



Research Article

Nested Constructions in the Yucatán Lowlands: Ancient Maya Marketplaces?

Ivan Šprajc 

Research Center of the Slovenian Academy of Sciences and Arts, Ljubljana, Slovenia

Abstract

Recent research has identified numerous distinctive architectural complexes in the central and western Maya Lowlands. Characterized by concentric arrays of low structures, these assemblages are consistent with Conquest-period descriptions of central Mexican marketplaces. Predominantly dating to the Classic period (ca. A.D. 250–900), they are also remarkably similar to the East Plaza of Tikal and the Chiik Nahb complex at Calakmul, both interpreted as markets based on multiple lines of evidence. The low, narrow, elongated mounds arranged in concentric circles or rectangles are likely remnants of platforms that once supported perishable stalls for displaying goods, with the intervening aisles functioning as walkways. Associated major structures and annexed courtyards may have accommodated administrative authorities or served as storage facilities. Stone altars and shrine remains within these complexes, along with the occasional presence of ballcourts and ceremonial buildings, align with well-documented religious and ritual aspects of Mesoamerican trade. While further research will undoubtedly detect more of these nested constructions, their distribution appears to be geographically limited. Since the available evidence strongly suggests that they represent a regional variant of ancient Maya built markets, this study also explores their distribution in relation to major trade routes, environmental constraints, and regional economic specializations.

Resumen

Investigaciones recientes han identificado numerosos complejos arquitectónicos distintivos en las Tierras Bajas Mayas centrales y occidentales. Caracterizados por arreglos concéntricos de estructuras bajas, estos conjuntos corresponden a las descripciones de los mercados en el centro de México en la época de la Conquista. Predominantemente fechados en el periodo Clásico (c. 250–900 d.C.), también son notablemente similares a la Plaza Este de Tikal y al complejo Chiik Nahb en Calakmul, ambos interpretados como mercados a partir de múltiples evidencias. Es probable que los montículos bajos, angostos y alargados, dispuestos en círculos o rectángulos aproximadamente concéntricos, sean restos de plataformas que en su momento sostenían puestos de materiales perecederos para exhibir mercancías, mientras que los pasillos intermedios habrían funcionado como vías de circulación. Por su parte, las estructuras mayores asociadas y los patios anexos pudieron haber alojado autoridades administrativas o servido como instalaciones de almacenamiento. Los altares de piedra y los restos de santuarios dentro de estos complejos, junto con la presencia ocasional de juegos de pelota y edificios ceremoniales, son congruentes con los bien documentados aspectos religiosos y rituales del comercio mesoamericano. Aunque investigaciones futuras sin duda revelarán más de estas construcciones anidadas, su distribución parece estar geográficamente limitada. Dado que, según los datos disponibles, resulta altamente probable que se trate de una variante regional de mercados mayas construidos, este estudio también explora su distribución en relación con las principales rutas de comercio, las peculiaridades ambientales y las especializaciones económicas regionales.

Keywords: Maya Lowlands; archaeology; architecture; trade; marketplaces

Palabras clave: Tierras Bajas Mayas; arqueología; arquitectura; comercio; mercados

One of the results of our recent archaeological surveys in eastern and central parts of the Mexican state of Campeche (Šprajc 2023, 2025; Šprajc et al. 2021, 2022) was the discovery of many rather unusual architectural complexes composed

primarily of low, elongated, and narrow structures arranged in roughly concentric circles or rectangles. Ruhl et al. (2018) previously identified several compounds of this type in southwestern Campeche, suggesting that they represent a regional variant of ancient Maya marketplaces. The present study supports their interpretation but also shows that these complexes were distributed across a broader area of the Maya Lowlands.

Email: ivan.sprajc@zrc-sazu.si

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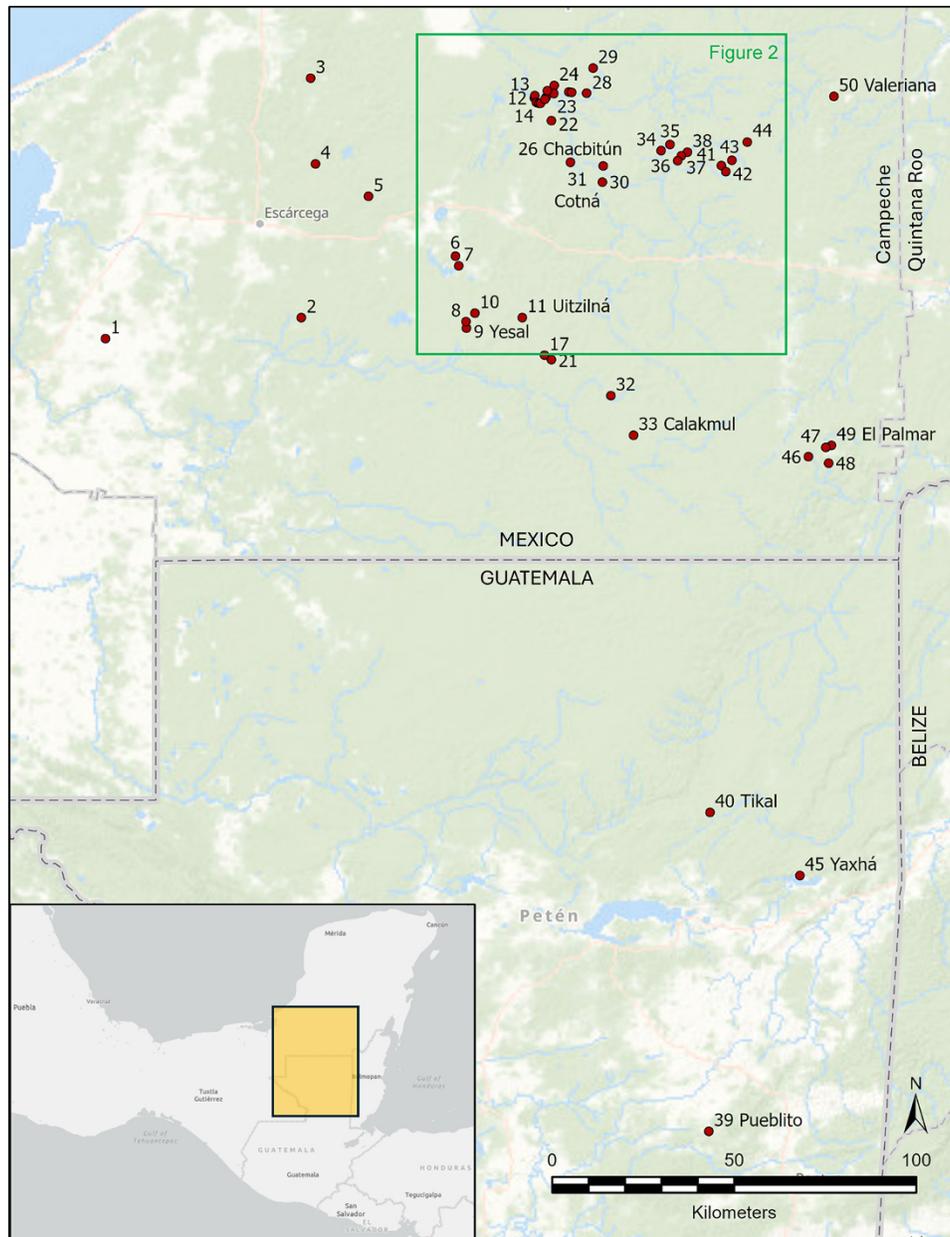


Figure 1. Map of the area with nested complexes.

Ruhl et al. (2018) detected most of these complexes—referred to as nested constructions—on NASA G-LiHT (*Goddard's LiDAR, Hyperspectral & Thermal Imager*) lidar transects covering the Yucatán Peninsula. By examining these swaths and some other airborne laser scanning (ALS) datasets, I identified 50 nested constructions and numbered them consecutively from west to east. Their distribution is shown in Figures 1 and 2. Their locations and other data are given in Table 1, whereas their layouts appear in Figures 3a, 3b, and 3c (visualizations of lidar-derived digital terrain models in these and other figures were generated with Relief Visualization Toolbox, using Visualization for Archaeological Topography; Kokalj et al. 2019).

It should be noted, however, that the sample of nested constructions discussed here is necessarily incomplete. Because

these complexes consist mostly of low platforms, they are difficult to detect through field inspections only. They are relatively easy to identify in lidar imagery, but my sample—aside from including a few previously explored and published cases (Table 1)—is based on lidar datasets to which I had access. Kenichiro Tsukamoto generously shared lidar data for the area of El Palmar, a major site in southeastern Campeche (Tsukamoto et al. 2026). I also examined publicly available G-LiHT (<https://gliht.gsfc.nasa.gov/>) and Alianza M-REDD+ (Walker 2015) lidar datasets. Additionally, for a few zones in the Calakmul and Balam Ku Biosphere Reserves, we acquired ALS data as part of our research projects. In 2016, the National Center for Airborne Laser Mapping (NCALM, Houston, USA) conducted lidar flights in the Chactún area and, in 2023, in five zones to the west (Figure 2). Field surveys were carried

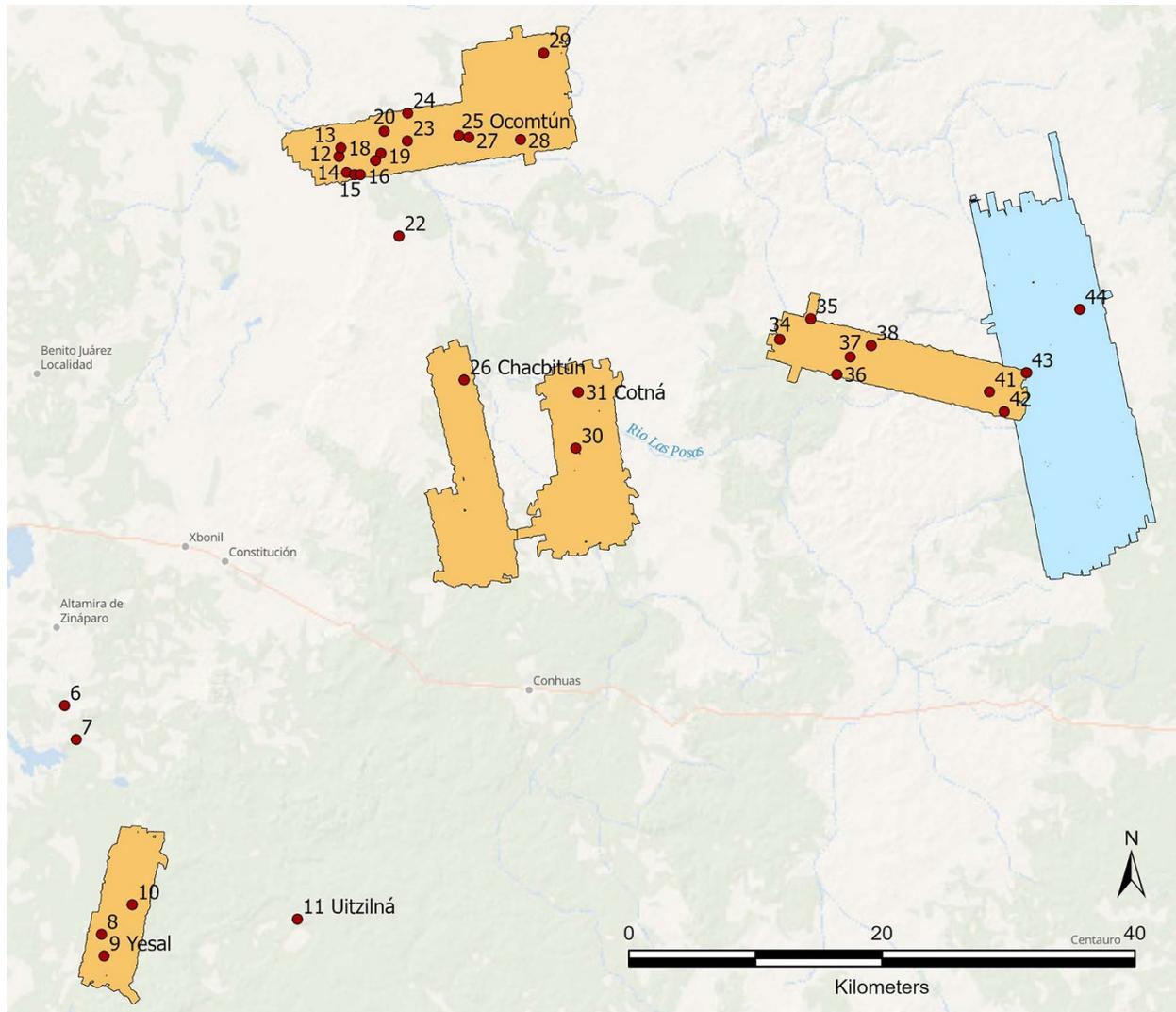


Figure 2. Map of the area with higher density of nested complexes. Also marked are the zones for which lidar data were acquired in 2016 (Chactún region, in blue) and 2023 (in orange).

out in the Chactún area (Šprajc 2015, 2021; Šprajc et al. 2021, 2022) and in four other zones (Šprajc 2023, 2025). Fieldwork in the zone stretching west of the Chactún area and the one around the site of Yesal (mentioned by Grube 2023:24) is planned for the near future.

Given the limited amount of data this study is based on, there is no doubt that nested complexes, while apparently most common in the central Maya Lowlands, were also built beyond that area. A few constructions of this type were found in the Puuc region to the north (Hill 2023: Figure 9.1). It is also clear that even in the central Maya Lowlands, their distribution was denser than what is shown in Figures 1 and 2. Some were found in the area around Calakmul (Kathryn Reese-Taylor, personal communication November 2025). One was discovered 9 km southeast of the village of Constitución, Campeche, during archaeological rescue works for the Maya Train project (Alejandro Cañas Ortiz, personal communication September 2025), and yet another one at a site near Nicolás Bravo, Quintana Roo (Javier López Camacho, personal communication September 2025). Since their exact locations

and shapes have not been published, these constructions are not included in the sample discussed here. Although further research will undoubtedly detect more compounds of this type, those studied here provide a reasonable basis for proposing their most likely functions.

Possible marketplaces in the Maya Lowlands

During recent decades, the ancient Maya commerce has become an increasingly important subject of archaeological research. Based on different approaches and criteria, possible markets have been identified at various Maya sites. Among the features considered indicative of marketplaces are the types of structures or architectural complexes, their location within settlements and association with other types of buildings, the distribution of certain ceramic types and artifacts, as well as the traces detectable in soils through geochemical analyses (Anaya Hernández et al. 2021; Becker 2015; Cap 2015, 2019; Chase and Chase 2014; Dahlin et al. 2010; Hirth 1998, 2009; Hirth and Pillsbury 2013; Hutson 2017; Jones 2015;

Table 1. Data on nested complexes shown in [Figures 1](#) and [2](#)

No.	Latitude N	Longitude W	Site, group	Publication	Lidar source
1	18.3354	91.1130		Ruhl et al. 2018	G-LiHT I2s502
2	18.3841	90.6294			G-LiHT I2s432
3	18.9439	90.6067	Pixoyal	Ruhl et al. 2018; Merk et al. 2025	G-LiHT I0s395
4	18.7438	90.5946		Ruhl et al. 2018	G-LiHT I2s439
5	18.6681	90.4639		Ruhl et al. 2018	G-LiHT I2s441
6	18.5287	90.2500		Ruhl et al. 2018	G-LiHT I2s445
7	18.5059	90.2418			G-LiHT I2s445
8	18.3746	90.2238	Yesal		NCALM 2023
9	18.3600	90.2221	Yesal		NCALM 2023
10	18.3946	90.2020	Yesal		NCALM 2023
11	18.3849	90.0847	Uitzilná	Šprajc et al. 2014; Ruhl et al. 2018	
12	18.8983	90.0553	F10-b	Šprajc 2023	NCALM 2023
13	18.9041	90.0540	F9-a	Šprajc 2023	NCALM 2023
14	18.8876	90.0498	F11-b	Šprajc 2023	NCALM 2023
15	18.8861	90.0442	G11-b	Šprajc 2023	NCALM 2023
16	18.8862	90.0401	G12-a	Šprajc 2023	NCALM 2023
17	18.2960	90.0304			G-LiHT I2s450
18	18.8954	90.0292	H10-b	Šprajc 2023	NCALM 2023
19	18.9003	90.0254	I10-a	Šprajc 2023	NCALM 2023
20	18.9151	90.0230	I8-a	Šprajc 2023	NCALM 2023
21	18.2860	90.0134		Ruhl et al. 2018	G-LiHT I2s450
22	18.8449	90.0127	J16-a	Šprajc 2023	
23	18.9088	90.0066	K9-a	Šprajc 2023	NCALM 2023
24	18.9273	90.0064	K7-a	Šprajc 2023	NCALM 2023
25	18.9123	89.9702	Ocomtún, A-7	Šprajc 2023	NCALM 2023
26	18.7479	89.9664	Chacbitún	Šprajc 2025	NCALM 2023
27	18.9112	89.9632	Ocomtún, B-2	Šprajc 2023	NCALM 2023
28	18.9096	89.9264	S9-a	Šprajc 2023	NCALM 2023
29	18.9678	89.9099	U3-a	Ruhl et al. 2018; Šprajc 2023	NCALM 2023
30	18.7018	89.8870	W32-a	Šprajc 2025	NCALM 2023
31	18.7395	89.8853	Cotná	Šprajc 2025	NCALM 2023
32	18.2014	89.8667		Ruhl et al. 2018	G-LiHT I2s452
33	18.1086	89.8105	Calakmul, Chiik Nahb	Carrasco and Cordeiro 2012	
34	18.7754	89.7423			NCALM 2023
35	18.7891	89.7203			NCALM 2023

(Continued)

Table 1. (Continued.)

No.	Latitude N	Longitude W	Site, group	Publication	Lidar source
36	18.7514	89.7017			NCALM 2023
37	18.7633	89.6924			NCALM 2023
38	18.7712	89.6774			NCALM 2023
39	16.4692	89.6244	Pueblito	Laporte and Chocón 2008	
40	17.2220	89.6216	Tikal, East Plaza	Jones 2015	
41	18.7398	89.5935			NCALM 2023
42	18.7263	89.5829			NCALM 2023
43	18.7527	89.5673	CHRP E19-b	Šprajc et al. 2022	NCALM 2016
44	18.7955	89.5294	CHRP I14-c	Šprajc et al. 2022	NCALM 2016
45	17.0730	89.4005	Yaxhá	Quintana et al. 2000	
46	18.0581	89.3790	El Palmar West	Tsukamoto et al. 2026	NCALM 2017
47	18.0801	89.3366	El Palmar	Tsukamoto et al. 2026	NCALM 2017
48	18.0428	89.3292	El Palmar South	Tsukamoto et al. 2026	NCALM 2017
49	18.0846	89.3221	El Palmar, Hernández Group	Tsukamoto et al. 2026	NCALM 2017
50	18.9018	89.3163	Valeriana	Auld-Thomas et al. 2024	Alianza M-REDD+

Notes: Geographic coordinates (datum WGS84) are in decimal degrees; those of the site of Pueblito are from: Chocón et al. 2011. Where applicable, the site and/or architectural group containing the complex is given, previous publications are cited, and the lidar source is provided, accompanied by the year of acquisition by NCALM or the G-LiHT tile name (transects AMIGACarb_Chiap_Campeche_NFI_Apr2013, AMIGACarb_Yuc_South_GLAS_Apr2013, and AMIGACarb_Yuc_South_NFI_Apr2013).

King and Shaw 2015; Masson et al. 2020; Paris 2021; Shaw 2012; Shaw and King 2015; Terry et al. 2015).

However, identifying Maya markets archaeologically is notoriously difficult. On one hand, there is little information about their characteristics in documentary sources, which are, moreover, from the colonial period and may not be directly relevant to times before the Late Postclassic. On the other, activities in a market did not necessarily require durable constructions recoverable through archaeological methods. Any open space could have functioned as a marketplace (Becker 2013–2014, 2015; Cap 2015:114; Cobos 2024; Hirth 1998:453). This is also suggested by the Yucatec Maya term *k'iwik*, which refers to both a plaza and a market (King 2015:35; Shaw 2012:130; Speal 2014; Tokovinine and Beliaev 2013:171); this polysemy may not be an exception in Mesoamerican languages, as the same applies to the Mixtec term *ya'vi* (Cobos 2024:974). An additional problem is that different activities may have left very similar traces, including soil chemical composition (Becker 2013–2014; King and Shaw 2015; Dahlin et al. 2010:197).

Therefore, it is clear that efforts to identify Maya markets can only result in solid proposals through the application of multiple approaches and analyses conducted with proper methodological rigor (Becker 2013–2014; Eppich and Freidel 2015; Hirth 1998, 2009; Hutson et al. 2017; King 2015:64). Hirth (1998, 2009) outlined several approaches for studying Prehispanic markets. The contextual, spatial, and distributional approaches, with different scales of analysis (cf. Chase and Chase 2020; Hutson 2020), have been applied in several compelling arguments, but their utility for determining the

function of nested construction is severely limited due to the paucity of relevant data (see below). More productive, at this stage of research, is the configurational approach. The most important criteria will be discussed in the next section, but this approach essentially relies on spatial and architectural configurations most likely shaped by market behavior (Hirth 1998:453). Among the various architectural layouts that have been interpreted as ancient Maya marketplaces, the East Plaza of Tikal and the Chiik Nahb complex of Calakmul are particularly relevant to the present discussion because of their striking similarities to the formal characteristics of other nested constructions.

The Chiik Nahb complex of Calakmul, with a roughly square ground plan, has a number of small structures along its perimeter and several rows of low mounds in the inner space (Figure 3b: complex 33; Carrasco Vargas and Cordeiro Baqueiro 2012:Figure 2). The only major building is Structure 1, which is particularly interesting because of the murals found in its substructure. The paintings represent various persons engaged in different activities related to a range of comestibles and other goods, such as basketry, ceramics, textiles, and wood (Carrasco Vargas and Cordeiro Baqueiro 2012; García Barrios 2017). While it is a prevalent opinion that these murals depict activities in a marketplace (Dahlin et al. 2010:196; Hull 2010; Jones 2015:70, 86; Martin 2012:80; Tokovinine and Beliaev 2013; Wurtzburg 2015), some researchers contend that they represent food consumption or a ritual feast attended by high-ranking individuals (Boucher and Quiñones 2007; Carrasco et al. 2009; Cobos 2024:984; García Barrios and Carrasco Vargas 2008; Vázquez

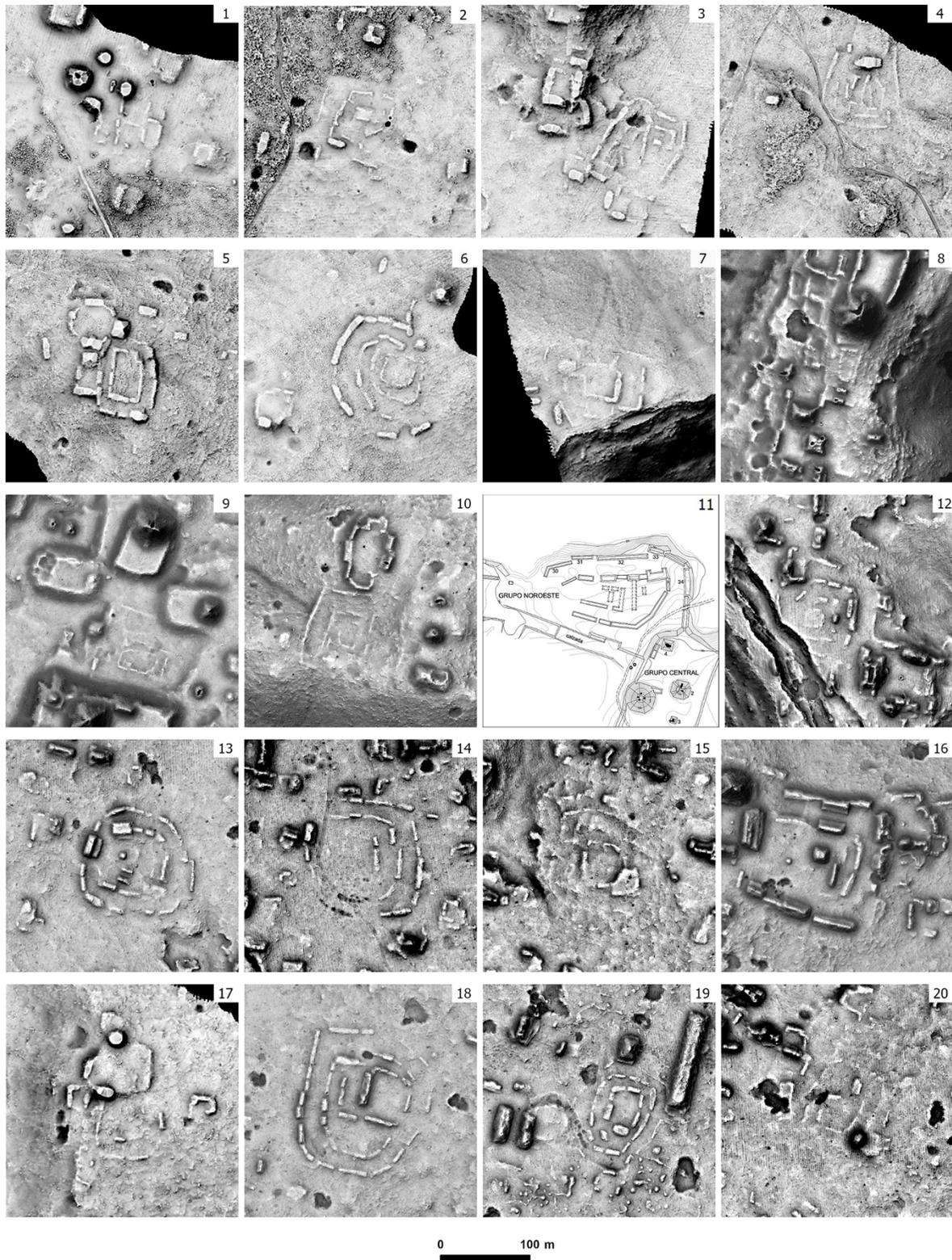


Figure 3a. Layouts of nested complexes I to 20 (map of complex 11 after Šprajc et al. 2014:plano 2).

L. 2006:108). However, Tokovinine and Beliaev (2013) point out that these murals differ from depictions of courtly life on vessels and monuments in a number of ways. The setting seems to be some kind of open space, some of the many products shown are almost never mentioned or portrayed

in courtly settings, and the baskets stacked with clay vessels and other containers are absent in the Classic Maya depictions of palace environments. Furthermore, several characters wear wide-brimmed hats, which are commonly associated with trade, and the individuals represented are not

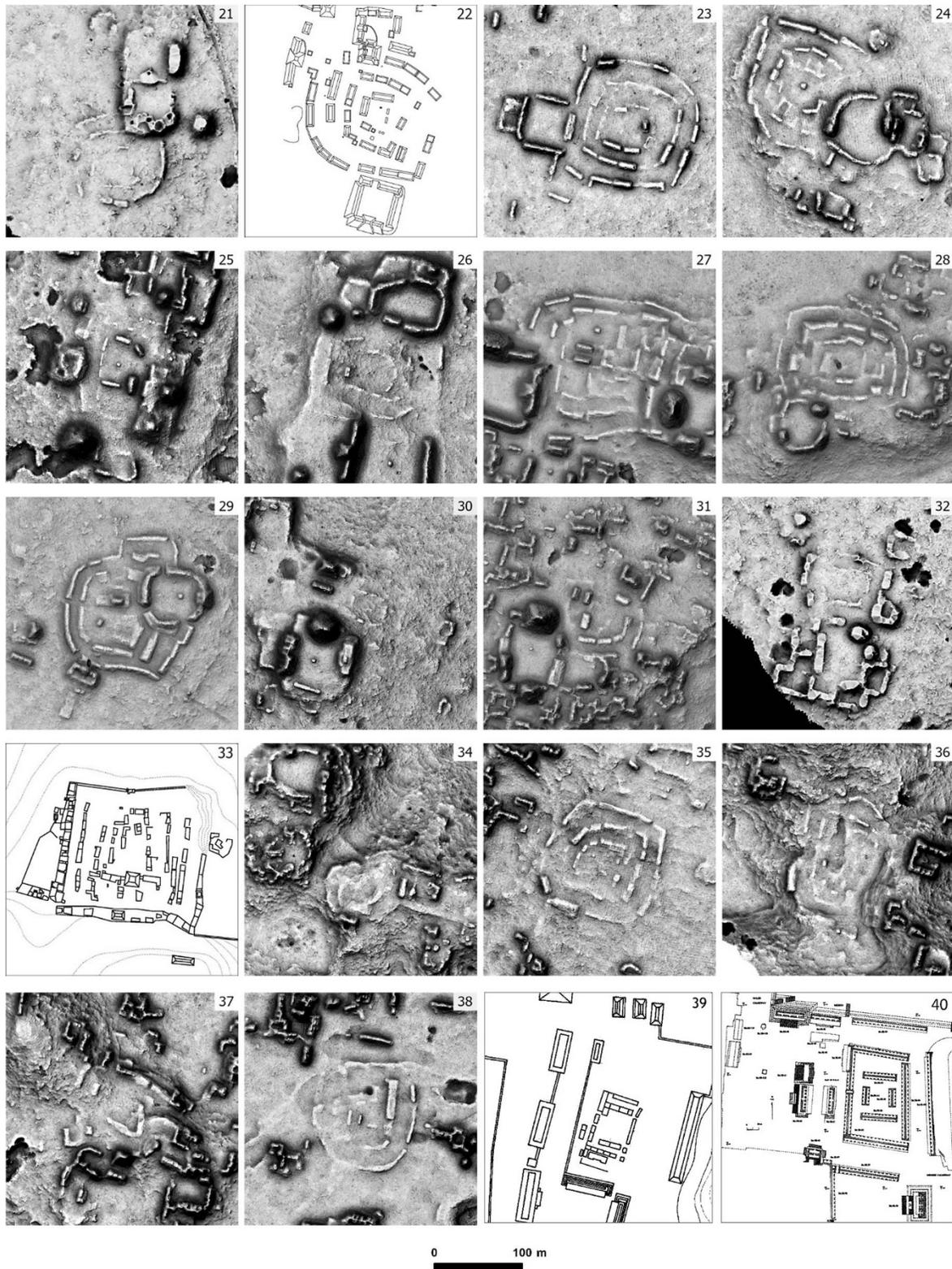


Figure 3b. Layouts of nested complexes 21 to 40 (maps of complexes 22, 33, 39, and 40 after Šprajc 2023:Figure 3.20, Carrasco Vargas and Cordeiro Baqueiro 2012:Figure 2, Laporte and Chocón 2008:Figure 5, and Jones 2015:Figure 2.1, respectively).

identified by personal names. Instead, the accompanying hieroglyphic captions are generic terms associating the characters with the goods depicted (Martin 2012). Since each caption begins with the agentive prefix *aj* (“one of;” “one

who”), followed by the name of a particular product, Hull (2010:251) draws attention to the fact that in the present-day Ch’orti’ Mayan, the names of certain goods preceded by this prefix regularly designate the persons who sell them at

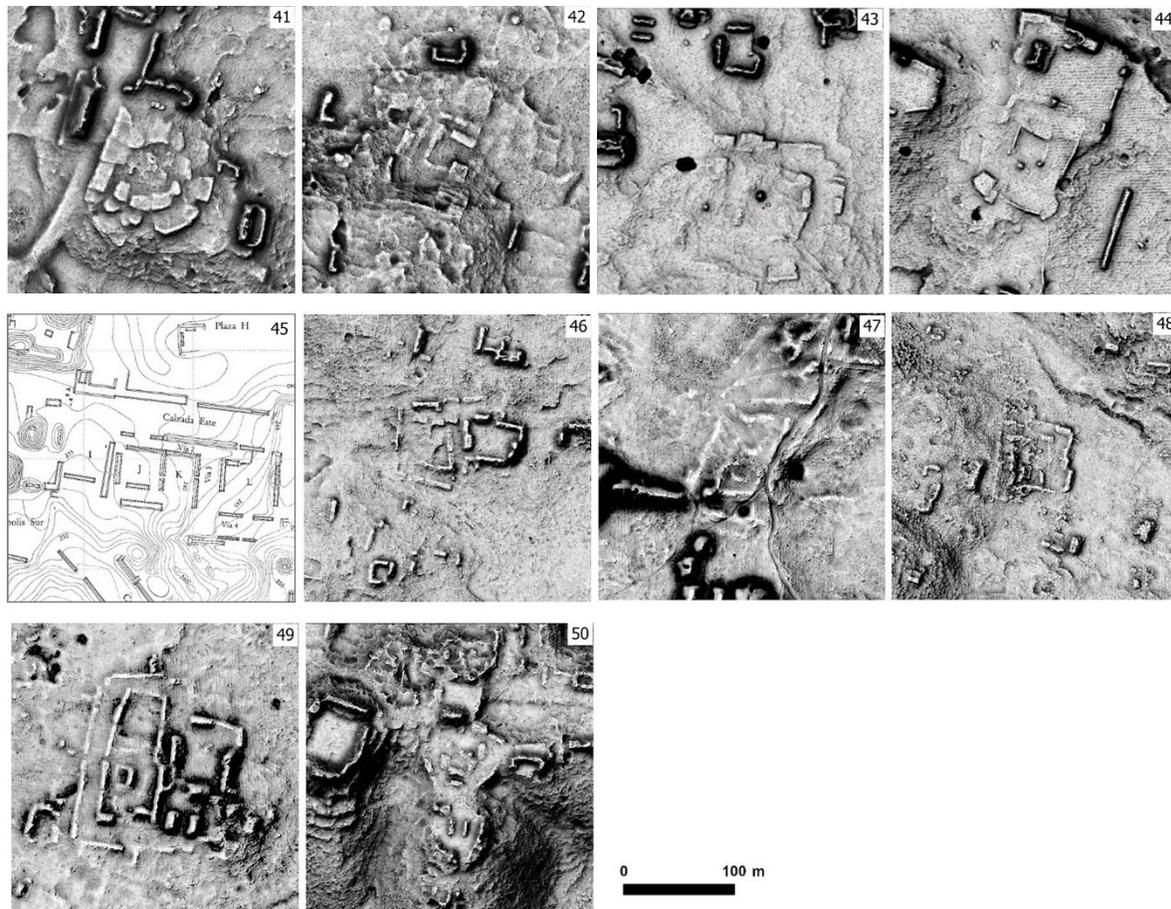


Figure 3c. Layouts of nested complexes 41 to 50 (map of complex 45 after Quintana et al. 2000:Figure 16).

markets. By this analogy, labels *aj-ul*, *aj-waqj*, *aj-ixi'm*, or *aj-atz'aam*, appearing in Calakmul murals, likely refer to persons selling atole, tamales, maize, and salt, respectively. In addition, it seems significant that the murals show a number of female figures engaged in commercial transactions, considering that women play a prominent role in modern Maya markets (Eppich and Freidel 2015:199; Wurtzburg 2015).

In light of this information, the proposal that the Chiik Nahb complex served as a marketplace seems compelling. However, the various interpretations may not be mutually exclusive and may apply to the nested constructions in general. To judge by the ethnographic evidence, marketplaces must have been regularly used for various purposes, including craft production, food preparation, feasting, and other activities that served for promoting different types of social relations (Cap 2015:113–115; Cobos 2024:973–974; Dahlin et al. 2010:198–199; Hirth 2009; Shaw 2012:132; Valencia Rivera 2020:32).

Tikal's East Plaza (Figure 3b: complex 40; Jones 2015:Figure 2.1) has a layout similar to that of the Chiik Nahb complex. It consists of several long and narrow buildings that form two rectangles, one inscribed within the other, larger one. As described by Jones (2015), it was the abundant information about the Postclassic Tlatelolco market in central Mexico given in early colonial sources (Feldman 1978) that initially suggested the presence of a marketplace in the East Plaza of Tikal, but this interpretation is supported by the

very characteristics of its structures. Whereas other gallery buildings, which are typically long, multiroomed and multi-doorway structures, are often interpreted as having had a residential and/or administrative function, those in the East Plaza are distinctive because “they are characterized by long narrow rooms with façades of close-set doorways separated by wall segments that are narrower than the doorways themselves” (Jones 2015:72–73). Furthermore, “the buildings lacked the interior curtain tie holders, seating-height benches, or transverse dividing walls found in other Tikal buildings, with the exception of secondary transverse walls that line a passageway through the center of the medial wall of the quadrangle” (Jones 2015:80). Jones (2015:85) concludes:

It is hard to imagine a use for this huge set of buildings other than as a marketplace. A school or convent would be a possible alternative, except for the fact that the inward-facing façades of the quadrangle are no different from the outward-facing ones. The fact that similar activities therefore likely took place both inside and outside the quadrangle argues against a cloistered function.

While Jones (2015:86) agrees that the murals in the Chiik Nahb complex may depict either marketplace activities or ritual feasting, he argues that their location at the entrance to the complex with a layout similar to that of the East Plaza of Tikal favors the marketplace interpretation.

Based on their similarities with the East Plaza of Tikal and the Chiik Nahb complex of Calakmul, a few other architectural assemblages in the Maya Lowlands have been interpreted as marketplaces: a nested complex in the central part of the site of Pueblito, Petén, Guatemala (Figure 3b: complex 39; Laporte and Chocón 2008); the arrangement of elongated structures south of the East Causeway and west of Group A at Yaxhá, Petén, Guatemala (Figure 3c: complex 45; Becker 2015:104; Jones 2015:86); and a few nested constructions in the El Palmar area, Campeche, Mexico (Figure 3c: complexes 46–49; Tsukamoto et al. 2026). Another space located north of El Palmar site core may also have been a marketplace (Tsukamoto et al. 2026), but is not included here because, being enclosed by a single quadrangle of elongated structures, it is not strictly a nested construction.

Nested constructions: Chronology and archaeological contexts

The chronological data obtained through excavations of nested complexes at Calakmul and Tikal suggest that they were not built before the Classic period (ca. A.D. 250–900). The East Plaza of Tikal was dated to the Late Classic (Jones 2015:70), whereas Structure 1 of the Calakmul's Chiik Nahb complex and its murals have several stages; the earliest pertains to the late phase of the Early Classic, but most of the ceramics excavated and depicted on the murals is from the Late Classic (Boucher and Quiñones 2007; Carrasco Vargas and Cordeiro Baqueiro 2012).

The nested construction at Pueblito, Guatemala, consists of several low and elongated platforms that seem to have supported a series of small rooms (Figure 3b: complex 39). All of the three construction stages correspond to the Late and Terminal Classic periods (Laporte and Chocón 2008).

Test excavations in the nested complex of the Hernández Group of El Palmar (Figure 3c: complex 49) identified a single occupation phase corresponding to the Late Classic period (ca. A.D. 600–850), although parts of the group may have been built earlier, to judge by Early Classic and Preclassic sherds recovered in the construction fill. Considering that, unlike in other plazas of El Palmar, no plaster floors were detected in the Hernández Group, its plazas seem to have had earthen floors, which would have been appropriate for a marketplace, absorbing rainfall and other fluids spilled on the plazas. Significant amounts of chert microdebitage and an apparently unworked piece of jade, recovered in test pits, are additional features that make the Hernández Group quite different from others at El Palmar (Tsukamoto and Camacho 2018:101–119; Tsukamoto et al. 2026).

During our recent field surveys in central Campeche, Mexico, we inspected complexes 11, 14, 15, 16, 18, 19, 20, 22, 23, 25, 26, 27, 30, 31, 43, and 44, and excavated test pits in some of them (Šprajc 2023, 2025; Šprajc et al. 2022). Also in these cases, few stratigraphic layers and no remnants of plaster floors were detected.

One test pit was excavated in complex 19, which is part of Group I10-a surveyed in 2023 (Op. I10-2; Hernández Gómez 2023:66–68). The ceramic sherds recovered are of the Early and Late Classic types, with 71.06 percent pertaining to the Early Classic period (Dzul 2025a:116).

In complex 23, part of Group K9-a, also inspected during the 2023 field surveys, two test pits were excavated, yielding ceramics from the Late Preclassic through the Terminal Classic periods. In the test pit excavated at the center of the inner space, a concentration of ceramic fragments associated with a stone altar was found (Op. K9-1; Hernández Gómez 2023:57–62). Most of the sherds are from the Late (67.54 percent) and Terminal Classic (29.46 percent of the total) periods (Dzul 2025a:116–117). The other test pit, excavated in front of a major structure (Op. K9-2; Vujanović 2023:79), contained mostly Early (46.46 percent) and Late Classic ceramics (25.20 percent) (Dzul 2025a:117).

The ceramics obtained in the test pit excavated in complex 27, corresponding to group B-2 of Ocomtún surveyed in 2023 (Op. O9-1, Hernández Gómez 2023:53–57), are of the Late Preclassic to Terminal Classic types, but mostly from the Late Classic (70.99 percent) (Dzul 2025a:117).

In the test pit excavated at the center of the nested compound 26, located at the site of Chacbitún surveyed in 2024 (Op. O27-1; Hernández Gómez 2025:49–52), the material from the Late Preclassic to the Terminal Classic periods was found, including fragments of a Terminal Classic censer of the Miseria Aplicado type. However, most sherds are from the Late Preclassic period (51.58 percent) (Dzul 2025b:175).

Given the dimensions of our test pits (2 x 2 m), it is not surprising that the material recovered does not shed much light on the use of nested complexes. It can only be mentioned that small fragments of unidentified bones were found in complex 27, perhaps remains of an animal consumed in the space (Op. O9-1, Hernández Gómez 2023:53–57), and a flint core and a projectile point, both apparently of the same material, were recovered in complex 19 (Op. I10-2; Hernández Gómez 2023:66–68). If these cases reflect food consumption and craft production within these spaces, it may be recalled that marketplaces may well have also served for this kind of activities (cf. Cap 2015:113–115; Hirth 2009; Shaw 2012:132). The production of lithic artifacts is also suggested by material found in the nested complex of Pueblito (Figure 3b: complex 39; Laporte and Chocón 2008:699).

The chronological data exposed above indicate that most of the nested constructions were in use during the Classic period. However, the material recovered in complex 26 of Chacbitún suggests that some of these compounds may well have been built earlier.

Characteristics suggesting a marketplace function for nested constructions

Considering the scarcity and ambiguity of contextual data summarized above, the attempt at evaluating whether the nested constructions served as marketplaces can rely primarily on the configurational approach (Hirth 1998, 2009), specifically on the architectural grammar considered typical of built marketplaces, including features that conceivably reflect activities related to market exchange. Following are the criteria most often cited as indicative of built markets (Becker 2015:92; Dahlin et al. 2010:197–198; Hirth 1998:453, 2009:90; Hutson et al. 2017:248–253; King 2015; Ruhl et al. 2018:84; Shaw 2012:130–132):

- structures and layouts suggesting the existence of a marketplace (low, linear platforms organized in rows within a plaza with relatively easy access);
- presence of a major building or attached space for storage or administrative control;
- ceremonial features;
- presence of a ballcourt;
- strategic location with features facilitating access (streets, causeways);
- proximity of water sources.

These criteria rely heavily on sixteenth-century descriptions of marketplaces in central Mexico, particularly that of Tlatelolco, and on ethnographic studies of present-day or recently documented indigenous markets (Feldman 1978; Hirth 1998, 2009; King 2015). The ethnohistorical data on Maya markets, in comparison with those from central Mexico, are scarce and vague (King 2015:34), but there is linguistic and epigraphic evidence for merchants, including those trading in marketplaces (King 2015:46–53; Tokovinine and Beliaev 2013).

In his critical examination of previous publications on trade and market exchange in the Maya area, Cobos (2024) questions the relevance of the data they present for interpreting ancient Maya markets, arguing that ethnohistorical and linguistic evidence does not support the existence of spaces used specifically as markets among the pre-Postclassic Maya. Cobos is skeptical about interpreting the Chiik Nahb complex at Calakmul as a marketplace, suggesting that the murals in Structure Sub 1-4 might well represent other activities. He proposes that the exchange of goods may have taken place in plazas that, from the fifteenth century onwards, gradually became places used specifically as marketplaces and were not associated with festivities (Cobos 2024:988). Cobos's skepticism seems to stem largely from the absence of Maya markets unequivocally identified through archaeological methods. However, given the considerable degree of both regional and temporal continuity in the Mesoamerican area, ethnographic and ethnohistorical analogies should not be dismissed outright. Instead, they can stimulate hypotheses to be tested against archaeological data. As the following discussion shows, the characteristics of nested complexes satisfy the criteria outlined above.

Structures and layouts suggesting the existence of a marketplace

The nested constructions fit the descriptions of central Mexican marketplaces at the time of the Conquest, which were in special areas and included stalls and shops organized in rows (Hirth 1998:453, 2009:90). Most of the nested complexes are only partially enclosed. Multiple openings in their perimeters allowed relatively easy public access, while fewer entrances in some cases would have served to control or tax both vendors and consumers (Shaw 2012:128). As noted by Ruhl et al. (2018:86), all nested constructions, with concentric arrangements of low, elongated platforms separated by intermediate open spaces, share their sizes and architectural grammar with the East Plaza of Tikal and the Chiik Nahb complex of Calakmul. These two architectural compounds exhibit

approximately rectangular layouts, as do many others in our sample, whereas others tend to have circular or oval plans. Although their shapes often cannot be described as purely circular or rectangular, the most clearly round compounds are concentrated in the area shown in Figure 2, perhaps representing a regional version of the same concept.

The similarities in shape, size, and distribution of structures integrated in all nested complexes suggest that these are all generically related forms. It thus seems reasonable to suppose that they also had comparable functions. Since the low, elongated, and narrow mounds can hardly be attributed a residential function (cf. Jones 2015), it is much more likely that they are remains of platforms that once supported perishable stalls for displaying goods, with isles between the nested rings of structures serving as walkway areas.

Presence of a major building or attached space for storage or administrative control

Several nested complexes include at least one larger structure, which may have served for storing goods or as a residence or office for the authority overseeing the market activities (cf. Cap 2015:114; Jones 2015:81; King 2015:37, 59–60; Ruhl et al. 2018:84; Shaw 2012:131). Also common are smaller annexed courtyards, which have roughly circular or rectangular layouts and are enclosed by minor or major structures (Figures 3a–3c). These may have been areas with restricted access to certain goods (Shaw and King 2015:172) or residences suggesting elite involvement in market activities (Ruhl 2018:87; Shaw 2012:129). By way of analogy, the central Mexican marketplaces at the time of the Conquest included buildings or precincts occupied by magistrates who supervised and regulated economic transactions (Hirth 1998:453). Major and minor nested complexes might reflect different degrees of elite involvement or supervision, as also suggested by ethnohistorical sources (King 2015).

Ceremonial aspects

At least some of the annexed compounds must have had both civic and ceremonial functions, since their larger versions appear to be the plazas attached to several nested constructions and surrounded by some clearly religious buildings (Figures 3a–3c: complexes 8, 9, 16, 26, 27, 30, 31, 45, 50, Figures 4–6).

The spatial relationship of nested constructions with ceremonial buildings and compounds is in line with the evidence indicating that trade and markets included religious aspects and were associated with ritual activities (Becker 2015; King 2015:61–62; Shaw 2012:131; Shaw and King 2015:172–173). On one hand, merchant gods figure prominently in visual and written narratives revealing the supernatural and mythical side of trade (Tokovinine and Beliaev 2013). On the other, according to some ethnohistorical sources, markets were near temples (King 2015:35, 57). Also in modern towns, the market is regularly found next to the church (Shaw 2012:128). While this might be a tradition of colonial origin, there are evident similarities between Prehispanic and early colonial markets, suggesting continuity to some extent (Villegas 2010). Furthermore, central Mexican markets had an altar

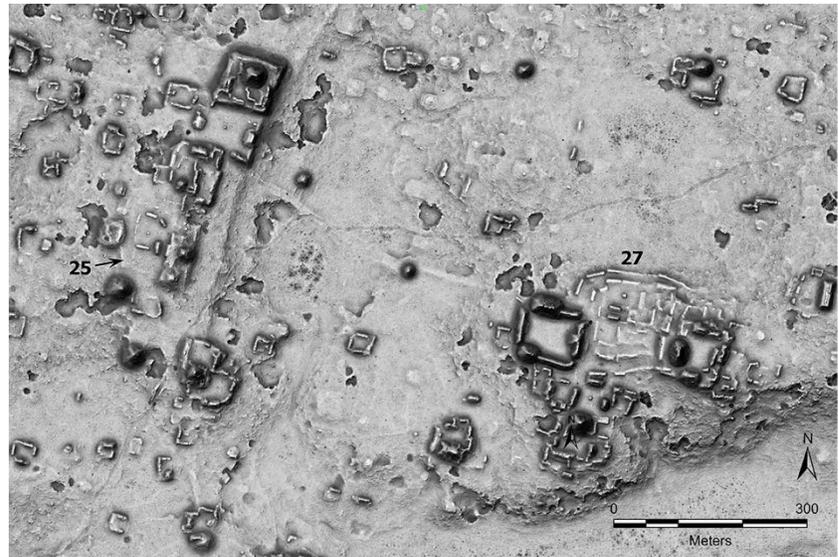


Figure 4. Locations of nested complexes 25 and 27 in Ocomtún.

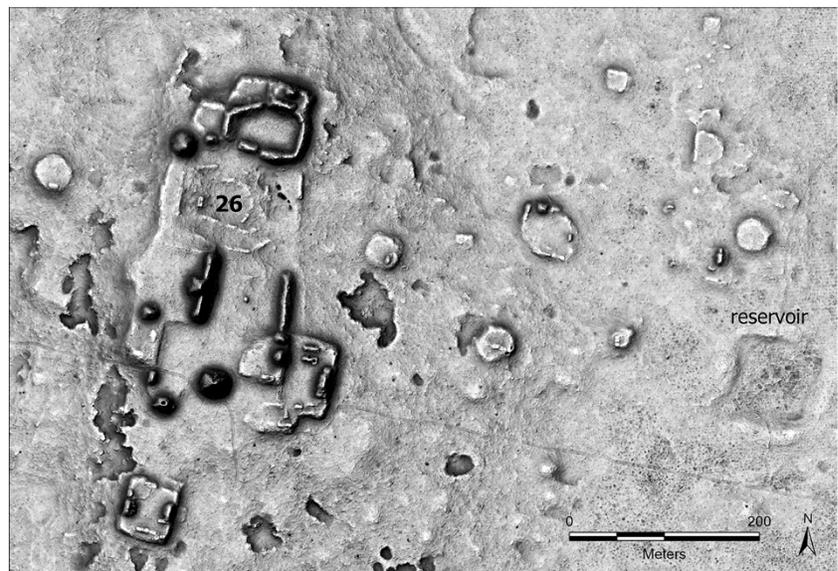


Figure 5. Location of nested complex 26 in Chacbitún.

(*momoztli*) where the god of the market had his place (Berdan and Anawalt 1997:156; Shaw 2012:131). Accordingly, stone altars were found in several nested complexes inspected in the field (Figure 7; Šprajc 2023, 2025). As already mentioned, in the test pit excavated at the center of complex 23, a ritual deposit consisting of a concentration of ceramic fragments associated with a stone altar was found (Hernández Gómez 2023:57–62). Furthermore, stone heaps, most likely remains of shrines, can be seen in many nested constructions, usually in their centers (Figures 3a–3c). Whether these central structures also served for punishing transgressors, as in the Tlatelolco market (Villegas 2010:93–94), is of course a question that cannot be answered with the data at hand.

A special case is complex 16. A partially collapsed cave system in its southern part may well have conditioned the location of this assemblage, considering many analogous cases and the well-known religious and ritual importance of caves

in the Maya worldview (Bassie-Sweet 1996; Brady 1997; Brady and Bonor 1993; Brady and Prufer 2005; Romero Sandoval 2016). The position in which two stone columns were found suggests that they originally pertained to a shrine associated with the caves (Figure 8; Šprajc 2023:21–23).

Presence of a ballcourt

One of the criteria for identifying markets is the proximity of a ballcourt, as these are found in or near the complexes for which a market function seems particularly likely (at Tikal, Calakmul, and Yaxhá: Becker 2015:92, 94, 103, 105; Jones 2015). It may be noted that the ballcourt of Calakmul, included among these cases by Becker (2015:103), is located 190 meters southwest of the Chiik Nahb complex, as part of the Great Acropolis; its conceptual connection with the nested complex is thus questionable. Nonetheless, ballcourts are indeed

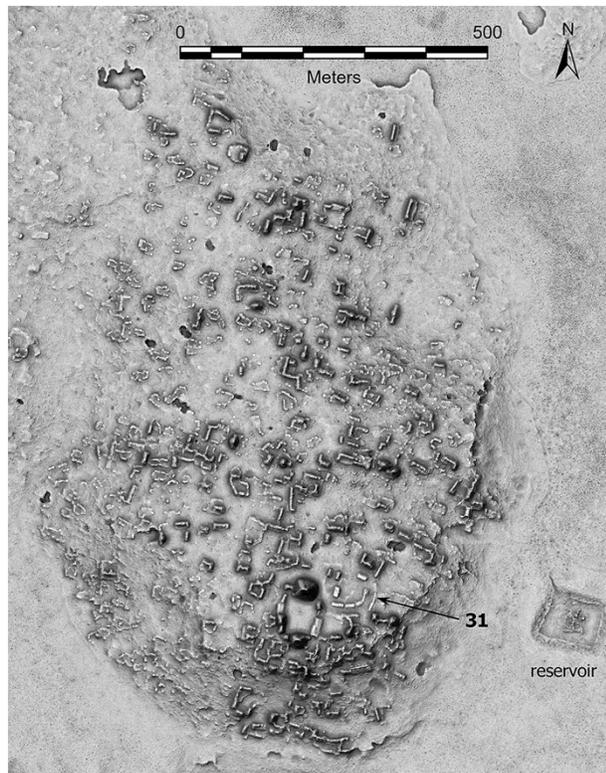


Figure 6. Location of nested complex 31 in Cotná.

found within or in the immediate vicinity of several nested constructions (Figures 3a–3c: complexes 7, 8, 9, 13, 16, 19, 27, 30, 31, 39, 43, 49, 50; Figures 4–6). As suggested by Becker (2015:94), “trade can easily be related to intercity competition in the Maya ballgame, with the movement of goods among various polities. Merchants as well as ‘fans’ may have traveled in tandem with their teams.”

Strategic location and connectivity

It has been assumed that markets occupied central or strategic locations within settlements, with easy access via streets or causeways that would have facilitated the transport of goods (Becker 2015:92, 105; Dahlin et al. 2010:198; Hirth 2009:90; King 2015:57; Shaw 2012:128–129; Shaw and King 2015:170). Peripheral locations connected to site centers with causeways have also been proposed, as in the cases of Caracol, Chichén Itzá, and Palenque (Chase and Chase 2014; 2020; Shaw 2012:129).

As already noted by Ruhl et al. (2018:84), nested constructions are placed in both major and minor settlements, and this has also been suggested for Maya markets (Shaw and King 2015:178–179). Several nested complexes are located in urban cores of major centers of Yesal (8 and 9), Uitzilná (11), Chacbitún (26), Ocomtún (25 and 27), Cotná (31), Calakmul (33), Tikal (40), Yaxhá (45), El Palmar (47), and Valeriana (50) (Figures 3a–3c and 4–6). Many others are placed within or in immediate vicinity of minor residential clusters, while for some of those visible in G-LiHT transects, which are barely 380 m wide, their possible association with settlements remains unclear.

Regarding causeways, the core area of Pueblito, with nested complex 39, has intra-site causeways (Laporte and Chocón 2008). At Ocomtún, a *sacbé* connects the eastern and western sectors of the site, in which nested constructions 25 and 27 are located (Figure 4). In addition, some narrow but evidently constructed paths extend from Ocomtún to the north, crossing a large wetland or *bajo* (Šprajc et al. 2025:16, Figure 2). Except in these cases, causeways are not visible, but their absence does not necessarily imply the nonexistence of walkways, especially on elevated grounds where no major infrastructural investments of this kind were required.

Proximity of water sources

Based largely on ethnographic data, it has been assumed that a marketplace should have been located near a water source (Becker 2015:92; Dahlin et al. 2010:197–198; King 2015:57; Shaw 2012:132). The nested constructions situated in major centers are all relatively near *aguadas*, some of which were artificially modified (Figures 5, 6, 11, and 12). Several complexes lie near La Rigueña River, which is one of the very few perennial streams in the area; the most distant is located 1 km away (Figure 9). But it should be noted that water was also available in numerous *chultuns* and small depressions, as well as in some of the ubiquitous quarries that were eventually adapted to function as water storage facilities (Akpınar et al. 2012; Brewer 2018; Šprajc et al. 2021:6; Weiss-Krejci and Sabbas 2002).

Distribution of nested complexes: Possible reasons

Considering that the nested constructions have been identified in a limited though extensive part of the Maya Lowlands, they seem to represent a regional phenomenon, as already noted by Ruhl et al. (2018:88). However, as mentioned earlier, complexes of this type most likely had a wider and, in some parts, denser distribution, but so far have not been detected (or have been documented, but are not included here because their exact locations have not been published). While they are clearly visible in lidar imagery, the low platforms can hardly be noticed in the generally overgrown environment through field inspections only. The apparent gap in northern Petén, for example, may thus not correspond to reality. There is no doubt that additional nested constructions will eventually be detected by inspecting further lidar datasets, where/when available. Furthermore, Harrison (1981:281, Figure 10.7) observed that, despite some differences, the complexes he labeled *contained rectangles*, which characterize some Maya sites in Quintana Roo, are reminiscent of the East Plaza of Tikal. In addition, the constructions he named *vías* (Harrison 1981:Figure 10.6) appear to be a version of nested constructions. A similar compound, interpreted as a marketplace, was recently detected on lidar-derived images of Dzibanché, one of the largest sites in that area (Estrada-Belli and Balanzario 2025: Figure 3). It is thus possible that this tradition, with somehow modified variants of the same concept, extended farther east (cf. Ruhl et al. 2018:88).

Nonetheless, in light of the available data, it is unlikely that nested constructions were widespread much beyond

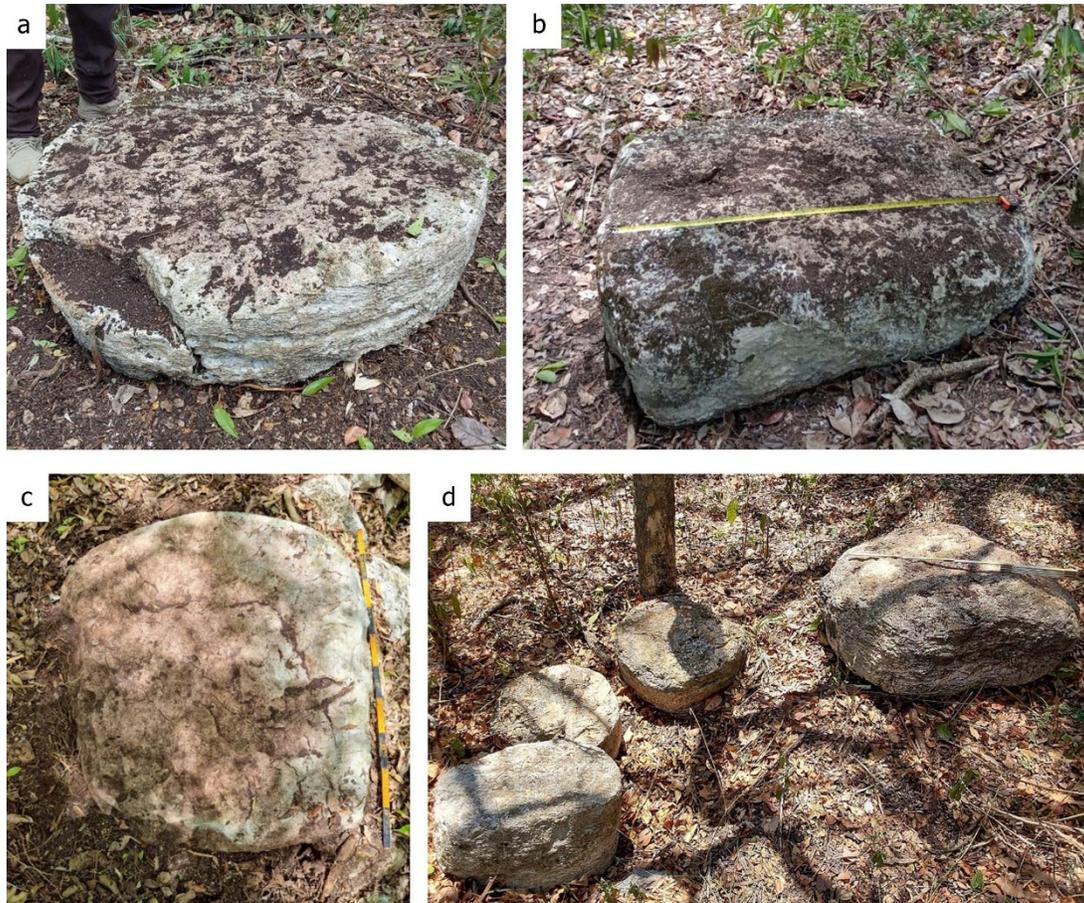


Figure 7. Stone altars found in nested complexes 19 (a), 23 (b), 25 (c), and 26 (d).



Figure 8. Stone columns on the edge of a collapsed cave system in nested complex 16.

the area shown in [Figure 1](#). The evidence examined strongly suggests that they were built marketplaces. However, the utter unlikelihood that only complexes of this type served this purpose implies that different open spaces must have been used for market activities elsewhere in

the Maya Lowlands, although most of them, as it appears, have not left so clearly distinguishable architectural features.

If the high number of nested constructions in central and western Campeche nonetheless calls attention, how can

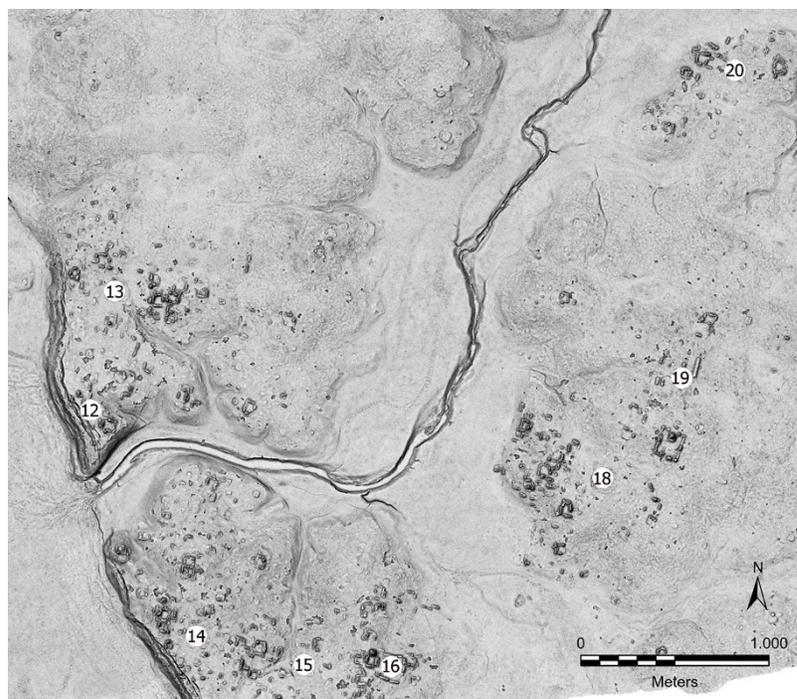


Figure 9. Northwestern part of the surveyed area, with several nested constructions near La Rigueña River.

we explain it? Following are a few possible answers to this question.

According to Ruhl et al. (2018:87), the locations of the nested constructions they identified suggest a network of marketplaces extending between the Gulf Coast and Calakmul. Considering that the distribution of markets would have been partly conditioned by important trade routes (King 2015:57, 64; Shaw 2012), Ruhl et al. (2018:88) recall that much of southwestern Campeche was, during the Postclassic, under the domain of Acalán, a political entity controlled by the Chontal Maya, known for their role in both coastal and inland trade. Significantly, the divine patron of one of the divisions of Itzamkanac, the capital of Acalán, was Ik' Chawa, god of merchants (Tokovinine and Beliaev 2013:171). Since the archaeological site of El Tigre, identified with Itzamkanac, had a long history and reached monumental size as early as the Late Preclassic (Vargas Pacheco 2001, 2010), the trade system in this region most likely had older roots. Regarding regional variations in trade intensity during early colonial times, Tokovinine and Beliaev (2013:171) mention that “to the north and west of the Guatemala Highlands, commerce sometimes appeared to be the primary occupation of entire communities,” with some people dedicated exclusively to trade. Discussing early colonial reports, Cobos (2024:986–988) also suggests that in the area extending from Soconusco and Campeche over Chiapas and Guatemala to the east, there were several trade ports at strategic locations where long-distance merchants conducted transactions using different facilities. If a comparable scenario can be projected back to the Classic period, it would be consistent with the concentration of nested constructions—assuming they were markets—in central and southwestern Campeche. In addition, the sites with nested compounds in eastern Petén may well have been integrated into a trade network connecting them with Caracol in

Belize: the metamorphic resources in the Maya Mountains, located relatively close to this site, provided it with a distinct economic benefit, as they “were used for creating ground-stone artifacts like manos and metates that were in demand in the Maya lowlands” (Chase and Chase 2020:144).

It is highly likely that markets operated at different levels, being involved in local, regional, or long-distance trade (King and Shaw 2015:18). According to Tokovinine and Beliaev (2013:169–170), ethnohistorical sources distinguish among local, itinerant, and professional long-distance traders. There is hardly any doubt that distinctions of this sort also existed in Prehispanic times. As shown by Ardren et al. (2017) in relation to Chunchucmil, certain commodities, such as obsidian and nonlocal ceramic wares, were by necessity distributed through long-distance trade. Another obvious case is salt, represented in the murals of Calakmul’s Chiik Nahb complex (Valencia Rivera 2020). It is thus reasonable to assume that nested constructions in major residential clusters characterized by monumental architecture were intended for long-distance trade supervised by the elites, whereas those in smaller communities may have been used for local exchange and redistribution.

Since many nested complexes are located close to one another, they may have specialized in different types of goods or functioned periodically (Cobos 2024:973; King 2015:58, 2020:22; King and Shaw 2015:18), much like some modern-day *tianguis* (open-air markets). Population growth would have likely created a need for multiple and diverse markets (Becker 2015:93; Ruhl et al. 2018:84; Shaw and King 2015:190–192). Drawing on central Mexican written sources, Hassig (1982) argues that the Aztecs had both daily markets in large cities and those scheduled at intervals that corresponded to elementary calendrical periods, a scenario that, in spite of the lack of supporting evidence, is not unlikely for the Maya area.

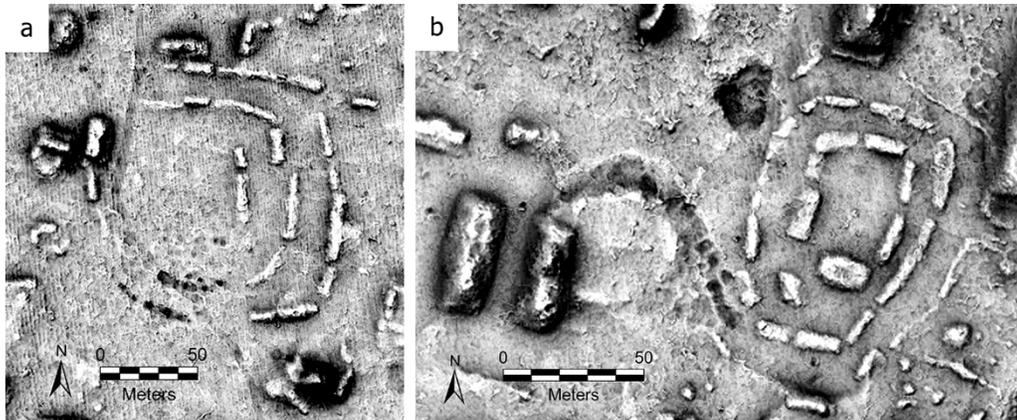


Figure 10. Nested constructions 14 (a) and 19 (b).

As stated by Hassig (1982:347), periodic markets, “which generally meet in smaller population centers, have three interlocking advantages: they allow exploitation of low demand areas by mobile traders, they offer consumers a greater variety of goods by periodically concentrating supply, and by meeting on different days they facilitate the redistribution of commodities in the marketing system to and from higher-level centers.”

A particularly high density of nested constructions is observed in the northwestern lidar-scanned zone of 121 km², where 15 cases were detected (Figure 2). While it may well reflect the diversity of market types, it should also be noted that probably not all of these complexes were in use simultaneously. Although the available chronological data suggest that most of them were built and used during the Classic period, some may have been established after nearby ones had fallen into disuse. It is possible that, with the growth of settlements and increasing commercial exchange, larger spaces were required for that purpose. At Ocomtún, for example, it appears that the nested construction barely visible in the western sector of the site (25) was at some point remodeled and partially covered by major structures, whereupon a new market (27) was built in the eastern sector, occupying a much larger space (Figure 4; Šprajc et al. 2025). Likewise, complexes 14 and 19 seem to have been partially dismantled at some point. In the southern part of complex 14, small cavities up to 0.5 m deep can be seen precisely where, based on the group’s layout, platforms of two outer circles should be. Although the platforms of the inner circle may have been destroyed by the modern trail that crosses the complex, this does not explain the cavities along the outer circle of structures (Figure 10:a). Similarly, a segment of the outer circle of platforms in complex 19 appears to have been destroyed by extraction of material, resulting in a shallow trench (Figure 10:b). If these details suggest that the two complexes fell into disuse at some point, the function of complex 14 may have been transferred to the much more elaborate nested construction 16, located a kilometer to the east, while complex 19 could have been replaced by complex 18, barely half a kilometer to the southwest (Figure 9) (for more information on architectural groups F11-b, G12-a, H10-b, and I10-a, in which these nested constructions are located,

see Šprajc 2023). Clearly, only systematic excavations in relevant locations could clarify the chronological relationships among such closely spaced compounds.

If the nested constructions were markets, as seems very likely, one factor contributing to their density in central Campeche may have been environmental constraints (cf. Eppich and Freidel 2015; Hutson and Dahlin 2017:14). Commercial transactions would have supplied nonlocal items that were harder to obtain (King and Shaw 2015:18). Significantly, the Chactún area and the adjacent strip of land extending westward (Figure 2) are characterized by remarkable extents of terraces and field boundaries in the uplands and by canals and ridges in low-lying wetlands (*bajos*), features clearly related to agricultural techniques (Šprajc et al. 2021). In sharp contrast, these landscape modifications are virtually absent in the lidar-scanned areas to the west (Šprajc 2023, 2025). Since no systematic analyses of soil samples have been done, it remains unknown whether these regional differences reflect variations in soil fertility. However, this possibility is suggested by the largely rocky terrain with thin layers of soil in the area lacking agricultural features, as well as by comments from our local workers regarding its low agricultural potential. If these environmental conditions contributed to regional specializations in subsistence activities, we can infer that areas less suitable for cultivation had a greater need to import and redistribute agricultural products (cf. Beach et al. 2017); one consequence would have been the establishment of a denser network of markets. It should be recalled that storing maize was not a viable option in the humid tropical environment; an alternative would have been to move surplus from productive areas to areas of scarcity through exchange networks (Eppich and Freidel 2015:221–222). Needless to stress, verifying this hypothesis would require systematic research on regional variations in soil fertility (cf. Sedov et al. 2023; Walden et al. 2025). However, it may not be coincidental that a few nested constructions in the polygon extending west of the Chactún area are located in close proximity to extensively terraced slopes and canals in the *bajos* (Figures 11 and 12).

A related question concerns the products or goods that would have been exported in exchange for agricultural products. Again, our regional surveys focused on surface

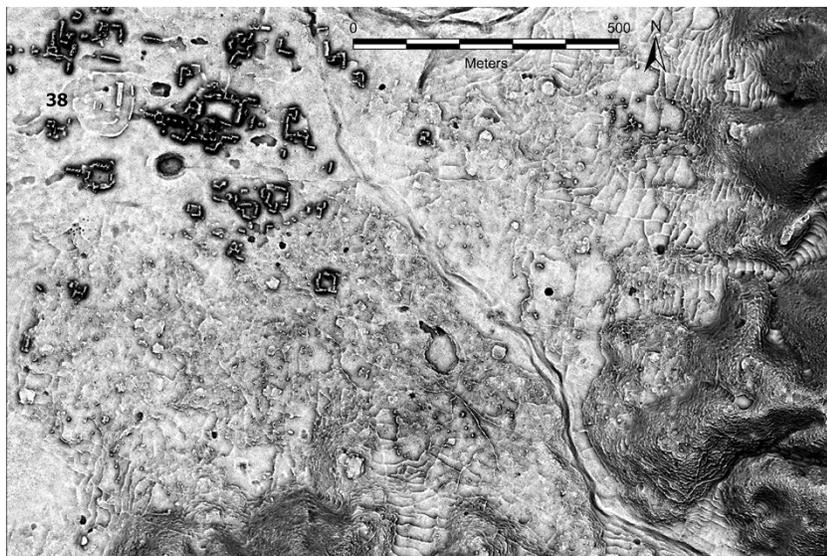


Figure 11. Nested complex 38 is located in a settlement cluster near an extensively terraced area.

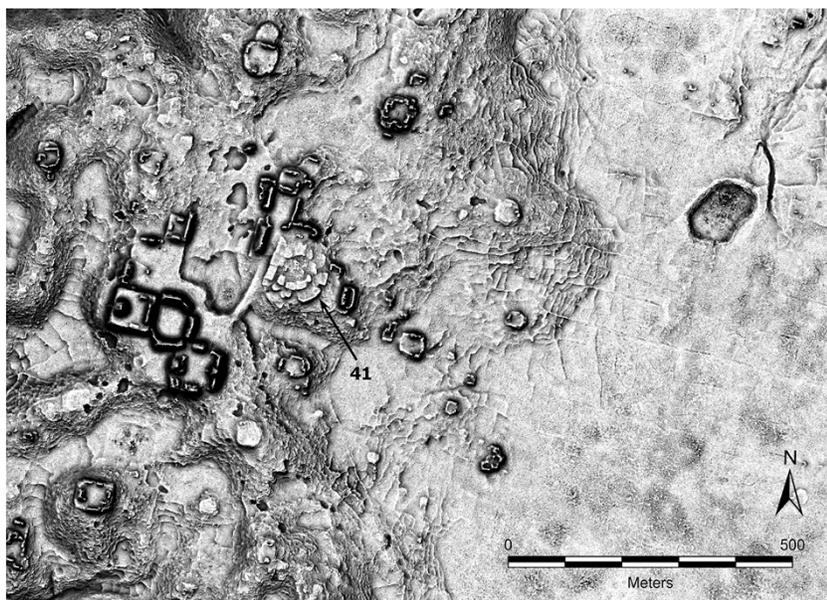


Figure 12. Nested complex 41 is located in a civic and ceremonial center surrounded by terraced slopes and canals in the nearby wetland.

inspection have not yielded sufficient evidence to this effect, but some clues can be mentioned. Examining lidar imagery, we detected concentrations of very low, circular platforms at the site of Cotná and in the surrounding residential clusters, as well as in the area northeast of Ocomtún. Field inspections of several features of this type revealed that they measure less than five meters in diameter and are bordered by rows of stones reaching heights of up to 50 cm. Given their sizes and large numbers, nondomestic functions of these structures are utterly unlikely. While only excavations could provide more reliable answers, it seems most likely that they were workshops of some sort (Šprajc 2025:9–10). Perhaps significantly, one nested construction (31) is located at Cotná (Figure 6), and another (29) lies about eight kilometers northeast of Ocomtún, just west of a concentration of circular platforms.

Another detail that might also relate to environmental peculiarities is that no fewer than eight nested constructions are placed in the proximity of La Rigueña River, with the

most distant one (19) a kilometer away (Figure 9). During our 2023 surveys, we observed an elongated accumulation of stones obliquely crossing the river. In light of archaeological and ethnographic analogies (Barrett and Guderjan 2006; Palka 2024), it seems quite likely that this feature was a dam designed to manage fish populations for large-scale harvesting (Šprajc 2023:17, Figures 3.1–3.3). If so, and if nested constructions were marketplaces, this might explain their concentration in the area, where fish would have been available from the locals in exchange for other goods.

Concluding remarks

Recent research, based largely on available lidar datasets for the Maya Lowlands, has revealed numerous assemblages composed of narrow, low, and elongated platforms arranged in roughly concentric circles or rectangles. While not conclusive, the evidence presented here strongly suggests

that these nested constructions were ancient Maya built marketplaces. They exhibit several features that have been commonly associated with markets and for which alternative explanations are difficult to propose. Their formal characteristics correspond not only to ethnohistorical descriptions of markets in central Mexico but also with layouts of the East Plaza of Tikal and the Chiik Nahb complex of Calakmul, two architectural compounds whose marketplace function is indicated by various types of evidence. The East Plaza complex of Tikal consists of gallery buildings with long and narrow rooms, each accessible through a series of closely spaced doorways. Based on this distinctive layout and other contextual data, Jones (2015:85) concluded that “a use for this huge set of buildings other than as a marketplace” is difficult to imagine. The Chiik Nahb complex at Calakmul has a similar configuration, but even more eloquent are the murals in one of its structures, which most researchers interpret as depicting activities in a marketplace.

In most cases, however, the low, elongated platforms that compose the nested constructions do not appear to have been topped by masonry buildings with rooms. A likely explanation is that they supported stalls made of perishable materials, while the spaces separating the nested rings of structures can be interpreted as corridors that facilitated the circulation of people. Although the compounds are relatively open, the limited number of entrances may have served to control or tax vendors and consumers, while the larger structures or annexed patios would have functioned as storage facilities or spaces for supervisors. Shrines and altars within the nested complexes, as well as ballcourts and religious structures and compounds associated with many of them, are consistent with the ethnographically and ethnohistorically documented relationship between market and ceremonial activities. In sum, the idea that the complexes with this distinctive configuration represent the remnants of built markets appears to be the most viable interpretation in light of the available data, although this function may well have been combined with ritual activities, craft production, and food consumption.

I have also attempted to explain the distribution and regionally variable densities of nested complexes in terms of environmental constraints, regional economic specializations, important trade routes, different types of markets, and chronological differences. It should be reiterated, however, that the distribution of these compounds shown in Figure 1 does not present a complete picture. As noted earlier, a few others have been found, both in the Puuc region to the north and in the central Maya Lowlands, but were not included here due to the lack of published data on their precise locations and shapes. Furthermore, since the characteristics of nested constructions make them difficult to detect with field inspections alone, most of them have been recognized on lidar-derived relief models. Yet lidar data have been acquired only for limited portions of the Maya Lowlands and not all of these datasets are publicly accessible.

Although further research will undoubtedly provide a more accurate picture of the distribution of nested constructions and variations in their regional densities, it seems unlikely that they were equally common throughout the Maya Lowlands. However, their absence, if they indeed functioned as marketplaces, does not imply that markets did not

exist in regions lacking them. As mentioned in the introductory text, several architectural compounds in the Maya area have been convincingly interpreted as marketplaces based on different types of evidence. Given the known regional variability in diverse cultural expressions, it seems obvious that the same activities could have taken place in compounds with different architectural configurations or even in spaces without permanent structures, thus leaving few archaeologically detectable traces.

Due to the limitations of the available data, my interpretation of nested constructions as a variant of ancient Maya built markets relies mainly on the configurational approach and must remain tentative. To assess its validity, it will be essential to apply other approaches, including systematic excavations of some of these complexes, accompanied by geochemical analyses and detailed studies of associated artifacts and organic remains.

Data availability statement. All data needed to evaluate the conclusions in the paper are present in the paper and/or in cited publications

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