly a pre-ceramic (Late Paleolithic) period dating to about c. 4 to 5k BP.

At 120cm below surface the team auger the trench and reached up to 151cm. No materials were found during the augering.

Figure 10a Test Pit 2 Northern Wall Profile

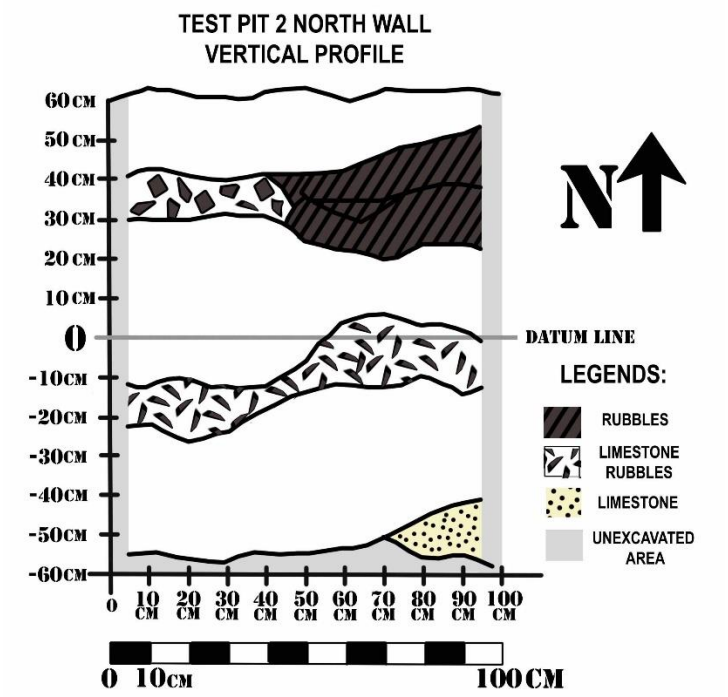


Figure 10b TP2 North wall Stratigraphic Profile

Table 1 TP2 Profile Description

LAYERS	THICKNESS (CM)	COLOR	TYPE & COMPACTNESS	REMARKS
				– grayish color is due to the charcoal mixed with the sediment throughout the area

Layer 1	10 – 20cm	7.5R 3/1 very dark gray	Sandy silt clay; loose	–limestone rubble at NE corner present – contains several lithic materials, earthenware sherds, freshwater shells, and animal bones and some teeth
Layer 2	17 – 30cm	10 YR 3/3 dark brown	Silty clay not too compact (compared to layer 3)	– rubbly layer, concentrating at the north & NE side – charcoal are still littered throughout the area – artefacts found are lithic materials, freshwater shells, earthenware sherds, and animal bones and teeth (i.e. of *sus.* sp and possible macaque tooth)
Layer 3	15 – 47cm	10YR 3/4 dark yellowish brown	Silty clay compact	- fewer charcoals were found at the SE side – freshwater shells decreased in number, yet its size were bigger compared to the those found in the upper layers – the number of lithic materials have increased – animal bones can still be found
Layer 4	10 – 55cm	10YR 3/4 dark yellowish brown	Silty clay compact	– this layer is a mixture of limestone and sediment – the number of artifacts have decreased – no pottery sherds are present – there is a root activity (which had mottled) at the SE side

				– lithic materials and some animal bones can still be found (but not as much compared to the previous layers)
Layer 5	35 – 45cm	10YR 3/4 dark yellowish brown	Silty clay compact	– artefacts found have significantly decreased – (possible) lithic materials were present – large riverine stones (~22cm; greenish?) were present – freshwater shells and pottery sherds were absent – few animal bone fragments were found

Test Pit 3

The treasure hunter's pit (THP) Test Pit 3 (TP3) has been the most abundant excavation unit in terms of materials recovered. The ceiling of Spit 1 is 26 cm below the high point in north end and about 43 below ground surface in the south (Figure 11). The difference in elevation is due to the back dirt from the treasure hunting activity dump in the south end. At the north side of TP 3, there is a small cavern that also has a recently opened sink hole (Figure 12).

The excavation proceeded by first removing the sediment which part of the treasure hunter's back dirt. This is mostly concentrated in the west wall of the trench. The hard clay sediment of the undisturbed area was then excavated using spit system. The sediment was sieved using a 4mm screening mesh.

From Spit 1 to 6, the team recovered animal remains both fragmented bone and teeth from Suid, Cervid, and possible Bovid. There is also fragment of turtle carapace. These layer also contain numerous riverine shells. The team also recovered two modified bone and one is similar to the one found in TP2. The other is possibly a bone use as spatula.

Figure 11 Excavating Test Pit 3 in the eastern end of the rockshelter

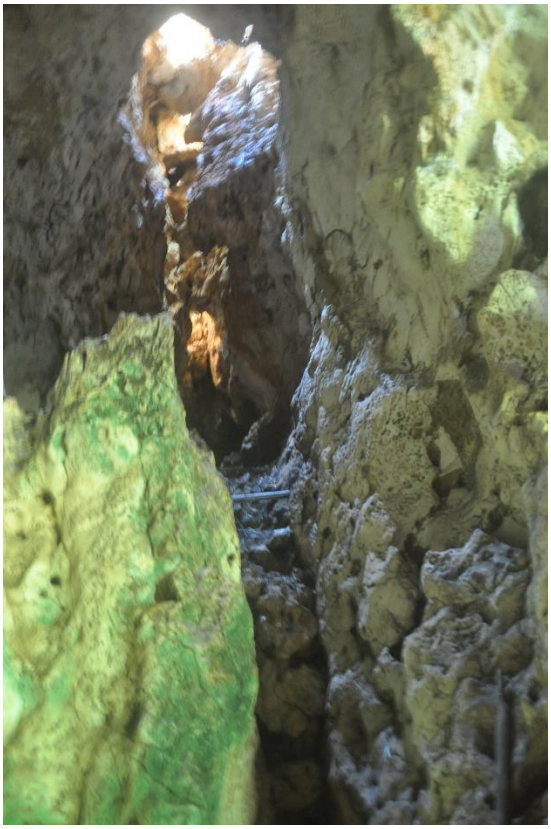


Figure 12 Sink hole in the chamber north of TP3

There are also numerous earthenware sherds and rims. Most are brown color but there are also black pottery. Some sherds have decorations such as incised wave and dot design and incised and punctuated design. For the stone tool, the flakes were made from chalcedony, chert, radiolarite, basalt, quartz and andesite raw materials. There is also evidence of *in situ* lithic production with the recovery of waste flakes (flakes smaller than 2 cm), wasted core, and hammer stones.

What is also interesting in this layer is the presence of micro tektites beginning at Spit 4. These micro tektites are rounded and is 2 to 4 mm in diameter. Tektites are product of a meteorite hitting earth and creating big impact zone. Sediments from the impact zone are melted forming tektites and are spread around the area of the impact. One such event occurred in South China Sea around 700kya and these tektites are found in Mid- Pleistocene sediments in Luzon. These micro tektites found in Tanggapan cave might have been deposited in the roof of the cave. When the sinkhole was formed and opened sometime in mid- Holocene, the tektites were eroded and re-deposited inside the cave.
There is also a volcanic ash identified at Spit 6 but is only located in the north wall.

From Spit 7 to Spit 10, no earthenware sherds were recovered. Animal remains and riverine shells were still collected. Flake tools made from chert, radiolarite, chalcedony, quartz, basalt and andesite dominated the cultural material.

Stratigraphic profiling was conducted in the north and east wall of TP3 (Figure 13 and Table 2). There seems to be two sources of sedimentation. The sediment coming from the sinkhole in the north of the trench (labeled as Layers 1-5) and the sediment from the south (Labeled A-C).

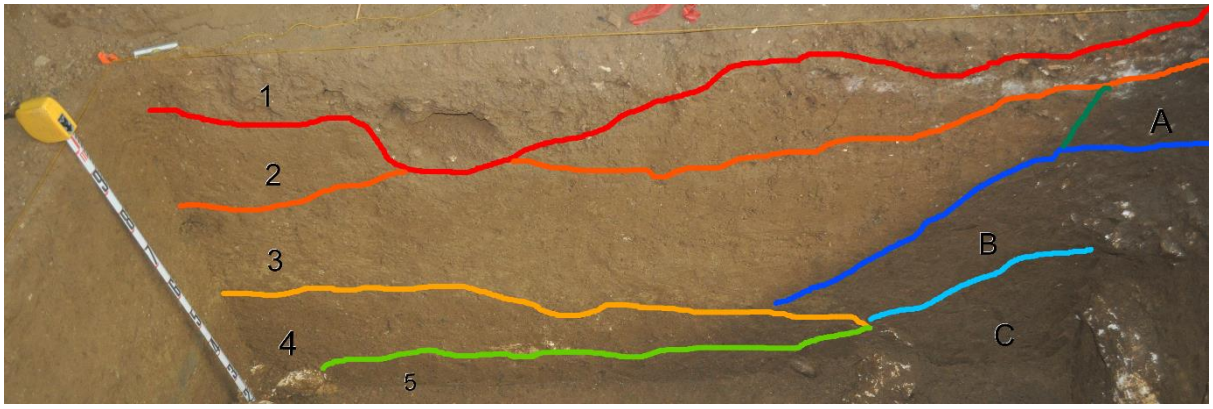


Figure 13 Test Pit 3 Eastern Wall Profile

Table 2 TP3 Profile Description

LAYERS	THICKNESS	COLOR	TEXTURE
Layer 1	10 cm	10 YR, 3/4 dark yellowish brown	silt loam
Layer 2	15 cm	10 YR, 4/3 Brown	silt loam

Layer 3	25 cm	10 YR, 4/6 dark yellowish brown	silt loam
Layer 4	40 cm	10 YR, 4/6 dark yellowish brown	clay loam
Layer 5	10 cm	7.5 YR, 3/4 (dark brown	silt loam
A	25 cm	7.5 YR 4/4 Brown	silty clay
B	45 cm	7.5 YR 4/4 Brown	silty clay
C	20 cm	10 YR 4/4 dark yellowish brown	silty clay

TP 3 was auger to verify the depth of the sediment. The auger reached up to 43 cm blow the floor of Spit 10 (or 160 cm below the northern ground surface). No materials was recovered during the augering

Other Activities

The team conducted surveying and mapping of other cave sites. The two nearby caves Yungib 2 (Pinag-ospitalan) and Yungib 1 (Ambush Cave) were mapped using a total station. Other caves surveyed are Binto Cave with coordinate of 121° 4' 20.57" E and 15° 7' 23.52" N. A cave that has no name and located southeast of the House of former Vice Governor Joey Munsayac was identified as a potential archaeological sites (Figure 14). The surface contains earthenware sherds and is undisturbed by treasure hunters. The mouth of the cave is oriented to Northwest with a coordinate of 15^0 06’ 17.18” N and 121^0 04’ 19.07” E.

Figure 14 Potential cave site

The team also conducted public archaeology during the excavation of Tanggapan cave. Tourists passing through the cave were given a brief discussion on the activity and the importance of archaeology (Figure 15).

Figure 15 Conducting Public Archaeology: explaining the archaeological research to guests

Discussion

The Biak na Bato area has been declared both as a Natural Park and a historical shrine. This karstic formation has been a major encampment by then President Emilio Aguinaldo during the Phil-American war. The area was also used by locals as hide out during the Japanese occupation. The names of the caves bear this out such as Tanggapan or a place where people were accepted into the organization, Pinag-ospitalan or place where sick or injured people were cared for and Ambush cave where the enemy were lured to a trap. There is no doubt on the importance of this place in our historical records.

The archaeological excavation at Tanggapan Cave has added a new dimension to the relevance of the place by pushing its time depth. We now have evidence of at least two cultural periods beyond historical accounts: a Neolithic and late Paleolithic periods. These two cultural layers in Tanggapan Cave are similar to what have been found in the Municipality of Peñablanca, Cagayan Province in northern Luzon. Work in Peñablanca has started since 1976 until 2015 and has been the major source of our knowledge of Philippine Prehistory. Now we can be able to connect Biak na Bato in Bulacan to the early human movement going to north of Luzon. The potential for cave sites in Biak na Bato for new knowledge and insights to our past is enormous.

Recommendation

Based on this initial archaeological research in Biak na Bato karstic formation, we were able to show that beyond the historical period, the area has high potential for prehistoric

research. We recommend that a full research be conducted that will involve not only archaeology but a multi-disciplinary team. Reconstructing the past requires a number of approaches such as geology, environmental science, biology, paleontology, geography and history.

We also recommend that a more systematic survey and identification of potential cave sites be conducted. This will require a proper cave assessment and classification. From this list of identified cave sites, we can then rank and prioritize which cave has the highest potential for prehistoric research.

The analysis of the archaeological materials from Tanggapan Cave is the next step for this project. The faunal remains must be identified to genus if not to specie level (Figure 16). The lithic material must undergo both technological and functional analysis (Figure 17). The earthenware pots will be analyze base on its morphology and possibly its source (petrography) (Figure 18). Verification of the micro-tektite will also be undertaken in consultation with geologist. The modified bone will be analyzed by comparing the form and possible function with other known bone implements (Figure 20). In order to pin down the exact time period of the two cultural layers, a radiocarbon dating program must be undertaken.

Figure 16 Deer (Cervid) tooth and bone (Left) and Pig (Suid) teeth and tusk (Right)

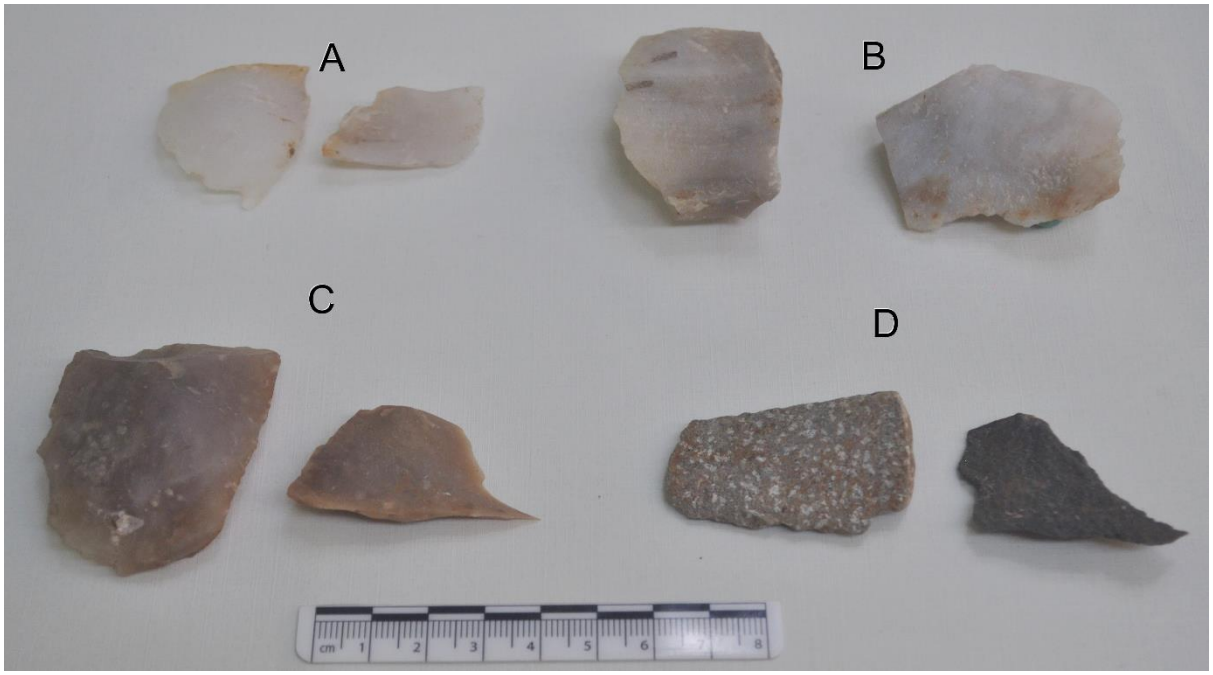


Figure 17 Flake tools made from A. Quartz, B. Chert, C. Chalcedony, and D. Andesite

Figure 18 Earthenware sherds with incised design

Figure 19 Micro-tektites recovered from Tanggapan Cave

Figure 20 Modified bone: 1 possible spatula, 2 and 3 possible pendant