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Re-Interpreting a Complex Maya Burial at Tutu Uitz Na

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Abstract

In 2017, John Walden led an excavation of the Tutu Uitz Na intermediate elite center, found in the Maya site of Lower Dover, Belize. He and his team uncovered two burials, designated SG1-BU2 and SG1-BU3. Their initial report claims that there were three individuals, all sacrificially bound and killed within an eastern triadic shrine. In 2019, Dr. Kirsten Green-Mink and Justine Bye, both of the University of Montana, re-analyzed the Tutu Uitz Na burials and performed a comprehensive bioarchaeological analysis. SG1-BU2 was found to contain three individuals – 2 adults and 1 subadult. SG1-BU3 contained one adult, likely of high status as they presented cranial and dental modifications. None of the individuals were found to have any binding material, nor did the layout of the skeletal elements strongly validate a sacrificial theory. We propose that alternative scenarios be considered in explaining the presence of these interments in the Tutu Uitz Na eastern triadic shrine. The purpose of the 2019 analysis is to better explain mortuary behavior and the identities of those interred within the highly ritualized space of the eastern triadic shrine.

Introduction

During the 2017 field season, excavations led by John Walden, from the University of Pittsburg, were performed in Lower Dover's Tutu Uitz Na intermediate elite center (Fig. 1), designated SG-1. Lower Dover, Belize, is an ancient Maya site involved in a settlement archaeology project by the Belize Valley Archaeological Reconnaissance Project (BVAR). Excavation of a looter's trench in SG-1 uncovered two intrusive burials (Fig. 2), referred to as SG1-BU2 and SG1-BU3 (Walden et al. 2018). SG-1 is considered part of an eastern triadic shrine, a multi-building architecture pattern that typically held significant religious and societal importance to the Maya (Coe, M. and Houston, S. 2015; Hendon, J.A. and Joyce, R.A. 2004).

Interpretations of the SG-1 burials are necessary because it helps further understanding of Maya activities performed in a ritual setting in an eastern triadic shrine. Bioarchaeological analyses of such events assist in mortuary archaeology in understanding death rituals, cultural anthropology through human interactions, and Mesoamerican archaeology as a whole by clarifying findings in monumental architecture.

In 2017, Mary Swearingen lead an initial analysis of the recovered skeletal remains out of SG-1 (Walden et al. 2018). Bioarchaeological analysis in a formal lab setting was performed in the 2019 field season, in the Cahal Pech lab, led by Dr. Kirsten Green-Mink, of the University of Montana, and her undergraduate honors student Justine Bye. The purpose of updating the analysis of SG1-BU2 and SG1-BU3 in a formal lab setting is to officially inventory all recovered skeletal elements, determine the minimum number of individuals (MNI) present, complete a biological profile per individual, and provide limited insight into mortuary interpretation from the lab analysis along with information from the 2017 excavations.

Bioarchaeological Analysis Results

The 2018 report notes that three individuals were present. However, after cleaning and inventorying the remains, it was discovered that there are actual four individuals in the SG-1 burials (MNI=4). SG1-BU2 contained a subadult and two adults, and SG1-BU3 consisted of one adult. Each individual's biological profile is below. Profiles typically include age, sex, stature, and other unique identifying characteristics such as pathologies, modifications, and/or trauma. Due to poor preservation in the Belize jungle, degradation of skeletal remains is inevitable, and a complete biological profile was not possible for each individual.

SG1-BU2 Individual 1

SG1-BU2 Individual 1 is approximately 50% complete, with hands, feet, legs, lower arms, pelvic girdle, mandible, and cervical vertebrae recovered. The majority of the axial skeleton and skull are missing, which is in line with the original 2017 excavation report in that the burial was disturbed. A full inventory can be found in Appendix A.

Based on the analysis, SG1-BU2 individual 1 is likely a young adult female, opposed to what was originally stated in the 2017 field report. Presence of a preauricular sulcus, a thin ischiopubic ramus, and a central arc were observed on the left coxal bone. Although young males can present feminine traits in the pelvic girdle, a combination of all three characteristics points more readily at the individual being female (White, T. 2012; Buikstra, J. and Ubelaker, D. 1994). The femoral head was measured at 45.3 mm, which is considered of indeterminate sex.

SG1-BU2 individual 1 was likely 15 – 29 years of age upon death, with a higher probability being between 20 – 24 years. Age estimates were determined using the Suchey-Brooks (1990) method on the left pubic symphysis and the Lovejoy et al. (1985) method on the

right auricular surface (White and Fokens 2005; Brooks and Suchey 1990; Lovejoy et al. 1985). Scores determined were stage 1 and stage 1 and 2, respectively.

Stature for SG1-BU2 Individual 1 is indeterminate. The long bones were too fragmented to be used for a stature estimate. The original report claims SG1-BU2 Individual 1 to be 188cm tall (Walden et al. 2018). However, no details on taking measurements in situ were explained nor does the burial map show any complete long bones to be measured and/or recovered.

Analysis of the original map paired with 2019 osteological inventories (Fig. 3) also reveal that the mandible labelled H on the burial map likely does not belong to Individual 1. The placement of the “H” mandible plus the presence of other mandibular fragments for Individual 1 points more readily at the “H” mandible belonging to a different individual.

Finally, there were no notable pathologies found on SG1-BU2. Trauma was taphonomic only, with post-mortem breakage on skeletal elements due to poor preservation.

SG1-BU2 Individual 2

SG1-BU2 individual 2 is approximately 30% complete. Only the upper appendages, few cranial fragments, cervical vertebrae, an assortment of ribs, the pelvic girdle, and both feet were recovered. As with individual 1 in the same burial, similar trends in incompleteness of the axial skeleton correlate with the disturbed looters trench theory in the 2017 field report. A full inventory can be found in Appendix A.

This individual is likely an adult female. The mastoid process of the left temporal scored as a 1 (Buikstra, J. and Ubelaker, D. 1994). A preauricular sulcus was observed on the left os coxa, and the recovered ulna had very gracile muscle attachment landmarks. The combination of these three traits are frequently associated with female individuals (White, T. 2012). Epiphyses

on distal and proximal appendages recovered had fused, indicating the individual is likely an adult. The auricular surfaces were too damaged to score. No other reliable aging characteristics were recovered to give a smaller age estimate range.

Stature is indeterminate due to the fragmentary nature of the remains. No pathologies were observed, and trauma consists of taphonomic post-mortem damage due to poor preservation.

SG1-BU2 Individual 3

SG1-BU2 individual 3 only had three teeth to indicate its presence in burial 2 among the other remains. Using dental aging charts from Ubelaker, the cusp development and sharp incomplete roots suggest the individual was 1 year +/- 4 months old upon death (White and Fokens 2005; Buikstra, J. and Ubelaker, D. 1994). Due to the fragile nature of infant remains, it is not surprising that only a handful of molars and no other skeletal elements survived. A full inventory and photos (Fig. 4) for SG1-BU2 individual 3 are found in Appendix A and B, respectively.

SG1-BU3 Individual 1

SG1-BU3 individual 1 is approximately 90% complete, with only the majority of the ribs and the mandible missing, although fragments of these regions were recovered. Of particular interest, this individual displays platymeria (Fig. 5), or the genetic flattening of the femoral diaphysis (White, T. 2012). Photos can be found in Appendix B. The presence of platymeria is interesting, as it is a trait most frequently seen with North American indigenous populations and rarely in Mesoamerican indigenous populations, although not unheard of (Kesterke 2008; Gill

2001; Gilbert and Gill 1990). SG1-BU3 individual 1 is laid in a consistent anatomical layout, suggesting that this burial was not disturbed like the previous individuals were. A full inventory and photos can be found in Appendix A.

The sex of the individual is indeterminate, but leans slightly more female. The gonial angle is rounded but has robust masseter attachments. We observed that other muscle attachment sites along the long bones were fairly gracile. Using Buikstra and Ubelaker scoring standards, sexing scores are as follows: L mastoid 2, R mastoid 2, L/R orbits 3, and R sciatic notch 3 (Buikstra, J. and Ubelaker, D. 1994).

Considering how complete SG1-BU3 individual 1 is, many of the precise aging landmarks were not well preserved. It can only be said that this individual was likely a young adult upon death, probably around 21 years of age, due to the presence of fully developed 3rd molars (White and Fokens 2005; Buikstra, J. and Ubelaker, D. 1994).

A nearly complete set of dentition was recovered. Moderate to severe occlusal wear was observed, and modifications were found on incisors and premolars. The incisors were carved in the “Witz” style, a status symbol depicting a mountain (Scherer 2015). The premolars had a square-like modification carved into the buccal bulge (Fig. 6). It is unclear at this time what social signifiers the premolar modifications portrayed. SG1-BU3 individual 1 also displays flattening of the frontal bone (Fig. 7); however, the cranium is incomplete so no determination of the method of cranial deformation can be determined. The cranial and dental modifications, and that they were interred in an eastern triadic shrine, likely indicate that this individual was of high status (Romero-Vargas et al. 2010; Geller 2006). Photos can be found in Appendix B.

No clear pathologies were observed, and only post-mortem taphonomic damage due to poor preservation was noted.

Mortuary Interpretation

SG1-BU2 was determined to have at least three individuals (MNI=3). Differentiation in preservation and burial soil was noted in the original report and suggests the possibility of two separate interment events for the adults. It is unclear at this time if the infant was buried alongside either of the two adult individuals or if the infant had their own interment event. The original report also suggested that the two adults were bound in a sacrificial fashion. No physical evidence of binding practices or binding materials were found during analysis of the remains, nor does the skeletal assemblage layout strongly validate a sacrificial theory. Alternative scenarios should be considered.

SG1-BU3 had one individual (MNI=1) and was found underneath SG1-BU2, suggesting an earlier interment than the other individuals. The difference in depth is not immediately clear upon reading the 2018 report, but due to a significantly more complete recovery, we believe that it was much less disturbed by the looter's trench. Consistent anatomical layout of the remains seen in the map suggests that SG1-BU3 is a primary interment. The 2018 report claims that this individual was also sacrificially bound; no physical evidence of binding or binding materials were found with this individual either. The individual was found with arms laid straight and knees flexed, but this type of burial practice can be found in other Maya sites and is not explicitly associated with sacrificial interments (Novotny et al. 2018; Scherer 2015).

Summary of Findings

After cleaning, inventorying, and studying landmarks on each skeletal element, it was determined that SG1-BU2 had one additional individual than what was originally reported in the field (Walden et al. 2018). SG1-BU3 consisted of one adult likely of high status in the community. SG1-BU3 likely was interred before SG1-BU2, and neither strongly support the sacrifice theory presented by the field analysis (Walden et al. 2018). Finding multiple burials, particularly the infant and the high status adult, in an eastern triadic shrine suggests that these deaths may have been highly ritualized events.

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Appendix A: Skeletal Inventories for Tutu Uitz Na (SG1) Burials

SG1-BU2 Individual 1

- L outer edge mandible (condyle toward gonial angle)
- L rib frag
- L distal ulna
- L distal radii and shaft frag
- L scaphoid
- L lunate
- L triquetral
- L trapezium
- L trapezoid
- L capitate
- L Hamulus
- 1-5 L metacarpals
- 5 L distal hand phalanges
- 4 L intermediate hand phalanges
- 5 L proximal hand phalanges
- 3 phalange frags associated with L hand
- cervical vert frags
- R distal radii
- R distal ulna
- R scaphoid
- R lunate
- R triquetral
- R trapezium
- R trapezoid
- R capitate
- R hamate
- R pisiform
- 1-5 R metacarpals
- 3 R distal hand phalanges
- 4 R intermediate hand phalanges
- 5 R proximal hand phalanges
- L os coxa (small to large frags); includes pubic symphysis and iliac crest
- R os coxa (small to large frags); includes pubic symphysis frags, auricular surface, and acetabulum
- Sacral frags
- Coccyx
- L proximal femur and shaft frags
- R proximal femur and shaft frags
- L distal tibia and shaft frags
- L proximal fibula and shaft frags
- R distal tibia and shaft frags
- R proximal fibula and shaft frags
- L calcaneus
- L talus
- R calcaneus
- R talus
- R cuboid
- R navicular
- R 1st cuneiform
- R 2nd cuneiform
- R proximal foot phalanx
- R intermediate foot phalanx
- R distal foot phalanx
- 2 small foot frags associated with R foot
- 8 small misc. frags
- 1 possible mandibular frag (inferior edge/sulcus)
- R distal femur frag
- Frags from “near feet and os coxa” (original report)

SG1-BU2 Individual 2

- Left temporal
- Cervical vert frags
- Sacrum frag
- R auricular surface and acetabulum frags
- L auricular surface and acetabulum frags, small misc. os coxa frags
- Small rib blade frags
- Tibia shaft frags
- Lots of tiny misc. frags
- Proximal R ulna and shaft frag
- Lots of small misc. cranial frags
- R radial shaft frags
- L ulna shaft frags
- R scaphoid
- R 3rd metacarpal
- R sesamoid
- 2 R proximal hand phalanges

- 1 R intermediate hand phalanx
- 1 possible R metacarpal frag (cannot determine which exact one)
- 2 R misc. hand frags
- Fibula frag
- Vertebral facet/mandible frag
- R talus
- R radius (M on map)
- Mandible (H on map)
- R phalanges/metacarpals from Bu2 unassigned
- L MC5 (J) (mislabeled on map)
- “frags north of extra tibia” (original map)
- L MTs/hallux from Bu2 unassigned
- All R foot from Bu2 unassigned
- Metacarpal frags (K on map) Bu2 unassigned

SG1-BU2 Individual 3

- R deciduous mandibular 2nd molar
- L deciduous mandibular 2nd molar
- R deciduous mandibular 1st molar

SG1-BU3 Individual 1

- R calcaneus (3 frags)
- R talus
- 1-5 R metatarsals
- R intermediate cuneiform
- R navicular
- R cuboid
- 3 R intermediate foot phalanges
- 6 misc. small frags associated with R foot
- L calcaneus frag
- L talus frag
- 1st L metatarsal distal frag
- 3 L metatarsal shaft frags (cannot determine which exact ones they are)
- 2 small misc. frags associated with L foot

- R tibia shaft frag and medial malleolus
- R proximal femur, shaft frags, and distal frags
- Sacral frags
- 5 small misc. hand/foot frags (found near pelvis)
- L os coxa frag with acetabulum
- R os coxa frag with acetabulum
- L tibia shaft frags
- L fibula shaft frags
- L femur shaft frags and head
- 2 lumbar verts with frags
- R scaphoid
- R lunate

- 2 R metacarpal shaft frags (cannot determine which exact ones they are)
 - 4 R proximal hand phalange frags
 - 4 R intermediate hand phalanges
 - 1 misc. frag associated with R hand
 - R ulna frags
 - R radii frags, including radial head
 - R humerus frags, including head, shaft, and olechranon process
 - 5 thoracic verts with assorted frags, including 4 neural arch frags and various body/arch frags
 - 66 small assorted rib frags; including a R/L 1st rib, 4 L rib head frags, and 6 R rib head frags
 - L proximal ulna shaft with small shaft frags
 - L humerus shaft frags and head
 - L proximal radii shaft frags
 - R acromial end of clavicle
 - R scapula frag with glenoid fossa and acromion/coracoid processes
 - L scapula frag
 - R/L mandibular frags with gonial angle, masseter, and mandibular notch
 - 16 small to medium misc. mandibular frags
 - 3 cervical verts, atlas, axis, and 16 misc. arch/facet frags
 - R/L frontal (with orbits and sinus cavity)
 - R/L temporal
 - R/L parietal frags and 3 frags with indeterminate siding
 - 5 sphenoid frags
 - 6 occipital frags
 - 15 misc. cranial vault frags
 - 5 misc. facial bone frags
- approx. 90 small misc. crania frags

SG1-BU3 Individual 1 Dentition

(With occlusal wear scores via Buikstra & Ubelaker 1994)

L maxillary:

- 1st incisor (n/a due to mod)
- 2nd incisor (n/a due to mod)
- canine (n/a due to mod)
- 1st premolar (1)
- 2nd premolar (2)
- 1st molar (4)
- 2nd molar (3)
- 3rd molar (2)

L mandibular:

- 1st incisor (n/a due to mod)
- 2nd incisor (n/a due to mod)
- canine (2)
- 1st premolar (2)
- 2nd premolar (2)
- 1st molar (4)
- 2nd molar (4)
- 3rd molar (4 with large carries that have deteriorated half the tooth)

R maxillary:

- 1st incisor (n/a due to mod)
- 2nd incisor (n/a due to mod)
- canine (n/a due to mod)
- 1st premolar (1)
- 2nd premolar (2)
- 1st molar (5)

R mandibular:

- 1st incisor (n/a due to mod)
- 2nd incisor (n/a due to mod)
- 1st premolar (2)
- 2nd premolar (2)
- 1st molar (3)
- 2nd molar (3)
- 3rd molar (4)

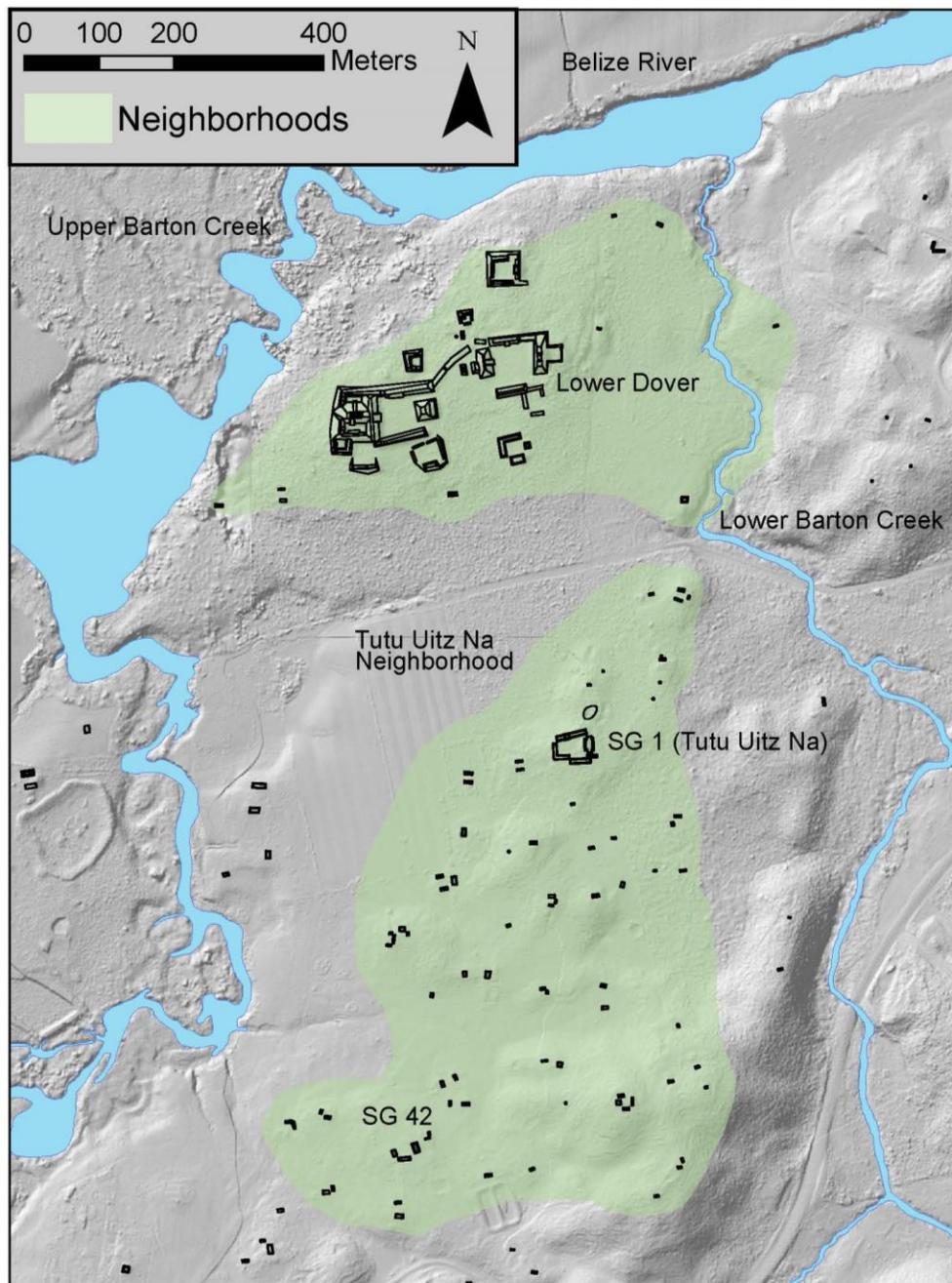
Appendix B: Photos

Fig 1: Lower Dover and the surrounding settlement groups, with Tutu Uitz Na and Structure SG1. Original map produced in Walden et al. (2018).

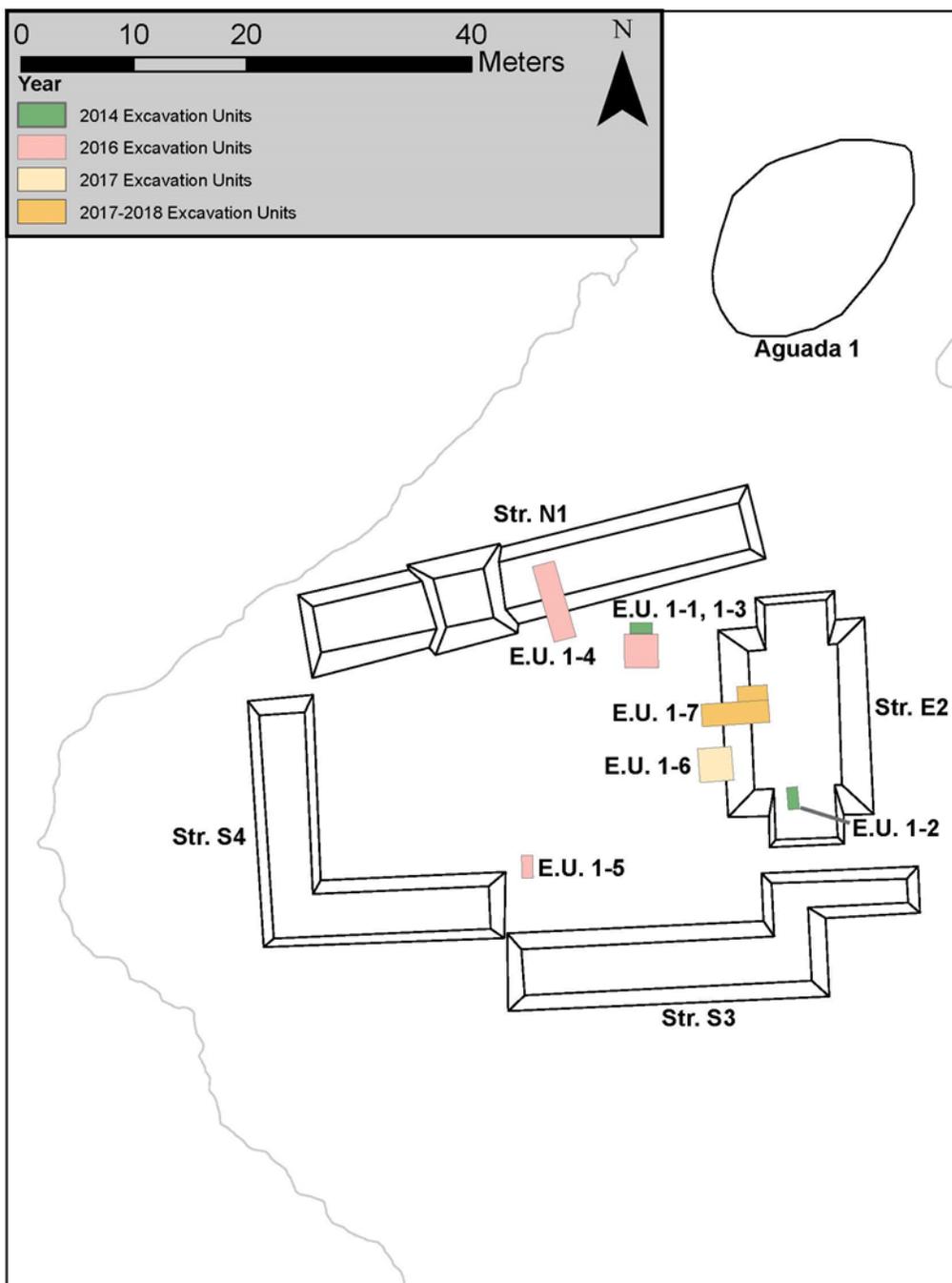


Fig. 2: Map of Tutu Uitz Na with structures and units labeled. Original map produced in Walden et al. (2018).

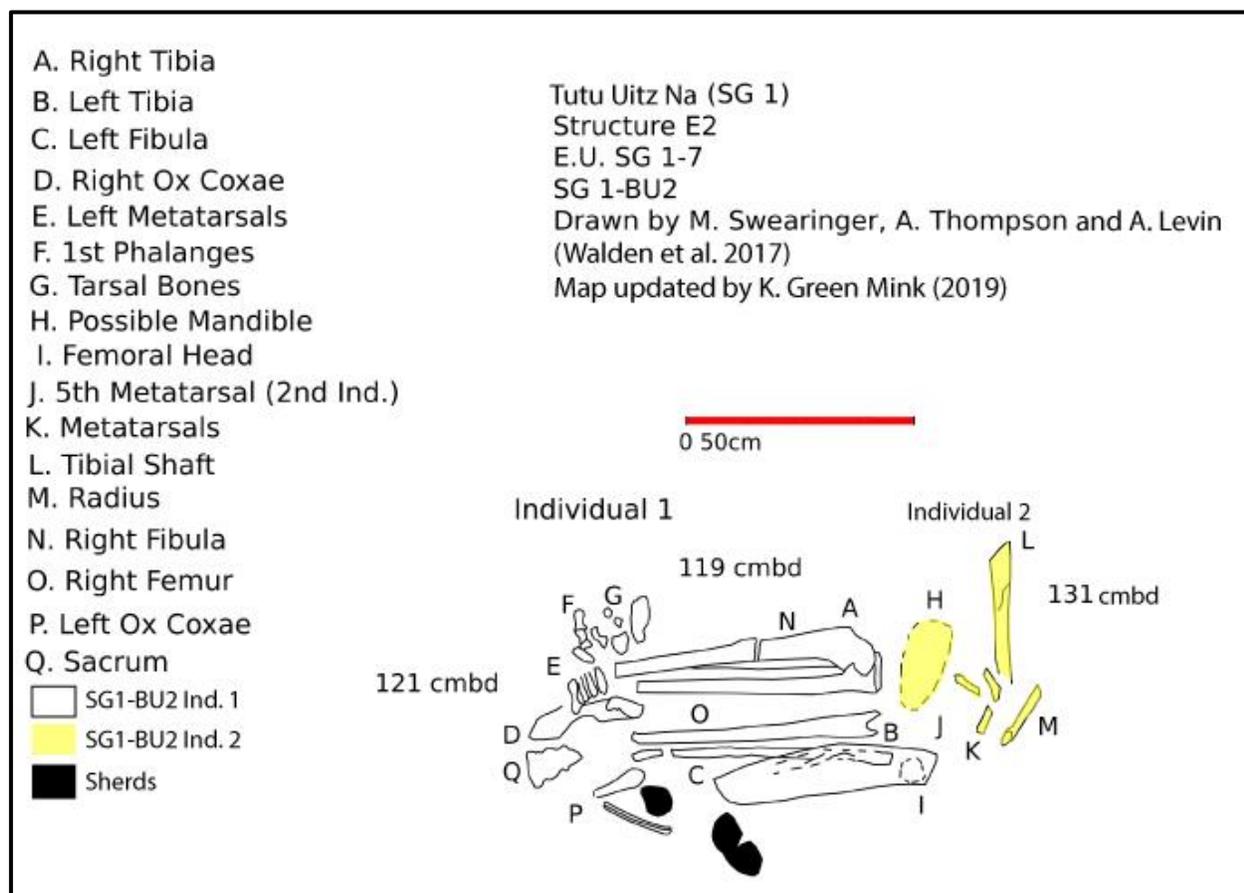


Fig. 3: SG1-BU2 Burial map with Individual 1 and Individual 2 elements color-coded. Original map produced in Walden et al. (2018) and reproduced with edits, with permission from the author, by Dr. Green-Mink (2019).



Fig. 4 SG1-BU2 Individual 3 dentition, occlusal view, from right to left: left deciduous mandibular 2nd molar; right deciduous mandibular 2nd molar; and right deciduous mandibular 1st molar.



Fig. 5 SG1-BU3 Individual 1 right femur, anterior view, displaying platymeria.



Fig. 6 SG1-BU3 Individual 1 modified dentition, labial view. From left to right: R maxillary 1st premolar; R maxillary 2nd incisor; R maxillary 1st incisor; L maxillary 1st incisor; L maxillary 2nd incisor; and L maxillary 1st premolar.



Fig. 7 SG1-BU3 Individual 1 cranial modification of the frontal bone, left lateral view. The white line shows a typical curvature of a non-modified skull. The anterior frontal eminence shows flattening and a bulge where materials may have been wrapped around the skull.