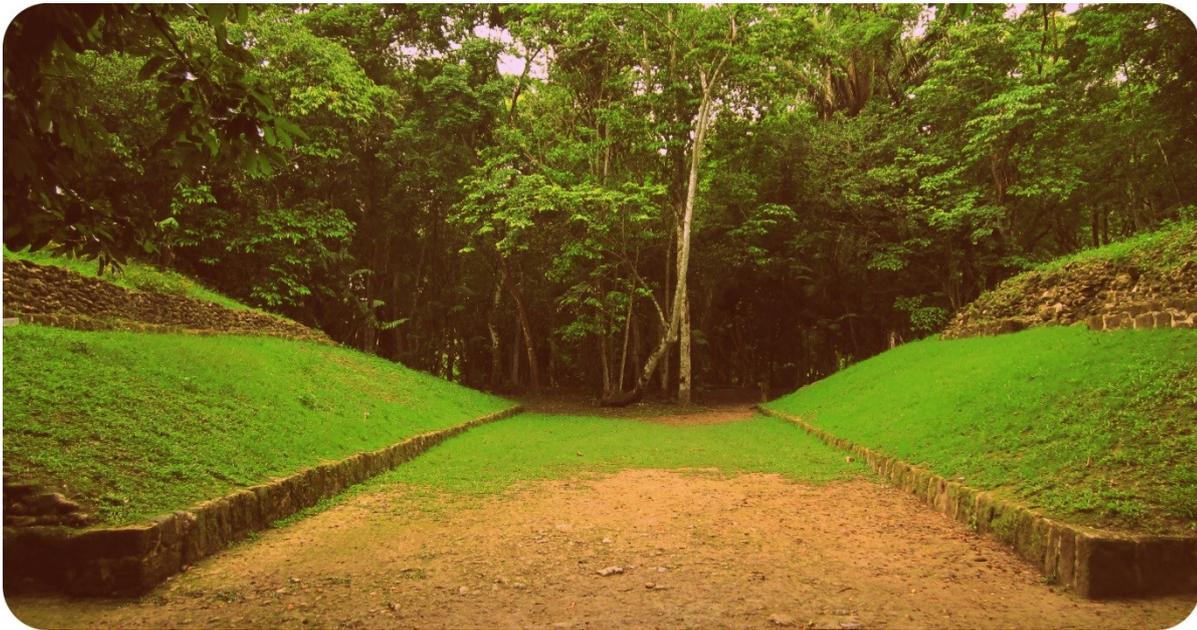


Courting the Community: **The Politics of Space and the Classic** **Maya Ballcourts of Western Belize**

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Ballcourt 1 at Xunantunich (photograph by David Kay, 2013)

This submission, in partial fulfilment of the regulations for the appropriate University Examinations, is all my own work. All sources published and unpublished are acknowledged and collaborative work is indicated where appropriate.

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Abstract

This dissertation investigates the spatial setting of ballcourts within the Late Classic urban-cores of western Belize, using both space syntax analysis and phenomenologically-oriented site descriptions to evaluate their accessibility and experiential qualities amongst neighbouring polities. The aim is to assess whether these polities (specifically the elites who oversaw their construction) treated ballcourts in differential ways, and if so whether the ballgame was implicated in the formation of specific political identities. The results of analysis suggest that this may indeed have been the case, but in a much more complex way than initially suspected. It is clear that the material setting of ballcourts differs to a very high degree amongst sites, suggesting that elites were able to manipulate the experience of ballcourts to their own ends. However, the space syntax analysis reveals that ballcourts were universally accessible installations across sites. The ceremonial ballgame was thus also a public institution, with public expectation regarding open access to ballcourts constraining elites' appropriative abilities. I argue that the ballgame as an institution acted to mediate these social tensions, thus fulfilling a vital role in Maya political life.

Acknowledgements

I wish to thank Liz DeMarrais, my supervisor, for providing so much support, feedback and critical engagement throughout the process of writing this dissertation. Also David Redhouse for writing the Python program used to produce the connectivity graphs, and indeed for providing invaluable and frequent aid with all the computing elements. Lisa Lucero was also very generous with her time and knowledge when visiting Cambridge in February 2014. Jaime Awe has been extremely helpful, answering questions and sending me a plethora of site plans and excavation reports. Raff Guerra, Julie Hoggarth and Arlen Chase also all sent me useful material. I further have to thank the staff of the Belize Valley Archaeological Reconnaissance Project (BVAR) for taking me onto their field school in the summer of 2013, which was where the idea for this dissertation topic first came to my mind after visiting several sites and their ballcourts.

A Note on Figures

The original site plans and resultant space syntax maps/graphs that form the data here investigated are grouped within separate appendices at the end of this dissertation. Please refer to the contents table and list of figures, as well as in-text citations, for further information.

Table of Contents

List of Figures.....	4
List of Tables.....	6
I. Introduction: Space, Politics and the Maya Ballgame	7
II. The Maya and their Ballgame	12
III. The Polity beyond the Ballcourt.....	15
IV. Theoretical Interlude: Performing in Space	17
V. Data and Methods: Interrogating Ballcourts.....	20
VI. Analysis: Space Syntax meets Phenomenology	22
VII. Discussion: Space and Place	35
VIII. Conclusions: Negotiating Complexity	39
IX. Further Research: Deeper into the Game	41
Appendix I: Sampled Site Plans	43
Appendix II: Convex Maps	49
Appendix III: Python Connectivity Graphs	55
Appendix IV: Gephi Connectivity Graphs	58
Appendix V: Gephi Heat Maps.....	62
Appendix VI: Gephi Degree Maps	66
Appendix VII: Other Potential Sites for Analysis	70
Appendix VIII: Particularities of Space Syntax Analysis for Maya Sites	71
Appendix IX: Workflow of Space Syntax Analysis.....	72
Appendix X: Additional Site Plans	73
Bibliography	75

List of Figures

Figure 1: Location map of study area within Belize	8
Figure 2: Map of study area and sites	9
Figure 3: Chronology of the ancient Maya	10
Figure 4: The East Ballcourt at Cahal Pech.....	12
Figure 5: Ballcourt B at Caracol.....	14
Figure 6: Plaza B at Cahal Pech, looking towards the E-Group.....	28
Figure 7: Plaza A-II at Xunantunich, looking towards the Castillo.....	29
Figure 8: View east from the Castillo	30
Figure 9: Canaa at Caracol	32
Figure 10: View south from Canaa towards the B Plaza E-Group	33
Figure 11: Site plan of Cahal Pech	43
Figure 12: Site plan of Pacbitun	43
Figure 13: Site plan of Xunantunich	44
Figure 14: Site plan of Buenavista del Cayo	45
Figure 15: Site plan of El Pilar	46
Figure 16: Site plan of Baking Pot	47
Figure 17: Site plan of Caracol	48
Figure 18: Site plan of Lower Dover.....	48
Figure 19: Convex map of Cahal Pech.....	49
Figure 20: Convex map of Pacbitun	49
Figure 21: Convex map of Xunantunich.....	50
Figure 22: Convex map of Buenavista del Cayo.....	51
Figure 23: Convex map of El Pilar	52
Figure 24: Convex map of Baking Pot.....	53
Figure 25: Convex map of Caracol.....	54
Figure 26: Convex map of Lower Dover	54
Figure 27: Python connectivity graph of Cahal Pech	55
Figure 28: Python connectivity graph of Lower Dover.....	55
Figure 29: Python connectivity graph of Xunantunich	56
Figure 30: Python connectivity graph of Buenavista del Cayo	56
Figure 31: Python connectivity graph of El Pilar	56
Figure 32: Python connectivity graph of Pacbitun.....	57
Figure 33: Python connectivity graph of Baking Pot	57

Figure 34: Python connectivity graph of Caracol	57
Figure 35: Gephi connectivity graph of Cahal Pech	58
Figure 36: Gephi connectivity graph of Xunantunich	58
Figure 37: Gephi connectivity graph of Buenavista del Cayo	59
Figure 38: Gephi connectivity graph of Baking Pot	59
Figure 39: Gephi connectivity graph of El Pilar	60
Figure 40: Gephi connectivity graph of Caracol	60
Figure 41: Gephi connectivity graph of Pacbitun	61
Figure 42: Gephi connectivity graph of Lower Dover	61
Figure 43: Heat map of Cahal Pech	62
Figure 44: Heat map of Xunantunich	62
Figure 45: Heat map of Buenavista del Cayo	63
Figure 46: Heat map of Baking Pot	63
Figure 47: Heat map of El Pilar	64
Figure 48: Heat map of Caracol	64
Figure 49: Heat map of Pacbitun	65
Figure 50: Heat map of Lower Dover	65
Figure 51: Degree map of Cahal Pech	66
Figure 52: Degree map of Xunantunich	66
Figure 53: Degree map of Buenavista del Cayo	67
Figure 54: Degree map of Baking Pot	67
Figure 55: Degree map of El Pilar	68
Figure 56: Degree map of Caracol	68
Figure 57: Degree map of Pacbitun	69
Figure 58: Degree map of Lower Dover	69
Figure 59: Additional site plan of Caracol	73
Figure 60: Additional plan of Baking Pot's North Group	74
Figure 61: Additional plan of Baking Pot's South Group	74

List of Tables

Table 1: Diagnostic features of ballcourts	22
Table 2: Degree of connectivity of ballcourts at two and three steps removed.....	23
Table 3: Number of steps from ballcourts to "outside", and nearest nodes of first, second and third order degrees of connectivity.....	26
Table 4: Measures of whole-site connectivity.....	27
Table 5: Summary of phenomenological descriptions of ballcourts.....	34

Courting the Community: The Politics of Space and the Classic Maya Ballcourts of Western Belize

“[M]en seem to be impelled to far more strenuous and sustained action by the idea of [a] two-headed eagle, immortality, or freedom than by the most succulent bananas!”

V. Gordon Childe (1946: 8)

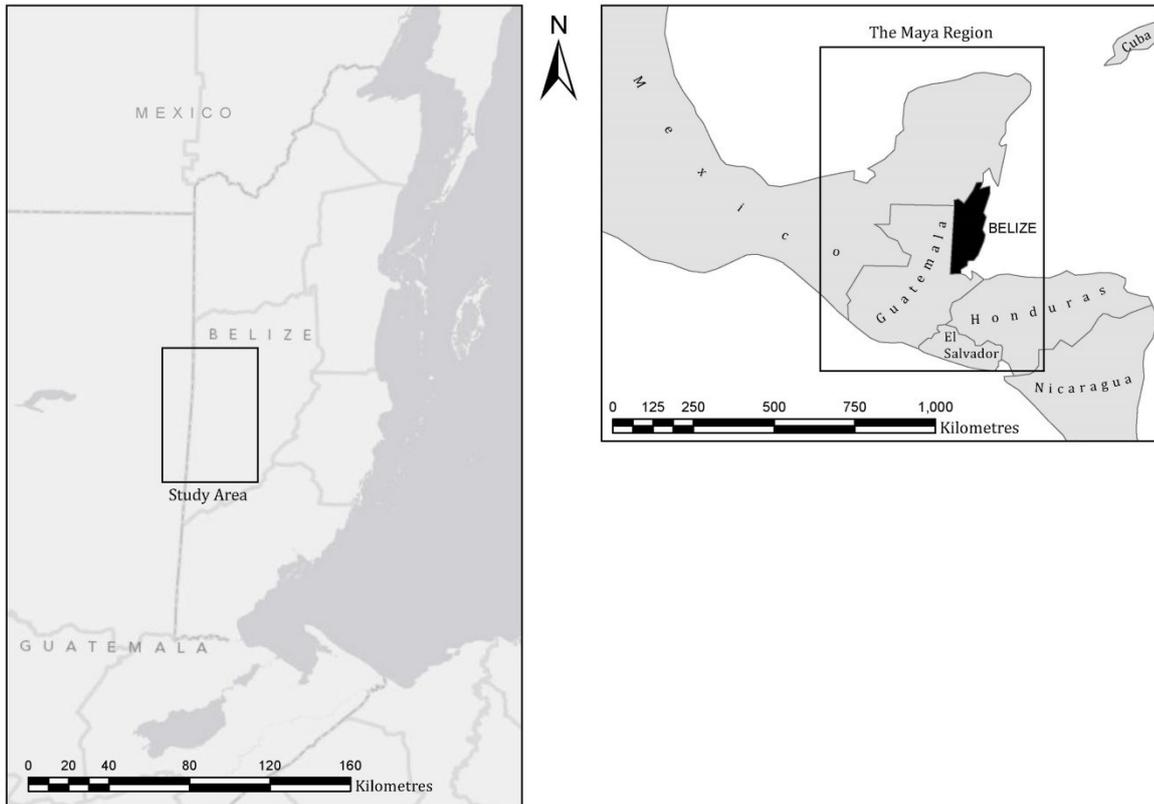
I. Introduction: Space, Politics and the Maya Ballgame

The ballgame was a common, though varied, phenomenon across Precolumbian Mesoamerica. Little is known of the Maya version (*pok-ta-pok*), as no ethnohistoric chronicles discuss the game (J. Ferguson 1991: 2-3). However, we can surmise a few of its basic tenets from iconographic depictions and standing ballcourts. During the Classic Period it seems that two players took part in each match (Miller 2001: 80), bouncing a large rubber ball between each other and off the sloping sides of the court, principally using a padded waist-belt to return volleys. Scoring is hard to determine, but may have involved passing the ball through rings, hitting it off posts/markers, or else simply causing your opponent to miss a return. The game was an integral component of centrally-organised public ceremonies, such that Maya ‘games/sport’ cannot be divorced *a priori* from ‘rituals’ (cf. Gluckman and Gluckman 1983). Given that the Maya viewed their world as ‘rhizomatic’, i.e. with heaven and earth inextricably intertwined (Lisa Lucero pers. comm. 2014), the cosmological potency of ritual was very real within the lives of all Maya. As monumental settings for such ritual activities, ballcourts have great potential to elucidate the relationship between cosmological immanency and political action.

To this end, I use the spatial setting of Classic Period Maya ballcourts to investigate the role of the ballgame in the creation of political identities. Large-scale ceremonies would have been a principal draw on the commoner populations dispersed around urban-cores, and so the ballgame, as part of such occasions, would have been a catalyst for the transformation of the ‘imagined community’ (*sensu* Anderson 1991) into one of

physical co-presence, itself integral to the formation of shared experiences and identities. I will consider whether the architectural framing of ballcourts, including their accessibility to commoners, differed significantly from site to site, creating distinct moments of co-presence and polity¹-specific identities, or else was a pan-regional cultural trend not involved in such processes.

Figure 1: Location map of study area within Belize



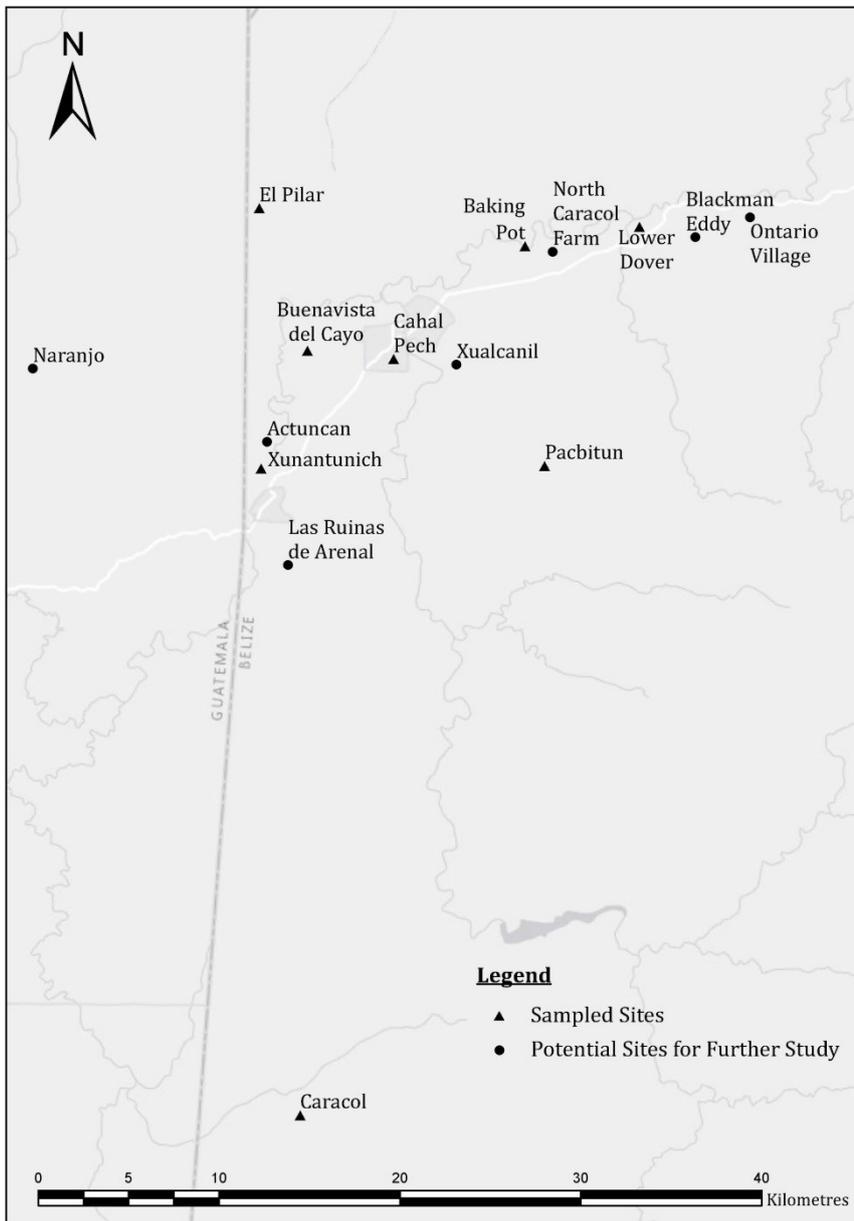
Map data from ESRI ArcGIS

Such settings can be seen as the material expression of elite agency *contra* that of commoners, insofar as it was elites who resided in urban-cores and oversaw their construction. Maya cities were not planned from the outset, but by working within the constraints imposed by previous constructions, elites had a great deal of power in prescribing the form and experience of space in each urban-core. Maya rulers and nobles also had more obviously vested interests in maintaining the integrity of the

¹ I use 'polity' here in an effort to avoid the assumption that ancient Maya political life was characterised by the 'state', a concept which has too often become reified within archaeology, obscuring the lived realities of the people we study (Smith 2003: 15). 'Polity' is a more flexible term that better facilitates our investigations into the "constellations of intersecting political practices" that constitute authority (Smith 2003: 28).

polity, as it was they who represented it at a regional level, and who more than anyone else experienced it as a daily phenomenon (see discussion below). As the overseers of urban-cores and the ceremonies that took place there, elites can be presumed to have had a great deal of influence over the treatment of the ballgame, in particular the accessibility and experiential qualities of ballcourts, and through it the wider articulation of political identities.

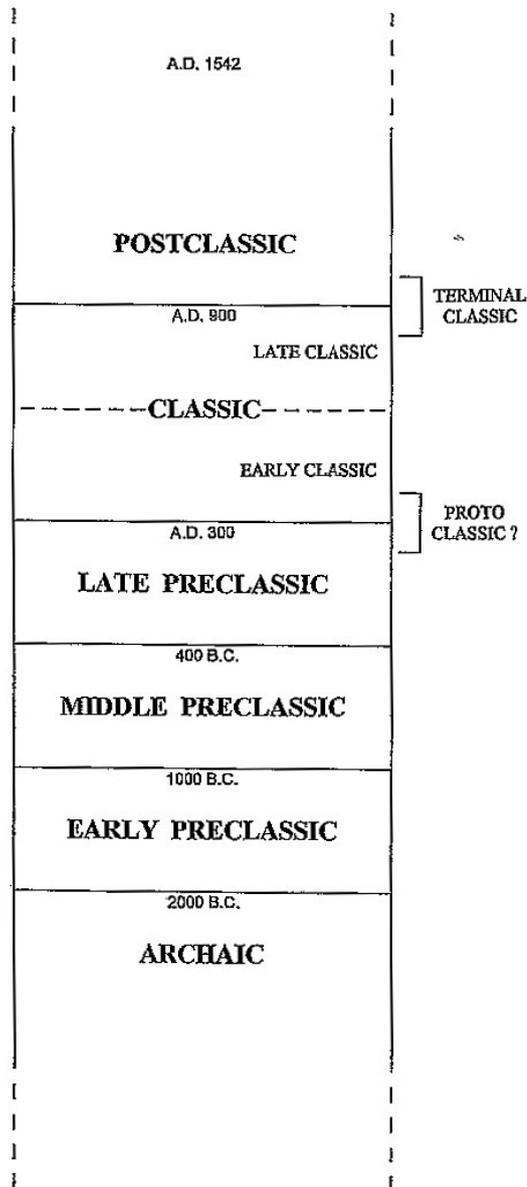
Figure 2: Map of study area and sites



Site co-ordinates from The Electronic Atlas of Ancient Maya Sites, © Walter R. T. Witschey and Clifford T. Brown. Map data from ESRI ArcGIS

To tackle these issues, I have gathered site plans for eight Maya urban-cores from western Belize (Figure 2, Appendix I: Figures 11-18). These plans represent the sites largely as they stood towards the end of the Late Classic Period (eighth-early ninth centuries AD) (Figure 3), which is when the last monumental building works took place. Although subsequent minor changes were made, it is thus the urban-cores, and ballcourts, of the Late Classic which this dissertation addresses.

Figure 3: Chronology of the ancient Maya



Demarest 2004: Fig. 2.3, drawn by Luis F. Luin

I will be using space syntax techniques (cf. Hillier and Hanson 1984) to analyse these site plans. The resulting connectivity graphs will help to assess the general degree of accessibility and within-site integration of ballcourts. 'Connectivity' is simply a measure of the degree to which ballcourts are connected to surrounding spaces, i.e. the number of spaces from which ballcourts are directly accessible. I use 'integration' not in a statistical sense, but more as a measure of how well ballcourts are connected to whole-site networks of spaces, reflecting their accessibility from both within and without of the site. The use of these measures should reveal variation, or lack thereof, in visitors' access to ballcourts among polities.

However, recognising that space syntax entails an abstracted view of built environments, I will also be employing phenomenologically-oriented site descriptions to expose some of the more experientially relevant characteristics of ballcourt settings. Together, these analyses give a fuller account of the spatial treatment of ballcourts.

I expect both analyses to expose variation, as even a cursory glance at the site plans reveals obvious differences in individual cities' arrangement of space, despite their geographical and cultural proximity. For example, Baking Pot consists of two main groups linked by a *sacbe* ('causeway', pl. *scabeob*), whereas Cahal Pech is far more nucleated and tightly packed (Figures 16 and 11). Given these particularities of urban layout, it can be expected that their internal connectivity patterns will vary. As components of these patterns, the accessibility of ballcourts will likewise differ among sites. Similarly, the material setting of ballcourts should reflect this overriding model of inter-site variation.

These expectations are expressed in the following hypotheses:

- 1) The connectivity of ballcourts within each site will mirror the connectivity for each site as a whole.
- 2) Connectivity patterns will differ among sites, and correspondingly so will those of ballcourts.
- 3) The phenomenology of ballcourt settings will likewise vary amongst sites.

By testing these propositions I evaluate how ballcourts were implicated in Maya elites' manipulation of ceremonial settings, and in particular whether such manipulation differed among neighbouring polities, thus becoming involved in the creation of distinct political identities.

II. The Maya and their Ballgame

Figure 4: The East Ballcourt at Cahal Pech



Photograph by David Kay, 2013

The Maya ballgame contained a variety of multi-layered meanings and cultural significances, most importantly the continual reiteration of the cosmos (Uriarte 2001: 41). The Maya considered time to be cyclical, such that the safe assurance of continued cosmic order depended upon the proper maintenance of temporal cycles, primarily through ritual means, such as the all-important New Year ceremony. The political aspirations of rulers were also expressed in this context, notably through the ‘fudging’ of dates on stelae to coincide with astrologically and historically significant occurrences (Schele and Freidel 1990: 77-84). It is this concern with cyclic cosmology and political power that characterises the ballgame. The iconographic use of quatrefoils lining playing alleys signified ballcourts’ liminal status, establishing a ‘glass-bottom boat’ effect whereby they were identified as portals to the watery underworld (*Xibalba*) (Schele and Freidel 1991: 308-309). This liminality has important political ramifications, as the elision of concepts and categories takes centre-stage, which can be problematic in the establishment of precise forms of authority and segmented political relations. Thus the playing of the ballgame within tightly controlled ceremonial spaces would have provided a more stable setting for the negotiation of both elite and commoner political identities, constraining the game’s inherent malleability.

Concepts of elision, however, were also direct sources of power, for in drawing heaven and earth together elites established their role as cosmological mediators on behalf of the wider populace. The ballgame's place in this framework is illustrated by the *Popol Vuh* of the historical period Quiché Maya. In this creation epic, the Hero Twins Hunahpu and Xbalanque are challenged to play ball by the Lords of Xibalba, which ends with their sacrifice (Tedlock 1996: 112-116). However, the Twins secure their resurrection and end up killing the Lords in turn, thus fully conquering death (Tedlock 1996: 132-138). This victory causes the maize planted in their grandmother's house to flourish; establishing the first link between death/resurrection and agricultural fertility. The Hero Twins then resurrect their father, who was also killed by the Lords. He becomes the maize god, whilst the Hero Twins ascend into the heavens as the sun and moon (Tedlock 1996: 138-142). The same story (or variations thereof) can be distinguished in Classic Period texts and iconography (Schele and Freidel 1990: 74), which demonstrate the time depth of Maya concepts linking the ballgame to the creation of the universe and the recurrent cycles of cosmological renewal and seasonal fertility that guaranteed human existence. Through the control of the monumentalised ballgame, elites were thus also claiming powers of cosmic regeneration.

One of the chief means by which elites, especially rulers, established such control was through their own performance in the game. Many iconographic representations record rulers playing ball in full ceremonial regalia (Schele and Freidel 1991: 306-307). Such regalia commonly impersonated specific deities (Cohodas 1991: 265-267), although Houston (2006: 145-146) argues that there was no evident 'fiction' in such impersonations. Rather, the Maya conceived of 'self' as being constituted by multiple vitalising energies, leading to the concurrence of identities in ritual settings, not their displacement. This belief in transubstantiation lent the ballgame a real cosmological immanence; literally translating its participants into physical embodiments of the divine. This immanence had important ramifications for the constitution of human subjects at a political level, as is readily apparent in the correlation of the ceremonial ballgame with human sacrifice. Rulers were frequently depicted playing war captives, whose death, if not achieved in the course of play, was assured by subsequent decapitation (Stevenson Day 2001: 74). The pre-determined nature of these games is evident in the depiction of such opponents in the garb of sacrificial victims, foreshadowing their inevitable death (Miller 2001: 87). Through the ballgame's linking of sacrificial death to the original Court of Creation in the *Popol Vuh*, so rulers were constituted through their performance as the supreme mediators of the dynamic energies that ensured world renewal.

Figure 5: Ballcourt B at Caracol



Photograph by David Kay, 2013

The ballgame thus had deep cosmological significances that would have been of concern to all members of Classic Maya society. However, it far less clear how those people actually experienced ballgames. Of key concern is whether commoners would have had ready access to ballcourts during ceremonial occasions, or whether the activity was secluded away as a form of esoteric elite practice. Whilst the presence of an audience can be implied from the space provided for spectators atop the platforms flanking playing alleys, we cannot say for sure of who this audience consisted. Perhaps it varied for matches played at different points in the ritual calendar. Generally speaking, however, the deep cosmological significance of the ballgame suggests that commoners would have had at least some degree of access to ballcourts. Such ceremonial access was probably vital to the life of the polity, as discussed below.

III. The Polity beyond the Ballcourt

Much of what we know about ancient Maya political practices is situated at an inter-polity scale, or 'geopolitics' (Smith 2003: 112). This is perhaps best elucidated by Marcus' (1993) exposition of the cyclical processes of regional political consolidation and dissolution. Such interpretations of Maya polities as inherently fractious are implicitly based on contemporary perspectives that privilege an elite focus. This situation has largely arisen due to the decipherment of Maya glyphs, most commonly used to record rulers' deeds. However, literacy was an exclusively elite preserve and tells us little of the lives of commoners, who would have encountered glyphs only as esoteric components of large stone monuments in urban-cores. Our knowledge of Maya politics is thus largely restricted to elite interactions, such as Martin and Grube's (2000) account of the complex history of Calakmul's wars, alliances, intermarriages and hegemonies. In western Belize, this perspective is especially apparent in seventh century AD inscriptions from Caracol and Naranjo, which detail their competitive struggle to dominate the smaller Maya centres of the upper Belize Valley (Chase 2004: 320). These relations are materially evident in the Valley, such as 'finger-bowl caches' typical of Caracol present at Cahal Pech (Helmke and Awe 2012). Such evidence suggests that these relations were diplomatic in nature rather than conquest-based (see Chapter IX), and that each urban-core in the Valley was the centre of its own independent polity. However, external relations reveal relatively little regarding the internal constitution of such polities.

The typical portrayal of Maya polities as 'city-states' is also problematic. Whilst we are used to separating 'city' and 'hinterland' in our analyses of Maya dispersed urbanism (cf. Awe *et al.* forthcoming), the historically-recorded Yucatec Mayan word for polity (*cuchcabal*) refers not only to the urban-core but all the territory under the control (whether actual or putative) of a particular ruler (Marcus 1993: 117-118). As such, whilst the city-core/hinterland division is useful for heuristic purposes (and I shall continue to make use of it), we must be mindful of the total cohesion credited to the wider polity by the Maya themselves, at least in the historical era. Although extending such concepts back through time is always risky, it is probably safe to say that ancient Maya conceptions of the polity also drew heavily from notions of rulership and personal political allegiance.

Conversely, these polities had little bureaucratic weight. Within the upper Belize Valley, heterogeneous ceramic assemblages spread across resource zones reveals a complex set of economic relations without centralised systems of production and

distribution (Lucero 2001). There is little evidence of elite manipulation even in the more extensive ceramic acquisition networks centred on larger sites (Sunahara 2009). Exceptions for prestige goods include the 'palatial' potter's workshop at Buenavista del Cayo (Ashmore 2010: 61) and the Laton obsidian workshop near El Pilar (Ford 2004: 247-248). However, the production of most everyday goods was household based (VandenBosch *et al.* 2010: 292). Maya swidden agricultural systems do not seem to have required centralised management either (cf. Moseley's (2001: 134-135) segmentary model for early irrigation in coastal Peru). Indeed, whilst Neff (2010) sees prestigious households' selective occupancy of prime agricultural land around Xunantunich as evidence for controlled access to prime farmland, demographic data allow an alternative interpretation. Amongst the historical Yucatec Maya, the 'principle of first occupancy' (*yax ch'ibal*) expressed older households' increased status within a community through their long standing attachment to the land (McAnany 1995: 96). In a situation where prime agricultural land is already occupied, newer households are established in more marginal areas, therefore creating an imbalance in wealth. This belies the centralised management of land allocation, and in conjunction with the independence of quotidian exchange networks, suggests that the Classic Maya polity had little economic presence in the lives of its commoner populace.

How then did elites establish their authority? Moreover, how were hegemonic relations maintained if, as historically documented, Maya farmers were capable simply of 'voting with their feet' and moving elsewhere (Farriss 1984)? In response to this dilemma, Demarest (1992) has described the Maya polity as a 'theatre state', which maintained political allegiance (including the generation of labour power) through its provision of a cosmological necessity in mediating the interface between heaven and earth. This was embodied in the personage of the ruler (Schele and Freidel 1990: 90), and made manifest in the rituals which both they and other elites undertook. Such rituals ranged from private bloodletting, also undertaken at a village level (Schele and Freidel 1990: 89-90), to much larger-scale public ceremonies. This ritual range would have been particularly effective in a society where social relations were typified by personal relationships within the residential corporate group of the 'house' (Gillespie 2001). Moreover, household ritual practices demonstrate that Maya cosmology was by no means separated from daily life (Schele and Freidel 1990: 65). Ritual practice hence permeated, and bound together, many elements of the Maya world.

Performative ideological practices, including the ballgame, thus allowed the Classic Maya polity to gain its relevance in the lives of its subjects; founding its power upon its "imaginative energies, its semiotic capacity to make inequality enchant" (Geertz 1980: 123). This statement carries several theoretical implications.

IV. Theoretical Interlude: Performing in Space

As Childe's quotation encapsulates, ideology is an integral, not epiphenomenal, part of society. Defined as 'meaning in the service of power' (J. Ferguson *et al.* 2009), it is active and formative, part of the lived experience of those whom it affects. Ideology is thus clearly linked to the idea of power relations, although these bind not only the oppressed but also their oppressors, constituting both as distinct kinds of subjects (Althusser 1971). In this vein, Inomata's (2001) demonstration that nobles at Aguateca were personally producing prestige craft items, rather than appropriating others' labour, shows how Classic Maya elites were deeply involved in activities shaped by their own ideology. Ideology is thus inclusive in its operation, binding all members of a society within common frameworks of seeing the world.

As ideology frames meaning within power relations, so politics can be seen as an articulation of power within social action. This applies to both hierarchical and heterarchical situations, as power is a relational phenomenon that is contextually specific in its manifestations. Political life is hence a subset of social relations which, through the operation of ideology and other like practices (such as political economy), engenders structures of differential status and social position, which in turn deeply influence the ways in which people regard, and behave towards, each other. As the enactment of this situation, 'politics', like power, is a diverse concept played out in the heterogeneity of historically-situated worlds. For the sake of clarity, this dissertation retains a narrower focus that concentrates on the role of the physical setting of ideologically-informed ritual activity in the politicisation of communities.

This spatial element has commonly been under-theorised by archaeologists more concerned with chronology, often remaining an assumed universal principle (Smith 2003: 13). Whilst this perspective has elided much of the variation in lifeways discernable in the archaeological record, a return to space as a sound analytic concept must allow for diversity without drifting into incommensurable relativism. I here follow Smith's assertion that space emerges in the relations among objects, which affects "the way we move through the routines and surprises of our daily lives" (2003: 25). The emphasis is placed upon processes and the practices which constitute them, on the continual actions of *becoming*. In such a manner, space is only intelligible through the lens of the social (Smith 2003: 70). This recalls Lefebvre's declaration that "*(Social) space is a (social) product*" (1991: 26, original emphasis), insofar as society cannot be conceived of independently of its constructed environment. Social relations are thus inherently situated, spatially as well as temporally.

Lefebvre's statement that "social space 'incorporates' social actions" (1991: 33) in turn engages praxis theory, which takes process to be the ongoing mutual reconstitution of individual action and social structure (cf. Giddens 1984). Bourdieu defines *habitus* as the "durably installed generative principle of regulated improvisation" (1977: 78), meaning that daily practices create specific worlds of experience which serve to constrain the behaviours undertaken within the course of daily life. This quotidian drama is played out within the particular settings of its enactment, such that space is constantly being assembled through the continuum of living (de Certeau 1984: 102). That said, Smith (2003: 70) cogently notes that de Certeau fails to account for the varying capacity of individuals to influence this process of spatial production, i.e. their differential agencies, which is where questions of authority arise.

Authority, through its articulation of power relations, is central to the constitution of political life. It refers to the ability of individuals to command the obedience of others (although this is rarely all-pervasive) and, although often couched in immaterial terms (such as personal qualities), is only fully realised through the performance of authoritative practices. Such practices fuel the imagination of those who experience them (both performers and spectators), leading to common conceptions of authority. Performance thus binds personal experiences into wider social formations. Inomata and Coben (2006: 12) describe large-scale performative acts (public ceremonies) as ensuring the moral integration and collective self-identification of the community through the creation, maintenance and subversion of asymmetrical power relations. Whilst 'performance' has been defined in various ways (see Inomata and Coben 2006: 12-15), it is here regarded as an ambiguous concept akin to Wittgenstein's (1953) 'family resemblances'; inclusionary of many overlapping social actions and practices that share a common motif in *display*, insofar as 'theatricality' demands an audience. This audience denotes a moment of physical co-presence, where Anderson's (1991) 'imagined community' becomes truly corporeal in nature (Inomata 2006a: 805); a material grounding of the imagination.

Performance becomes intelligible through its framing in appropriate architectural settings. Pearson and Shanks (2001: 21) note that spaces are created by the events that take place within them (both in their initial construction and subsequent use), and are hence constantly redefined through the activities of performers. Through the temporal progression of such acts the crystallisation of space becomes increasingly rigid, ensuring the continuity of performance conditions and repetition of audience experience (Pearson and Shanks 2001: 22). Despite the multivalency of individual experiences, the physical setting of performance, in conjunction with the more doctrinal elements of its operation (Houston 2006: 138), serves to encapsulate a

certain common experience, which is in itself received through the lens of a shared cultural 'sensorium' (ways of perceiving) (Pearson and Shanks 2001: 54). These settings, through shaping social practice and imagination, make meaningful co-action possible (DeMarrais 2007: 121). The mutual constitution of action and thought is fundamental to the creation and maintenance of patterns of co-belief, which in turn are crucial to the formation of shared identities within communities.

Anderson's (1991) concept of the 'imagined community' has illuminated how perceptions of common identity are the result of involved social interaction, rather than natural phenomena arising from spatial propinquity (Isbell 2000: 243). Even in co-habiting groups, a sense of community must be worked at through 'practices of affiliation' (Yaeger 2000: 125). This shares much with Bourdieu's (1977) concept of habitus, insofar as the most effectual practices of identity-building are those which take place in the quotidian domestic realm. Immediately beyond the household, everyday personal interactions decrease in number and intensity. Here, ritual gatherings serve as instances whereby the wider group is brought together, and so practices of affiliation enacted through shared experiences; *making* rather than *expressing* the community (Inomata and Coben 2006: 24). Rather than such 'marked' performances being qualitatively distinct from the "neutral hum of daily existence" (Houston 2006: 138), I see these events as deriving their force directly from their relation to quotidian practices. Carsten (2000) argues that this is the case for Western family celebrations, where 'ritual highs', such as birthdays and weddings, are only fully meaningful because of the prior establishment of powerful kinship bonds through everyday familial interactions. It is within such a crucible that meaning becomes ideological and the social becomes political, and the power relations that structure communities are worked out.

As a ceremonial practice physically drawing the dispersed population of the Maya polity together, and having cosmological immanency relevant across social scales, the ballgame would have been a powerful mediator in the creation of Maya political communities. The differential spatial treatment of ballcourts can in turn illuminate inter-site variations in community-building, especially the role of the ballgame in establishing the authority of elites within communities. I now turn to the investigation of these propositions.

V. Data and Methods: Interrogating Ballcourts

As noted above, eight sites were selected to test the connectivity of ballcourts within Maya cities (as discussed in Appendix VII, other sites with investigative potential (see also Figure 2) could not be included). These are:

Cahal Pech;
Baking Pot;
Lower Dover;
Xunantunich;
El Pilar;
Pacbitun;
Buenavista del Cayo;
Caracol.

They are all physically close (Figure 2), the first seven lying along the upper reaches of the Belize River Valley, and Caracol sited further to the south but of clear consequence to the Belize Valley due to its competition with Naranjo for regional political primacy. From a political perspective, these polities were thus part of a relatively small-scale regional interaction network. Sampling neighbouring urban-cores therefore permits the assessment of ballcourts at a scale whereby resulting patterns have the potential to inform us about the distinct political identities (or lack thereof) of polities *in relation to each other*. As most previous work has been directed at either a very wide regional level, e.g. the distribution of court types across the entire Maya Lowlands (Taladoire 2001), or else site-specific excavation reports (e.g. Baron 2006), this dissertation seeks to demonstrate that it is profitable to reconcile these scales.

There is variation in the comparability of the data. For instance, the plans of Cahal Pech and El Pilar (Figures 11 and 15) provide clear architectural details but lack topographical information, which is crucial for determining access and route-ways. The plans for Xunantunich and Caracol (Figures 13 and 17) are of a lower resolution, which may result in the occlusion of some details during analysis. The plan of Lower Dover (Figure 18) contains the least detail, as the site only came under archaeological investigation in 2009. Such variation in site plans created by different research projects is inevitable, a consequence of varied survey aims and excavation practices. In some cases additional maps (Appendix X: Figures 59-61) aided the space syntax analysis, but this was not possible for every site. Although all the plans are serviceable,

the following analysis must be regarded as an initial exploration of the method; of what could possibly be achieved if comparative survey were carried out at all of the sites.

Data examination utilised Hillier and Hanson's (1984) formulation of space syntax analysis. All of the open spaces within a settlement or building are defined², and from the resulting convex map a connectivity graph is generated, where each node represents a discrete space and the edges between nodes signify instances of direct permeability between spaces. These graphs visually display the spatial connectivity of an architectural assemblage, permitting the assessment of its overall permeability, or accessibility of parts thereof. This method has been successfully applied to varied archaeological sites, from historic Zuni pueblos (T.J. Ferguson 1996) to the Roman port of Ostia (Stöger 2011). The success of these studies lies in their comparative aspects, whether among sites (T.J. Ferguson 1996), or else among different buildings/quarters within the one site (Stöger 2011). The Maya urban-cores in this sample are similarly suited to space syntax analysis, as only through comparison can meaningful connectivity patterns be discerned at a regional scale. However, as discussed in Appendix VIII, the nature of Maya settlement layouts necessitated a more subjective approach to defining spaces within urban-cores. The basic computerised procedure remains conventional (detailed in Appendix IX), using ESRI ArcGIS to produce the convex maps (Appendix II: Figures 19-26), and Python and Gephi programs to generate complimentary connectivity graphs (Appendices III and IV: Figures 27-42).

However, a common critique of space syntax is that it produces 'dead space' devoid of the material qualities that transform it into *place*, i.e. an experienced phenomenon. Van Gijsegem and Vaughn (2008: 113) argue that it ignores *what* bounds spaces, i.e. the actual buildings which define settlement layout and experience. It also occludes the qualitative differences amongst spaces. Hence a huge plaza and a tiny passage are rendered equally as indistinguishable nodes, despite both their greatly differing spatial extents and the qualitatively distinct experiences that moving through each entails. Having visited Cahal Pech, Xunantunich, Baking Pot and Caracol, I can attest from personal experience that each site's built environment is qualitatively unique; something which space syntax is ill-suited to address. To this end, I employ phenomenologically-oriented site descriptions to expose some of the more experiential qualities of ballcourt settings. These dual procedures give a fuller account of the spatial treatment of ballcourts.

² In this study, the "outside" of the site connects all designated entrances (here taken to be denoted by *sacbeob* – see Appendix IX for exceptions regarding Lower Dover and El Pilar). The "outside" is always represented by node 1 in the connectivity graphs and is shown as a circle on the convex maps. Ballcourts are marked by the discrete numbered space of their central playing alley.

VI. Analysis: Space Syntax meets Phenomenology

I begin with assessing the relative size and orientation of ballcourts' playing alleys (Table 1) as an initial broad indicator of similitude/difference.

Table 1: Diagnostic features of ballcourts (N.B. measurements for Caracol and Lower Dover are taken from site maps, all others are as reported in J. Ferguson 1999)

Site Name	Ballcourt ID	Size of alley (m – approx.)	Orientation
Cahal Pech	East	22 x 4	Few degrees West of North-South
	West	21.6 x 6	Few degrees West of North-South
Xunantunich	1	10 x 4	Few degrees West of North-South
	2	15 x 5.75	Few degrees West of North-South
Buenavista del Cayo	South	22 x 7	Few degrees West of North-South
	North	22 x 4.5	North-South
El Pilar	-	19 x 10	Few degrees West of North-South
Pacbitun	-	17.5 x 4.8	Few degrees West of North-South
Baking Pot	1	18 x 5.5	North-South
	2	19 x 4.5	Few degrees West of North-South
	3	19.5 x 3.15	Few degrees North of East-West
Caracol	A	26 x 5.5	NorthNorthWest-SouthSouthEast
	B	24 x 4	North-South
Lower Dover	-	15 x 6	Few degrees West of North-South

Most ballcourts are orientated north-south, often a few degrees westwards, being aligned with astronomical rather than true or magnetic north. The exception is Ballcourt 3 at Baking Pot, which lies east-west. The size of ballcourts, in particular alley widths, is also broadly similar. Variation is present, but not to any large degree of magnitude. The sample thus suggests a common cultural conception of appropriate ballcourt dimensions and orientations across western Belize.

In terms of access, the Python connectivity graphs (Appendix III: Figures 27-34) also emphasize similarity over difference. Given that all ballcourts directly abut two spaces (unless they are isolated, as with Cahal Pech's West Ballcourt and Baking Pot's Ballcourt 1), they will all render a degree of connectivity value of 2. To better assess variation, it is thus more useful to consider connectivity at two and three steps removed³ (Table 2).

At two steps removed the degree of connectivity of all ballcourts falls within a narrow range of 4-8, demonstrating them to be equally well-connected at a local level. At three steps removed the mean degree of connectivity is 12.5 (s.d. = 3.34, discounting isolated ballcourts), which suggests a relatively high level of connectedness across sites. However, with a range of 8-18, there is also greater variation at three steps removed. The highest value is attributable to Caracol's Ballcourt A. This is perhaps unsurprising given that Caracol is by far the largest urban centre in the sample, and so can be expected to have a higher degree of internal complexity and connectivity among its constituent parts. Lower Dover's single ballcourt also has a high value of 17, although node 1 ("outside") can be discounted as an internally discrete space. Even so, it is interesting that this smaller site should also have such a well-integrated ballcourt.

Multiple ballcourts within single sites also have divergent degrees of connectivity at three steps removed. Both Baking Pot and Caracol have internal divergences with a value of 9, which suggests that their ballcourts were differentially accessible. Perhaps specific courts were used during different ceremonies, some more public and others more private. However, these values only reflect the total number of nodes accessible from the ballcourt alley, and not the number of possible routes amongst these nodes. For example, from Buenavista del Cayo's North Ballcourt (node 3) it is possible to move from node 19 to node 23, but also from node 19 to node 24 and then node 23, or through nodes 20 and 24 to 23 (Figure 30). This interconnectivity is masked by the

³ The degree of connectivity at two steps removed simply means the number of nodes that the two spaces abutting ballcourts are connected to. The degree of connectivity at three steps removed is then the number of nodes to which these spaces in turn connect.

degree values in Table 2, eliding the extent to which it is possible to circulate through spaces within the site.

Table 2: Degree of connectivity of ballcourts at two and three steps removed

Site Name	Ballcourt ID	Degree of connectivity at two steps removed	Degree of connectivity at three steps removed
Cahal Pech	East	5	10
	West	-	-
Xunantunich	1	6	14 (inc. node 1)
	2	5	15
Buenavista del Cayo	South	7	13
	North	6	8
El Pilar	-	4	10
Pacbitun	-	6	11
Baking Pot	1	-	-
	2	8	15
	3	5	8
Caracol	A	7	18
	B	7	11
Lower Dover	-	7	17 (inc. node 1)

The Gephi connectivity graphs (Appendix IV: Figures 35-42) better illustrate this issue. They reveal all eight sites to be composed of complex loops of connected nodes, indicative of a high degree of ‘ringiness’ (Hillier and Hanson 1984: 10, 58-61), where it is possible to move around the site, or parts thereof, in a cyclical manner. Less permeable spaces are apparent in strings of nodes that terminate in dead ends, such as nodes 5-2 at Cahal Pech (Figure 35), representing Plazas F and G. Likewise, nodes/sub-networks separated from the main network (and therefore unconnected to the “outside”), are relatively impermeable, as accessing them requires passing through buildings. Having restricted access, such spaces can be interpreted as more private in

nature. The isolated ballcourts at Cahal Pech and Baking Pot are problematic in this regard, as on the one hand they are separated from the internal networks of the urban-core. On the other hand, they may have been the most accessible of all ballcourts, free to visit without entering the monumental core. All other ballcourts form part of the internal 'ringy' structure of site networks. Only one, Xunantunich's Ballcourt 1, is 'string-like', but is only one step from the central ringy network. As such, ballcourts across sites seem to be relatively easily accessible from within their parent networks, as they all form part of the interconnected rings of which such networks are formed.

The same inference can be drawn from rendering the Gephi graphs as 'heat maps' (Appendix V: Figures 43-50). The "outside" of each site (node 1) is the centre point to which the connectivity of all other nodes is visually represented through the intensity of their colouring. The brightest nodes are those most accessible from the "outside", whilst the lightest are the least accessible. The majority of nodes signifying ballcourt alleys lie within the middle portion of this spectrum, with only that of El Pilar and the North Ballcourt at Buenavista del Cayo being of the lowest colour intensity (Figures 47 and 45). Overall, ballcourts appear to be of a similar degree of connectedness to the "outside" of sites. Even the exceptions discussed above are relatively inconsequential, being just a few steps deeper than the shallower majority (Table 3).

General connectivity and integration within the total site network can also be assessed through rendering the Gephi graphs as 'degree maps', which visually display the degree of connectedness of each node (Appendix VI: Figures 51-58). The darkest nodes are those with the highest number of connections, and the lightest those with the least. Most sites contain a single 'first order' node with the highest number of connections, with subsequently greater numbers of nodes of a second and third order (at Lower Dover the first order node is node 1 and should be discounted, with second order nodes instead regarded as first order, and so on). The exceptions to this pattern are Pacbitun, which has four first order nodes (18, 25, 26 and 29), and Lower Dover, which has two (26 and 28) (Figures 57 and 58). The number of steps from ballcourts to the nearest nodes of a first, second and third rank degree of connectivity gives a clear idea of their integration within site networks (Table 3).

Table 3: Number of steps from ballcourts to "outside", and nearest nodes of first, second and third order degrees of connectivity

Site Name	Ballcourt ID	Steps to "Outside"	Steps to First Order Node	Steps to Second Order Node	Steps to Third Order Node
Cahal Pech	East	4	4	3	2
	West	-	-	-	-
Xunantunich	1	3	1	5	2
	2	5	3	2	2
Buenavista del Cayo	South	7	2	3	1
	North	9	7	2	1
El Pilar	-	5	2	6	5
Pacbitun	-	5	1	3	1
Baking Pot	1	-	-	-	-
	2	4	1	3	1
	3	3	5	4	1
Caracol	A	5	1	2	6
	B	5	4	1	3
Lower Dover	-	3	3 (ex. "1")	1	4

Table 3 demonstrates that all ballcourts are only a few steps from nodes with a high degree of connectivity, which as the hubs of their networks facilitate access to a variety of other spaces. Even in instances, such as with Buenavista del Cayo's North Ballcourt, where the ballcourt is relatively far from a first order node, it is still close to nodes of a second and third order. Equally, ballcourts farthest from site entrances are internally well integrated, and thus relatively accessible from within the site. These data continue to suggest that ballcourts across sites were of comparatively equal connectivity and permeable access. They were not necessarily the most accessible features of sites, but neither were they secluded installations to which access was strictly controlled.

Moreover, sites themselves are also of relatively equal connectivity as overall entities. Whole-network connectivity can be measured through several descriptive statistics supplied by Gephi (Table 4).

Table 4: Measures of whole-site connectivity

Site Name	Average Degree ⁴	Graph Density ⁵	Network Diameter ⁶	Average Path Length ⁷
Cahal Pech	2.562	0.083	9	3.828
Xunantunich	2.182	0.068	10	4.325
Buenavista del Cayo	2.857	0.052	9	4.29
El Pilar	2.667	0.057	9	3.722
Pacbitun	2.533	0.087	8	3.476
Baking Pot	1.947	0.053	11	4.466
Caracol	2.735	0.057	8	4.093
Lower Dover	2.974	0.078	7	3.427

For all measures, the cross-site values are remarkably similar. This suggests that not only are ballcourts equally well-connected across the western Belize region, but that the urban-cores themselves had broadly similar internal access patterns.

I now turn to the phenomenological description of each site. These descriptions are relatively simplistic, but nonetheless provide a clear window onto the material aspects of spatial settings not disclosed by space syntax analysis, especially their relation to other kinds of monumental constructions.

⁴ 'Average degree' is the mean number of connections of all nodes in the graph (including isolated ones) (Bastian *et al.* 2009).

⁵ 'Graph density' measures how far the graph is from complete (where in a complete graph all nodes are joined together by all possible edges and the density is 1) (Bastian *et al.* 2009).

⁶ 'Network diameter' measures the longest graph distance in the network (where a graph distance of 1 is equal to one edge connecting two nodes), and thus the relative distance between the two most distant nodes (Bastian *et al.* 2009).

⁷ 'Average path length' is the mean graph distance between all pairs of nodes in the network (Bastian *et al.* 2009).

Figure 6: Plaza B at Cahal Pech, looking towards the E-Group



Photograph by David Kay, 2013

Beginning with Cahal Pech (Figure 11), I omit the West Ballcourt from the analysis for reasons discussed above. This leaves the East Ballcourt, which lies in the southern part of Plaza C near the southern entrance to the site, behind the large E-Group that bounds the eastern edge of the central Plaza B. E-Groups were probably used to commemorate important astronomical events, whilst the frequent inclusion of elite burials and caches also suggests their function as ancestral shrines (Awe 2008). The location of the East Ballcourt behind this structure, apart from Plaza B, marks it as a separate installation of distinct character that was not directly involved in other ceremonial events, or else such events were required to move to and from the ballcourt. The placing of the ballcourt between the two site entrances also means that people heading directly to it would not have encountered the most monumental architecture at Cahal Pech. The ballcourt is also at the farthest point from the palatial compound at the western end of the site. Attending ballgames at Cahal Pech's East Ballcourt thus entailed little experience of other monumental constructions, other than the rear of the E-Group. We can hence surmise that the ballgame at Cahal Pech was of open access to commoners visiting the urban-core, and in such a way that did not obviously associate the ballgame with other monuments expressing elite power.

Figure 7: Plaza A-II at Xunantunich, looking towards the Castillo



Photograph by David Kay, 2013

The situation at Xunantunich (Figure 13) is very different. Ballcourt 2 is directly related to monumental constructions at the heart of the site. This is the older ballcourt, to which the A1 temple-pyramid abutting its eastern side was a Late Classic addition (Jamison 2010: 126-127). This temple-pyramid blocked the ballcourt's visual link to the E-Group to the east, severing their probable relationship as places associated with the sunrise and sunset respectively (Jamison 2010: 126). The ballcourt was rearticulated as a portal between Plazas A-I and A-II, linking these ceremonial gathering spaces, plus the main palatial compound to the north and the Castillo (a towering *witz* ancestor-mountain-shrine/temple/elite residential structure) to the south. Ballcourt 1 is also in sight of the Castillo, opening onto Sacbe II. People moving towards the centre of the site from the west would have first passed the ballcourt, whilst those from the east would have had to travel through the monumental core to reach it. This is especially true for commoners, who would have entered the site via the Northeast Walkway, rather than the two sacbeob which connect elite residential areas (Keller 2010: 191). The ballgame was thus very much part of the materialisation of elite power at Xunantunich, either in direct relation to monumental construction, as with Ballcourt 2, or else requiring visual exposure to monuments to reach, as with Ballcourt 1.

Figure 8: View east from the Castillo, Ballcourt 2 is hidden by trees on the left



Photograph by David Kay

Buenavista del Cayo (Figure 14) also evinces variation in ballgame experiences. The South Ballcourt was founded in the Preclassic Period, before being ritually ‘deactivated’ in the seventh century AD. This entailed the removal of its centreline cache, the erection of a pole-and-daub shrine in the playing alley, and the construction of a large masonry platform-mound that blocked it off from the Central Plaza, which it originally bounded. The North Ballcourt was subsequently built in the Late Classic, replete with the reburial of the centreline cache exhumed from the South Ballcourt (Ball and Taschek 2001: 182-184). Despite the space syntax values (Table 3), it is clear from the site plan that the South Ballcourt was much closer to the sacbe entrance than the North Ballcourt. Indeed, the South Ballcourt would have been the first thing encountered when entering the site core from the ramp at the sacbe’s terminus. Conversely, to reach the North Ballcourt from the sacbe entails either walking through the East Plaza or, more directly, through the more monumental Central Plaza. In being attached to the North Plaza Group it is also more obviously associated with elite control. Despite this more restricted access, however, the unusual sunken design may have increased spectator capacity. The move from the South to North Ballcourt may thus have opened the ballgame to larger commoner audiences, but in a way which more explicitly linked it to elites.

The ballcourt at El Pilar (Figure 23) is situated in the southern group of Nohol Pilar, which contains a large central plaza (Plaza Copal) and several ceremonial buildings, including an E-Group. Given that the entrances to the Plaza Copal are all at its northern end, travelling to the ballcourt would have necessitated the prior experience of the entirety of this ceremonial space. Importantly, the southern edge of the Plaza Copal is bounded by an *audiencia* range-type building that likely served administrative purposes, as well as being where elites presided over public ceremonies (Awe 2008: 163). As the ballcourt is nestled between this structure and the E-Group, it is thus associated both with celestial forms of knowledge and ritual, and elites' roles in orchestrating ceremonies centred on such themes. However, the site's main palatial complex is removed to the north as part of the Xaman Pilar group, which suggests that the linking of the ballgame to the materialisation of elite power and legitimisation at El Pilar was of a more oblique nature than, say, if the ballcourt had been sited in the Plaza Faisan adjacent to the palace. Nevertheless, such general associations are still evident in its actual location at the heart of the site's southern monumental group.

The ballcourt at Pacbitun (Figure 12) is Late Preclassic in foundation, making it one of the earliest known from the Maya Lowlands (Healy *et al.* 2004: 211). This establishes a long tradition of the ceremonial ballgame at Pacbitun. This lengthy tradition may partially account for some of the experiential ambiguity involved with the siting of Pacbitun's ballcourt that is evident by the Late Classic. It is located on the northern fringes of the site, relatively far from the termini of the Tzul and Mai Sacbeob. This also places it at a remove from both the pyramidal E-Group of Plaza A, and the palace complex in the southwest corner of the site. However, arriving there from either sacbeob would have entailed travelling either past or through the monumental core of the site (Plaza A and its E-Group), whilst moving along the Tzul Sacbe would also have involved encountering the fringes of the palace. Attending ballgames at Pacbitun would thus have entailed travelling through the site, followed by a relatively more secluded experience on its northern edge. The ballgame may thus have struck a careful balance between avoiding elite overbearance and yet still exposing commoners to the general monumental configurations associated with elite power and political ascendance.

Baking Pot (Figure 16) is perhaps the most distinctive site in the sample, with its internal sacbeob linking the separate A and B Groups. However, the separation of groups pertaining to differing palatial *versus* E-Group associations is similar to El Pilar. At Baking Pot this pattern is reversed, with Group A in the north being dominated by a large E-Group, and Group B in the south housing the site's main palace structure. There is also no preferential association of ballcourts with either complex. Rather, the ballcourts form the entrances to the plazas at the heart of both groups. The isolated

Ballcourt 1 notwithstanding, the ballgame at Baking Pot was actively and necessarily involved in the physical experience of both palatial and E-Group settings. Recalling the earlier discussion of ballcourts as portals to Xibalba, it is interesting that at Baking Pot they should be treated as very literal portals into key areas of the urban-core. The linking of Ballcourts 2 and 3 by sacbeob also links the palace and E-Group through the medium of the ballgame. It is probable that large ceremonies would have entailed processions between these Groups and through their attendant ballcourts. The ballgame at Baking Pot was thus intimately related to both cosmological and political matters, and most importantly to the inter-relation of the two. It was thus a cohesive element involved in the total ritual life of the centre.

Figure 9: Canaa at Caracol



Photograph by David Kay

Caracol's A and B Groups (Figure 17) are joined by large open spaces rather than sacbeob, in a manner more similar to El Pilar. Unlike both El Pilar and Baking Pot however, there is no clear distinction in function between the two groups. Group A contains the South and Central Acropolises (palaces) as well as the E-Group enclosing A Plaza. Group B is centred on B Plaza, which is bounded to the south by another E-Group and to the north by Canaa, a witz similar to Xunantunich's Castillo. Ballcourt B forms the western edge of this plaza, and is thus an integral component of the framing of ceremonial space in Group B, where many important public events are likely to have

taken place, overseen by elites gathered within the *audiencia* of Canaa's lower tier (Awe 2008: 169). Ballcourt A also lies in the midst of monumental constructions, at a centre point within Group A. It may therefore have marked a point of transition between other locales, rather than being preferentially associated with either Acropolises or E-Group. Ballcourt B, unlike Ballcourt A, is therefore not associated with any one particular manifestation of elite power, but rather mediates a more diffuse conception of this power as materialised in the surrounding built environment.

Figure 10: View south from Canaa towards the B Plaza E-Group, Ballcourt B is on the right



Photograph by David Kay, 2013

Lower Dover's (Figure 18) ballcourt is difficult to discuss given the current lack of knowledge of any *sacheob* entering the urban-core. For the space syntax analysis, all possible entrances were designated as such. This may be far removed from the experience of the site in antiquity, or conversely may be the most accurate model of all if *sacheob* were only used for specific ceremonies and the monumental precincts were otherwise permeable on all sides. This debate aside, it is at least possible to observe that the ballcourt at Lower Dover lies between the two main monumental clusters of Plazas A and B. Plaza B in the west fronts what appears to be the site's palace and main elite residential area, whilst Plaza A in the east is framed by a large E-Group. In a manner most similar to that of Ballcourt A at Caracol, the ballcourt at Lower Dover seems to mediate and connect these two installations. At Lower Dover, however, the

ballcourt is built directly onto the back of Plaza A and was perhaps more closely associated with the E-Group than the palace. It at least occupies a central position in the site, suggesting that it was of great ritual importance to Lower Dover as a whole. Further excavation will hopefully clarify this picture.

Table 5: Summary of phenomenological descriptions of ballcourts

Site Name	Ballcourt ID	Summary of Description
Cahal Pech	East	Near entrance; little association with other monuments
	West	Problematic; disconnected from core but possibly of open access
Xunantunich	1	Necessitates travel through core/encounter of monuments en route
	2	Portal linking main plazas; direct association with monuments
Buenavista del Cayo	South	Earlier; near entrance; framed Central Plaza
	North	Later; replaces South Ballcourt; further from entrance; more restricted access; possibly greater spectator capacity
El Pilar	-	Associated with E-Group/audiencia but not palace
Pacbitun	-	Distant from entrance; necessitates travel through core/encounter of monuments (esp. E-Group) en route
Baking Pot	1	Problematic; disconnected from core but possibly of open access
	2	Portal to plaza fronting E-Group
	3	Portal to plaza fronting palace
Caracol	A	Frames plaza fronting Canaa/E-Group
	B	Mediates space between Acropolises (palaces) and E-Group
Lower Dover	-	Mediates space between palace and E-Group

Table 5 summarises these descriptions. It is clear that no two ballcourts, nor sites, are alike to the degree suggested by space syntax analysis. The possible exception to this observation is the functional similarity between the ballcourt at Lower Dover and Ballcourt A at Caracol, also mirrored by their similarly high degrees of connectivity at three steps removed. However, these two sites differ both in scale and architectural specifics. For instance, Ballcourt A at Caracol lies in the midst of several dispersed monumental installations, including two acropolises, whilst at Lower Dover the ballcourt, although lying between palace and E-Group, is more closely associated with the latter. Likewise, although accessing Ballcourt 1 at Xunantunich and the ballcourt at Pacbitun both required travelling through the site core, these were qualitatively different journeys entailing encounters with distinct building complexes. Thus, whilst ballcourts may generally have been of equally open access in terms of space syntax, the individual architectural manifestations of each site *on the ground*, including ballcourts, can be seen to be highly individualistic.

VII. Discussion: Space and Place

These analyses suggest that in terms of *space* the Late Classic ballcourts of western Belize are essentially the same, but in terms of *place* they are significantly different. Hence the space syntax analysis has rendered values and descriptive measures which evidence very little variation amongst sites, indicating that all ballcourts are accessible to much the same degree. Conversely, the phenomenological site descriptions display great heterogeneity across the sample. The connectivity and integration of ballcourts as reified *spaces* are thus common across the region, but their material settings, i.e. their status as experiential *places*, are highly individualistic.

It is important that whilst Maya palaces, temples and other buildings were inherently transitory structures, subject to near-continual revision and modification, often complete destruction and replacement, ballcourts were far more permanent installations (Scarborough 1991: 129-130). In the Preclassic, when the game originated, urban-cores were generally more diffuse and 'open'. It is only in the sixth-seventh centuries AD that Maya urban-cores become internally restricted (Awe 2008: 164), which is linked to the growth in elites' political power. That ballcourts retained a degree of openness into the Late Classic demonstrates the resilience of the game as a ritual activity which elites were constrained in their ability to control. Modifications to ballcourts were relatively slight (Lisa Lucero pers. comm. 2014), whilst their destruction appears to have been taboo. Although the founding of Buenavista del Cayo's North Ballcourt in a more restricted area of the site suggests elites' desire to associate the ballgame more closely with their own legitimisation, that the South Ballcourt was deactivated rather than levelled shows that the ballgame itself resisted elite appropriation.

The space syntax data likewise intimate that elites could not appropriate the ballgame as a restricted esoteric practice. The universally great cosmological importance of the ballgame suggests that it carried a great deal of popular expectation regarding unrestricted access to important ballgame ceremonies. The relatively accessible siting of ballcourts likely reflects the constraints of this expectation on elites' ability, as the sponsors of monumental building, to influence the material way in which the ballgame was experienced at each site. I am thus confident in interpreting the two isolated ballcourts in my sample as the most accessible of all. Indeed, their separation from the main monumental site cores of their sites sets them at a remove from other elite theatres of power, although they are not entirely separated from them. Cahal Pech's West Ballcourt thus lies in the shadow of the palace, whilst Baking Pot's Ballcourt 1 is

opposite a probable northern entrance point to Group A. However, in lying beyond the bounds of these complexes, they would have been free of the direct elite manipulation of ballgame settings, and thus experiences.

Whilst across Late Classic period western Belize the ballgame was ubiquitously treated as a public institution accessible to the majority each polity's population, it was also intrinsically linked with dynastic legitimisation. For instance, it has been suggested that north-south alignments were associated with ancestry, especially as embodied in the ruler and their royal dynasty, as opposed to the identification of east-west alignments with the divine sun (Ashmore and Sabloff 2002: 203). The performance of elites in ceremonial matches likewise gave the ballgame legitimating force. However, the particularities of legitimisation varied from site to site in terms of the association of ballcourts with other monumental constructions and the visual exposure to such monuments that attending ballgames entailed. It is in embodying such tensions that I argue that the ballgame played an effective role in forming political identities.

Given that polities are composed of many different people, all with different, often context-dependent, identities, the ability of the ballgame, in conjunction with larger ceremonial events, to act as a mediator holding competing identities in balance would have ensured its active role at the heart of Maya political life. The ritual and cosmology of the ballgame, comprised of a complex set of beliefs and practices, thus created a political theatre in which diverse perspectives, expectations and experiences were brought together in dynamic equilibrium. In facilitating the negotiation and re-articulation of identities, in which internal contradictions were made compatible through ambiguity, the ballgame provided a forum in which political identities could maintain their flexibility. Individual polities engaged with this dynamic potential in different ways; creating distinct ballgame experiences which in turn fed into the creation of political identities specific to each polity.

These inferences allow us to critically engage with the theoretical work of Durkheim, who posited that collective action engenders unison of belief and, more importantly, feeling. Such emotional experiences raise social interdependence to the realm of discourse, meaning that ritual is inherently *necessary* for social cohesion. In his view, the propagation of collective sentiments required the actual co-presence of the group, which in turn created physical fora of 'moral remaking' (Kertzer 1988: 62). The Maya ballgame can certainly be seen to fit such an interpretative model.

However, as Kertzer (1988: 65) points out, Durkheim's model was developed for modern, mono-religious societies. Kertzer (1988: 66-71) instead emphasises internal

differentiation, arguing that solidarity is produced through the ambiguity of symbols employed in ritual action, and does not necessarily equate to consensus of belief. Thus conflicting beliefs can be accommodated within socially cohesive participatory rituals. In a similar vein to Foucault, community experience is here formed through physical actions upon the body. Whilst the ballgame supports this interpretation in its encapsulation of multiple social perspectives, it also presents us with an opportunity to move beyond the passivity of bodies, and consider the constraints that social expectation placed back upon space in the context of the ongoing negotiation of distinct political identities.

Such opportunities could be greatly aided by addressing some of the faults of this study. First, as mentioned above, polities are composed of many different kinds of people, and whilst throughout this study the bifurcation of Maya society into 'elites' and 'commoners' is at one scale broadly pertinent, it also elides much social variation within those categories. Likewise, the study is largely synchronic in character; the data reflecting the cumulative development of Maya urban-cores as they appeared in the Late Classic. Some diachronic elements have been discussed, such as the moving of ballcourts at Buenavista del Cayo, but further consideration of such developmental sequences could be of great use in furthering our understanding of the ballgame both within specific polities and at a regional level.

Another flaw concerns the application of space syntax analysis to Maya sites. As mentioned previously (see also Appendix VIII), this entails much subjective judgement in the polygonal division of spaces. Re-surveying each site could remove some of the ambiguities contained within published plans, but even then individual judgments would produce differing results. However, the use of complimentary ways of examining the data (here being phenomenological description), can preserve the utility of space syntax as a measure of access and spatial connectivity. Such a comparative approach enriches our overall appreciation of the relationships between space and place.

VIII. Conclusions: Negotiating Complexity

I conclude that the ballgame across Late Classic western Belize was a universally public institution, but that its material manifestation within each polity was highly individualistic. This is evidenced by the largely homogenous values from the space syntax analysis, which show that all ballcourts were equally well-integrated within sites and thus of equally open access to visitors frequenting ceremonial ballgame events. Conversely, the phenomenological descriptions have highlighted heterogeneity across the sample, whereby the more experiential aspects of ballcourt settings were particular to each site.

My first initial hypothesis has thus been broadly validated through analysis, as the similar connectivity of ballcourts does mirror the similarity of whole-site connectivity. This necessitates the refutation of my second hypothesis, as connectivity patterns do not differ to any great degree among sites, and neither do those of ballcourts. My third hypothesis is strongly validated, as the experiential descriptions are indeed characterised by a great deal of variation.

The results of analysis thus do not meet my initial expectations for this study, being far more complex than a simple situation where separate polities treated ballcourts in completely different ways. As discussed in Chapter VII, in embodying both regional and polity-specific trends, plus the conflict of interests of elites and commoners, the ballgame mediated several tensions within Maya society. As political theatres, the institutional accessibility of ballcourt settings thus firmly established certain 'ground rules' regarding commoner access to these cosmologically important rituals, as well as forming a pan-regional Maya cultural ideal common across polities. The ability of ballcourts to act as carriers for specific manifestations of political power lay in the extent to which their placement within urban-cores, specifically their relationships with other monumental constructions and ceremonial locales, could be manipulated by elites.

It is not possible to say for sure whether the ballgame was critical to the formation of political identities, but given the theoretical discussion in Chapter IV it seems likely that this was the case. Qualitatively different ballcourt settings between sites would have created very different experiences of ballgame performances, leading in turn to the articulation of the ballgame as a ceremonial 'practice of affiliation' that varied amongst polities. It is thus possible to presume that it would indeed have been involved in the creation and maintenance of distinct identities particular to each polity.

However, by the same token, its pan-regional traits would also have engendered in part a common conception of 'being Maya'.

Far more research is needed to build on these propositions (see below), but as a start this study suggests that the ceremonial ballgame functioned in the maintenance of communities through the mediation of complex social tensions, and was thus a fundamental component of Maya political life.

IX. Further Research: Deeper into the Game

There are several other aspects of ballcourts that, if more fully investigated, could further elucidate the cultural and political context of the Maya ballgame.

First, although the majority view is that the political situation in the western Belize Valley during the Late Classic was a balkanised patchwork of independent polities, Ball and Taschek (2001, also Taschek and Ball 2004) have posited that Cahal Pech, Buenavista del Cayo and Xunantunich were all functionally distinct centres of one polity; the first a palatial retreat, the second an administrative centre, and the last an ancestral pilgrimage destination, at least until c. AD 800 when Xunantunich's administrative and ceremonial roles increased greatly. This interpretation has generally been rejected on the grounds that there is little evidence of complementarity in the ceramic assemblages of Cahal Pech and Buenavista del Cayo, nor of Xunantunich being residentially 'empty' prior to AD 800 (Audet and Awe 2005: 359). The presence of qualitatively different ballcourts at each site also lends weight to the independent polities model, as it seems unlikely that different centres within one polity would have developed such divergent ways of treating the ballgame. Ballcourt form/access can thus be seen to be of potential use in elucidating such issues of political organisation.

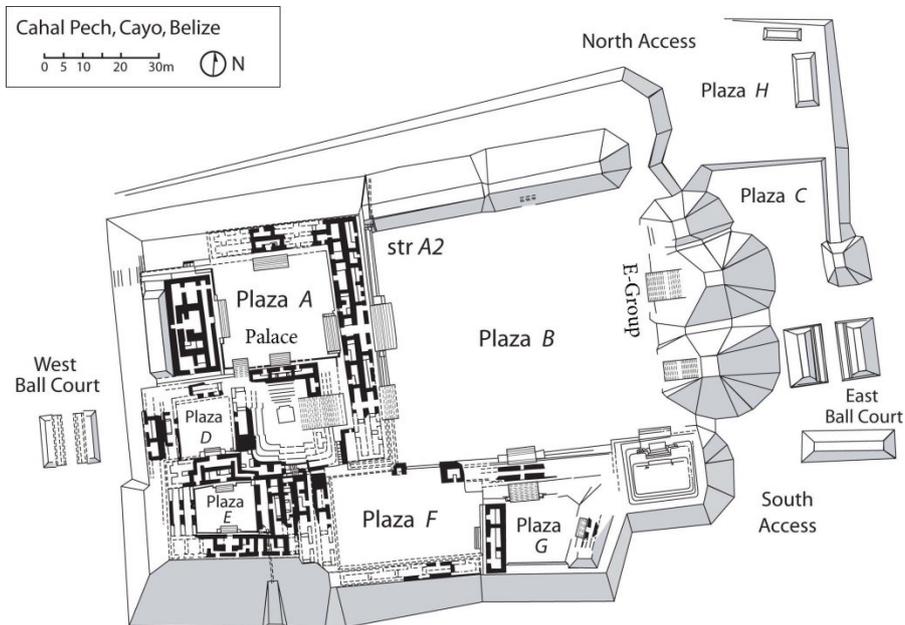
This potential could also be extended to the exploration of hegemonic relations throughout the region, especially with regard to the political machinations of Caracol and Naranjo. That these two primate centres had interests in the Belize Valley throughout the Classic Period seems to be fairly conclusive, but the details are anything but. At Pacbitun some customs, such as multiple burials, are reminiscent of Caracol. However this in no means signals direct political subjugation, especially as other customs, such as extended position burials with the head to the south, are very much typical of the Belize Valley (Healy *et al.* 2004: 225-226). Meanwhile, Naranjo seems to have shifted its attention from Buenavista del Cayo to Xunantunich in the Late Classic, sponsoring many of the monumental building works at the latter. Conversely, grave goods from Baking Pot suggest that its rulers enjoyed foreign connections, but remained politically independent. In any case, potential hegemony by Naranjo over Belize Valley sites can be presumed to be relatively low-key, probably based more on personal diplomatic relationships than direct overrule, as there is little evidence of violent conquest as in the neighbouring Petén region (Audet and Awe 2005: 359-363). Assessing ballcourt variation, including the content of centreline caches and iconographic panels, could provide additional measures of cultural connections and influences of this kind.

It is also possible that it may not have been necessary for actual matches to take place for ballcourts to function as cosmologically charged installations, for example with the use of ballcourts as portals at Xunantunich and Baking Pot. Whilst this possibility is extremely hard to assess, it should at least inspire renewed focus on the complex cosmology associated with the ballgame. For instance, it is possible that ballcourt alleys were sometimes angled to channel rainwater flow, reflecting their connection to the watery domain of Xibalba and the rains which annually renewed Maya life (Lisa Lucero pers. comm. 2014). This may have been the case at Cahal Pech, where Plaza C and the East Ballcourt lie at a lower level than Plaza H to the north. Similarly, the sunken setting of the North Ballcourt at Buenavista del Cayo may have transformed it into a pool during the rainy season. The investigation of such potential associations would greatly enrich our current understandings of how the ancient Maya regarded the ballgame.

In total then, there are many possible avenues for further research into the Maya ballgame which, in conjunction with this study, have the potential to greatly deepen our understandings of the game and the roles it played in the life of the ancient Maya.

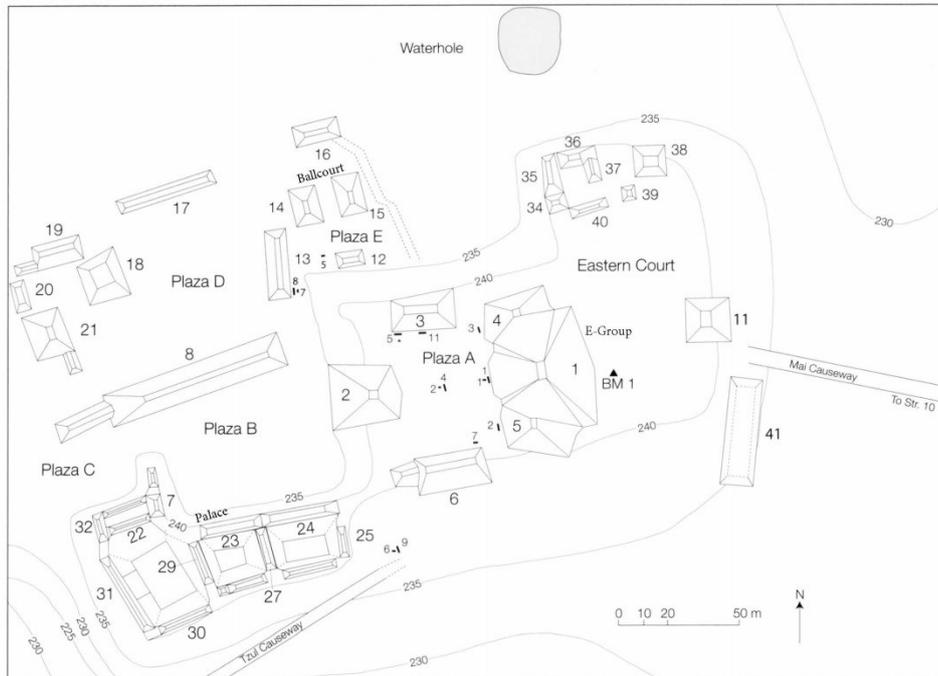
Appendix I: Sampled Site Plans

Figure 11: Site plan of Cahal Pech



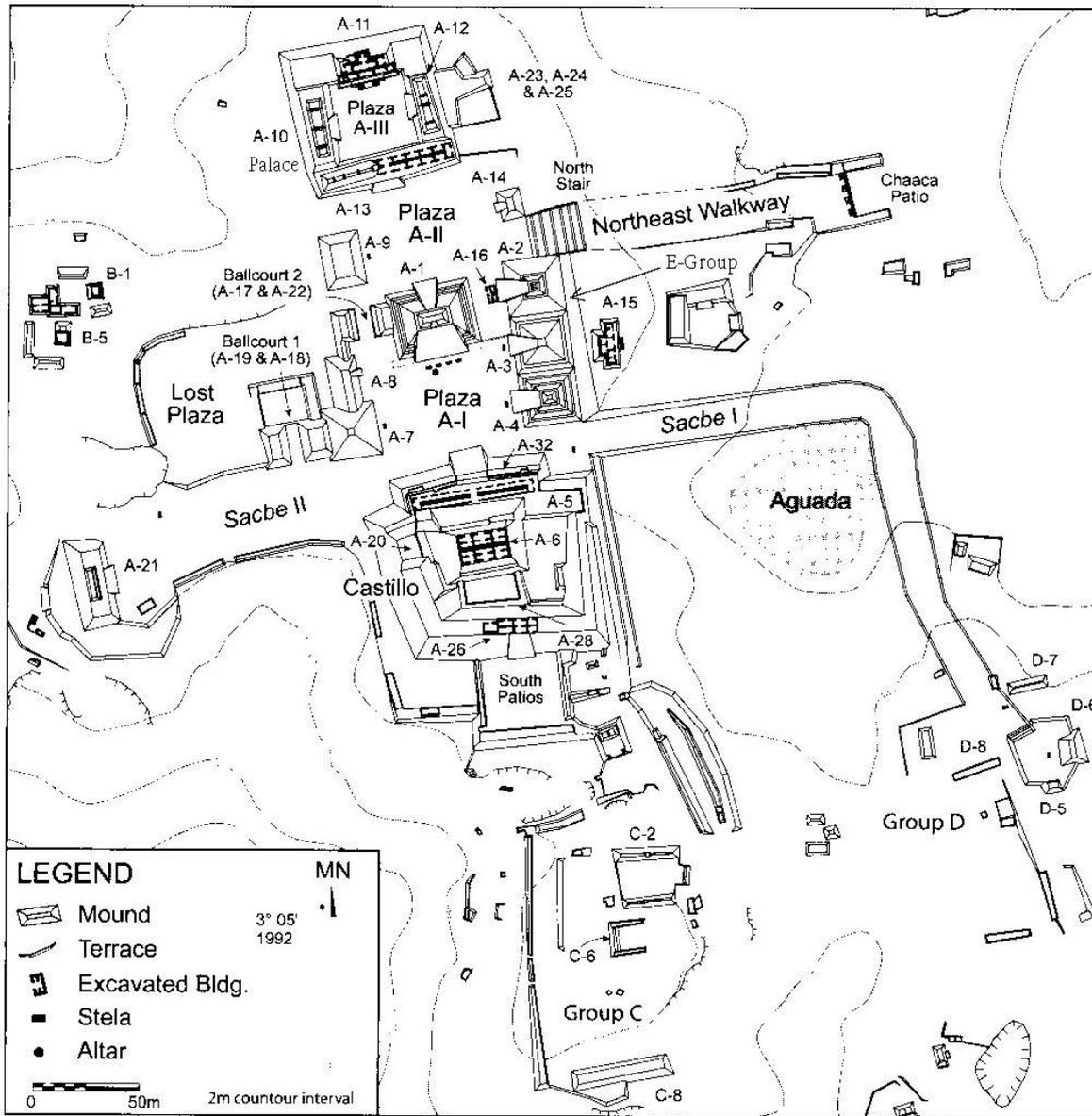
Courtesy of Jaime Awe, with added labels

Figure 12: Site plan of Pacbitun



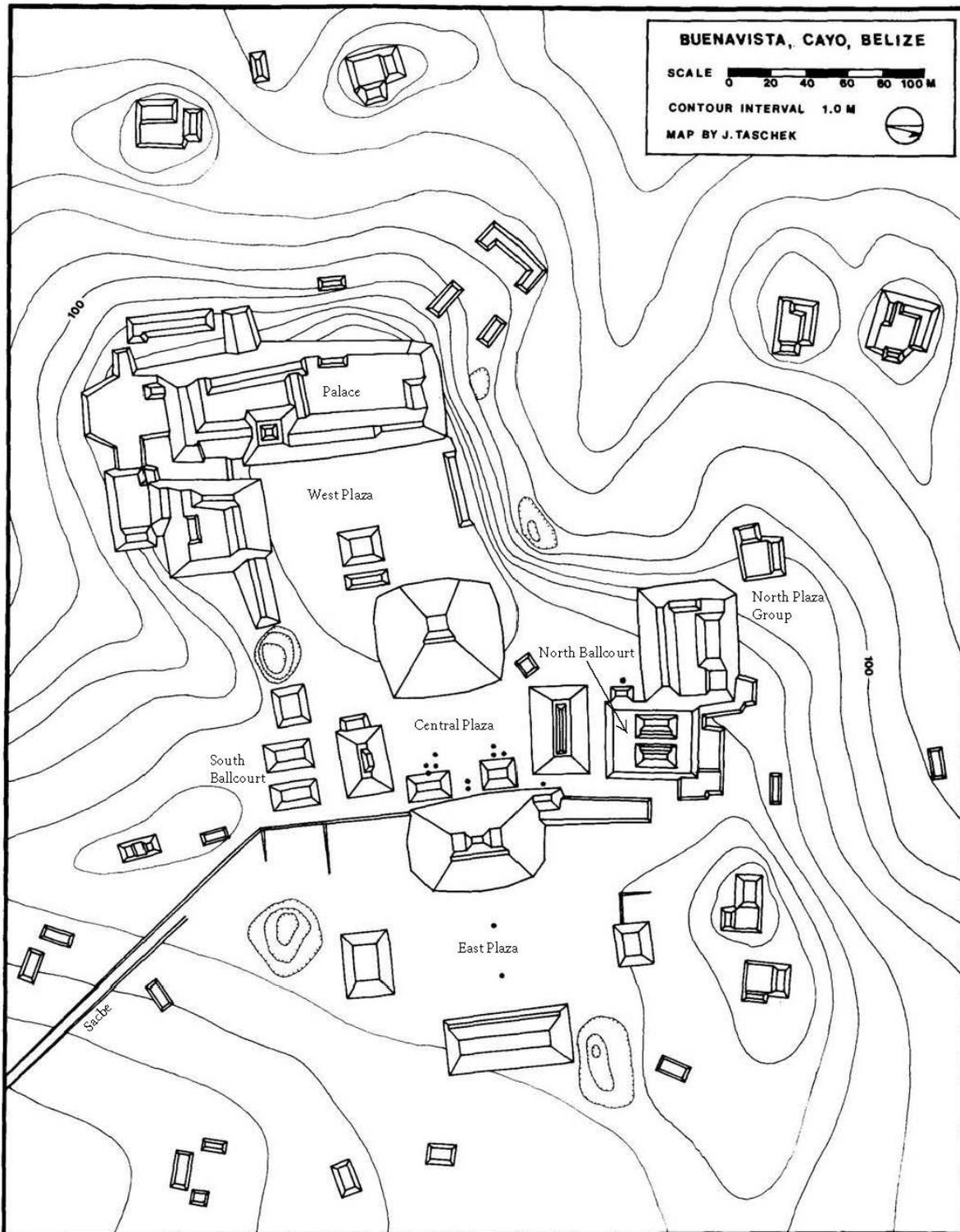
Healy *et al.* 2007: Fig. 2

Figure 13: Site plan of Xunantunich



LeCount and Yaeger 2010: Fig. 1.1, with added labels

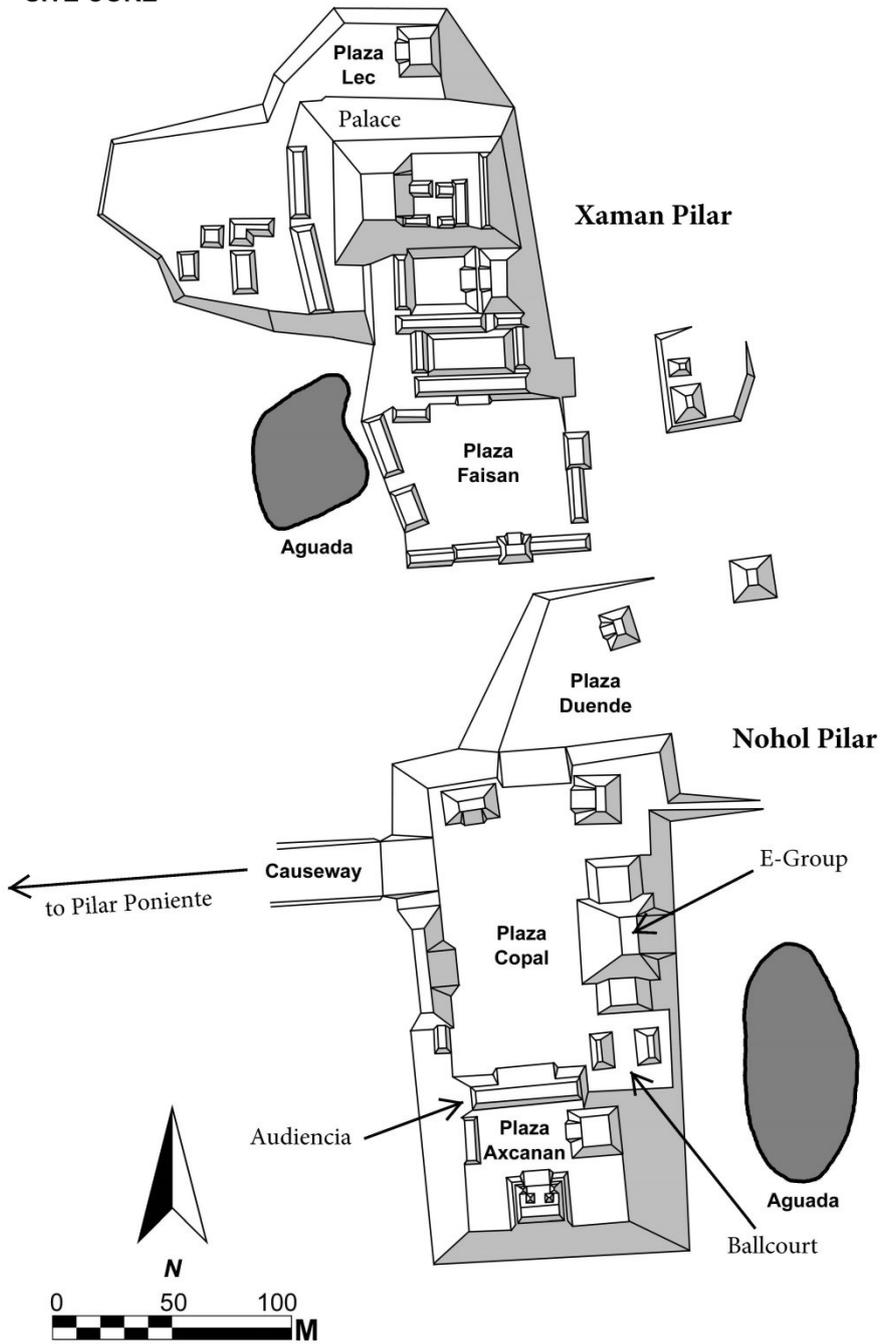
Figure 14: Site plan of Buenavista del Cayo



Ball and Taschek 1991: Fig. 2, with added labels

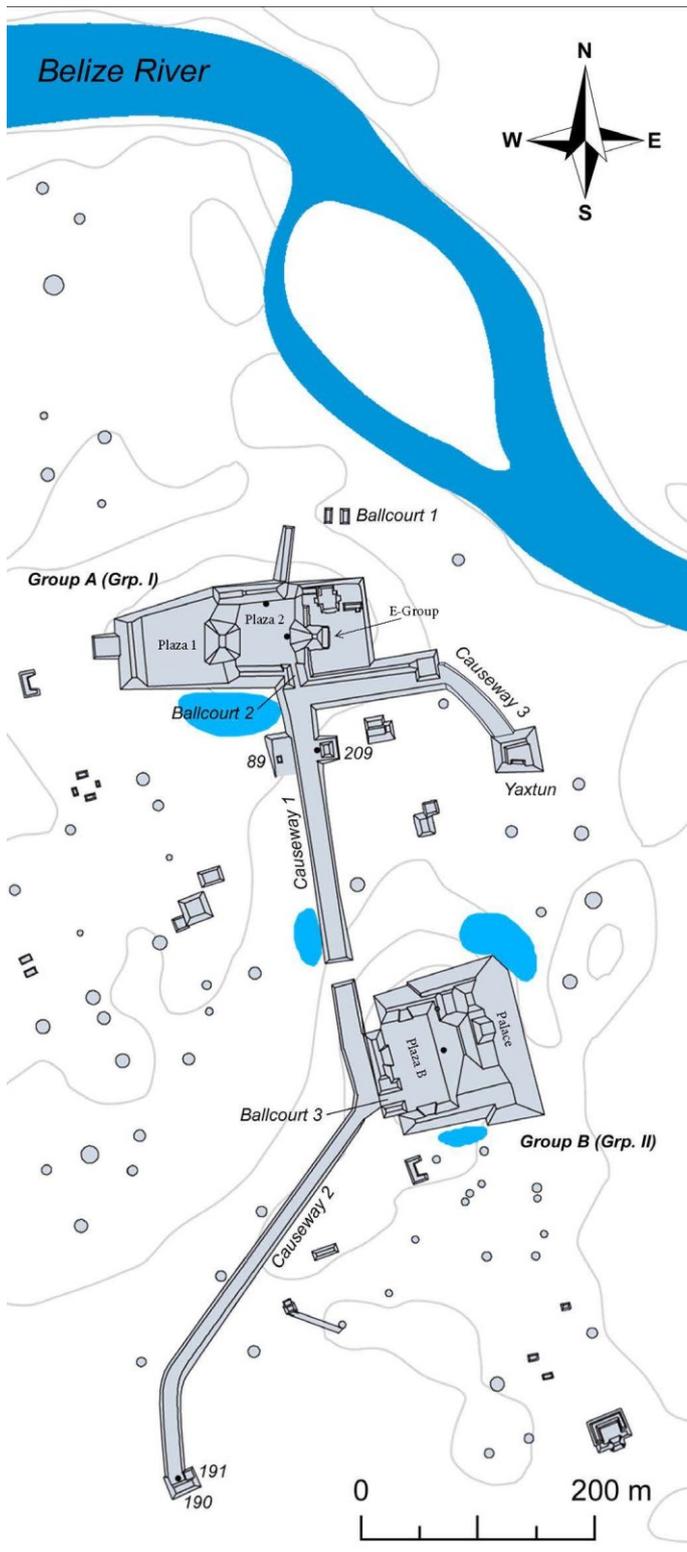
Figure 15: Site plan of El Pilar

**EL PILAR
SITE CORE**



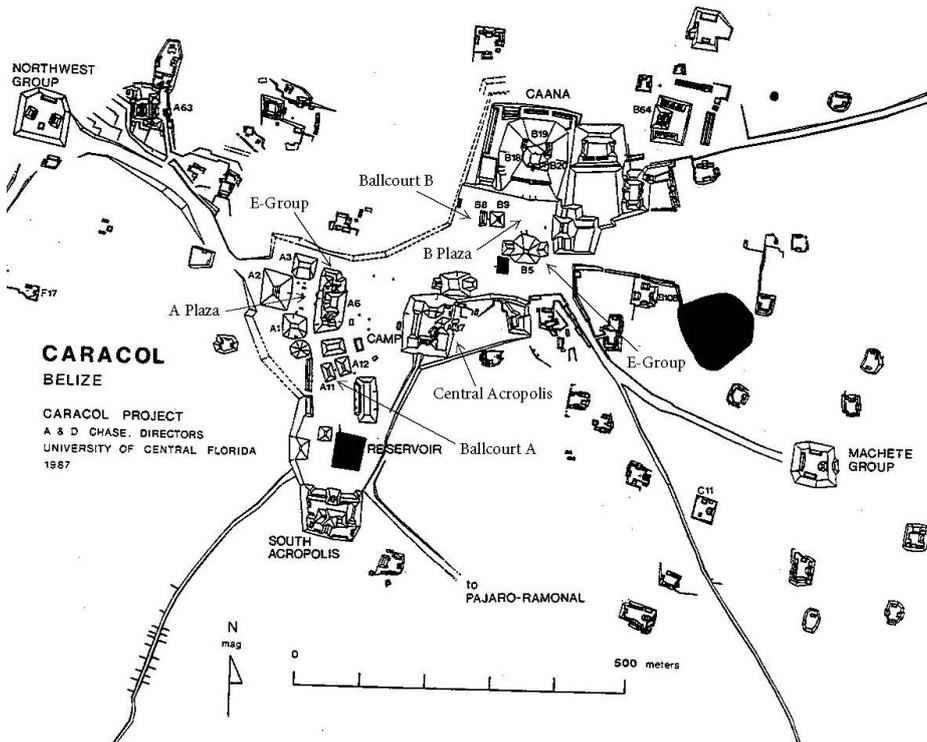
Courtesy of Jaime Awe, with added labels

Figure 16: Site plan of Baking Pot



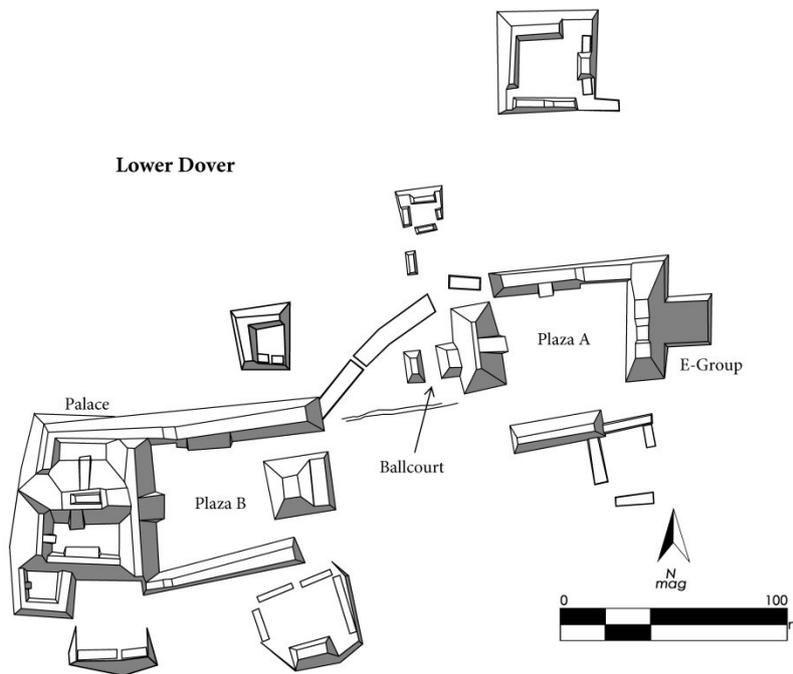
Courtesy of Julie Hoggarth, with added labels

Figure 17: Site plan of Caracol



Modified from Chase and Chase 1987: Insert

Figure 18: Site plan of Lower Dover



Courtesy of Rafael Guerra, with added labels

Appendix II: Convex Maps

Figure 19: Convex map of Cahal Pech

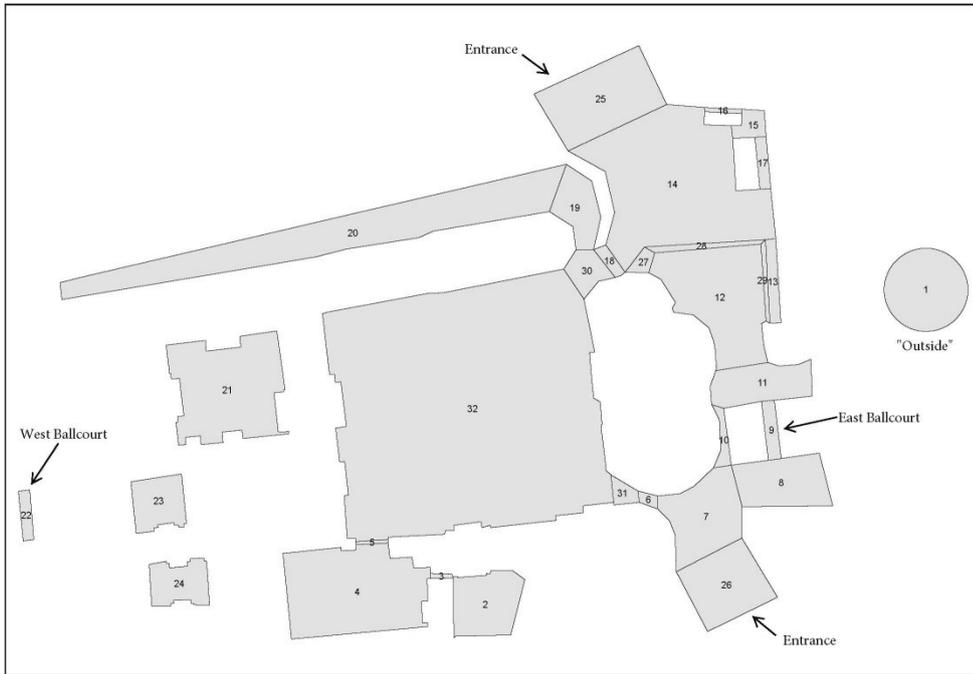


Figure 20: Convex map of Pacbitun

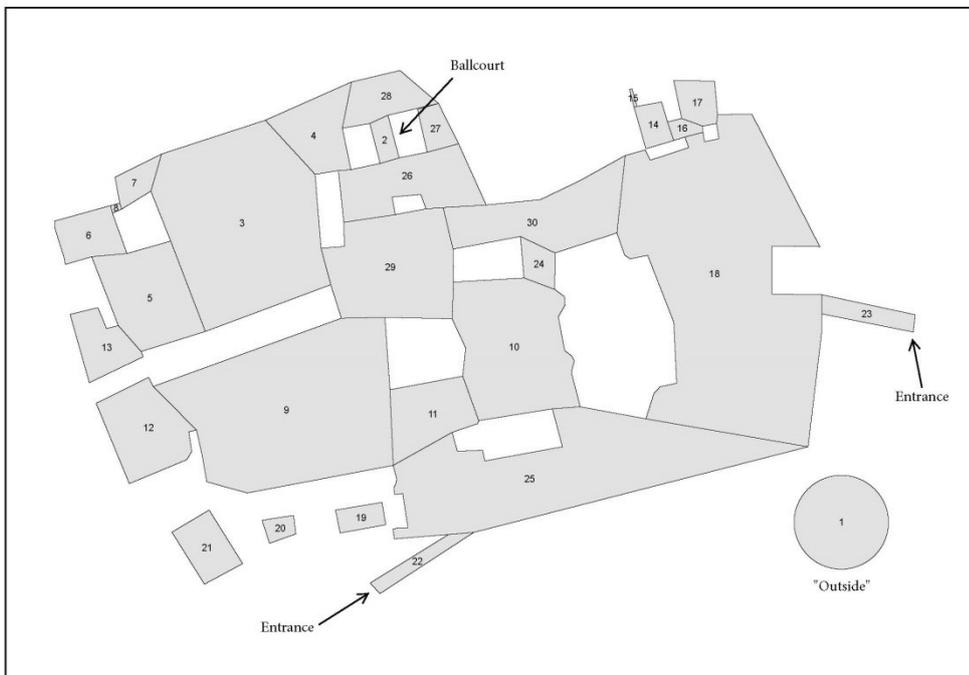


Figure 21: Convex map of Xunantunich

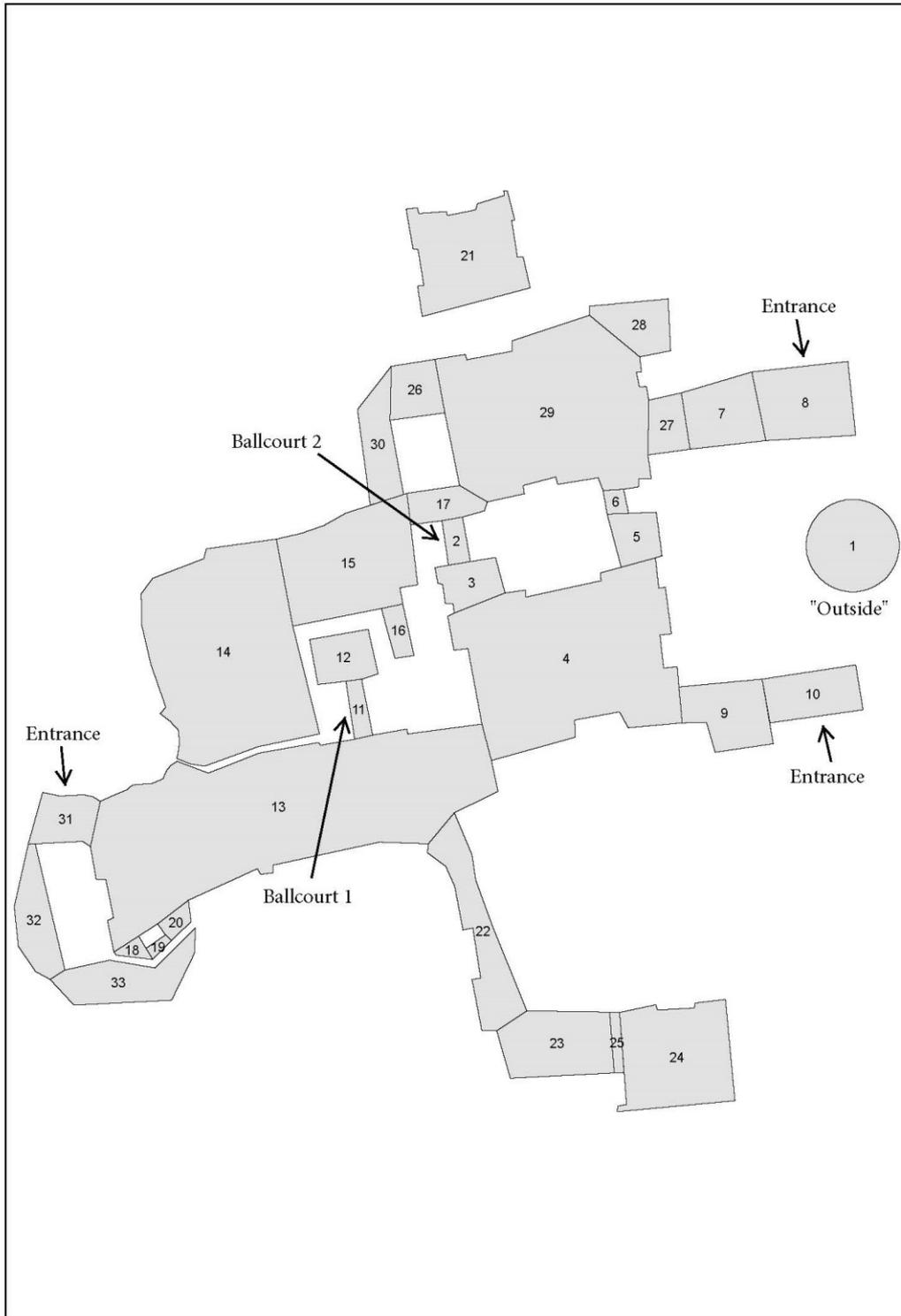


Figure 22: Convex map of Buenavista del Cayo



Figure 23: Convex map of El Pilar

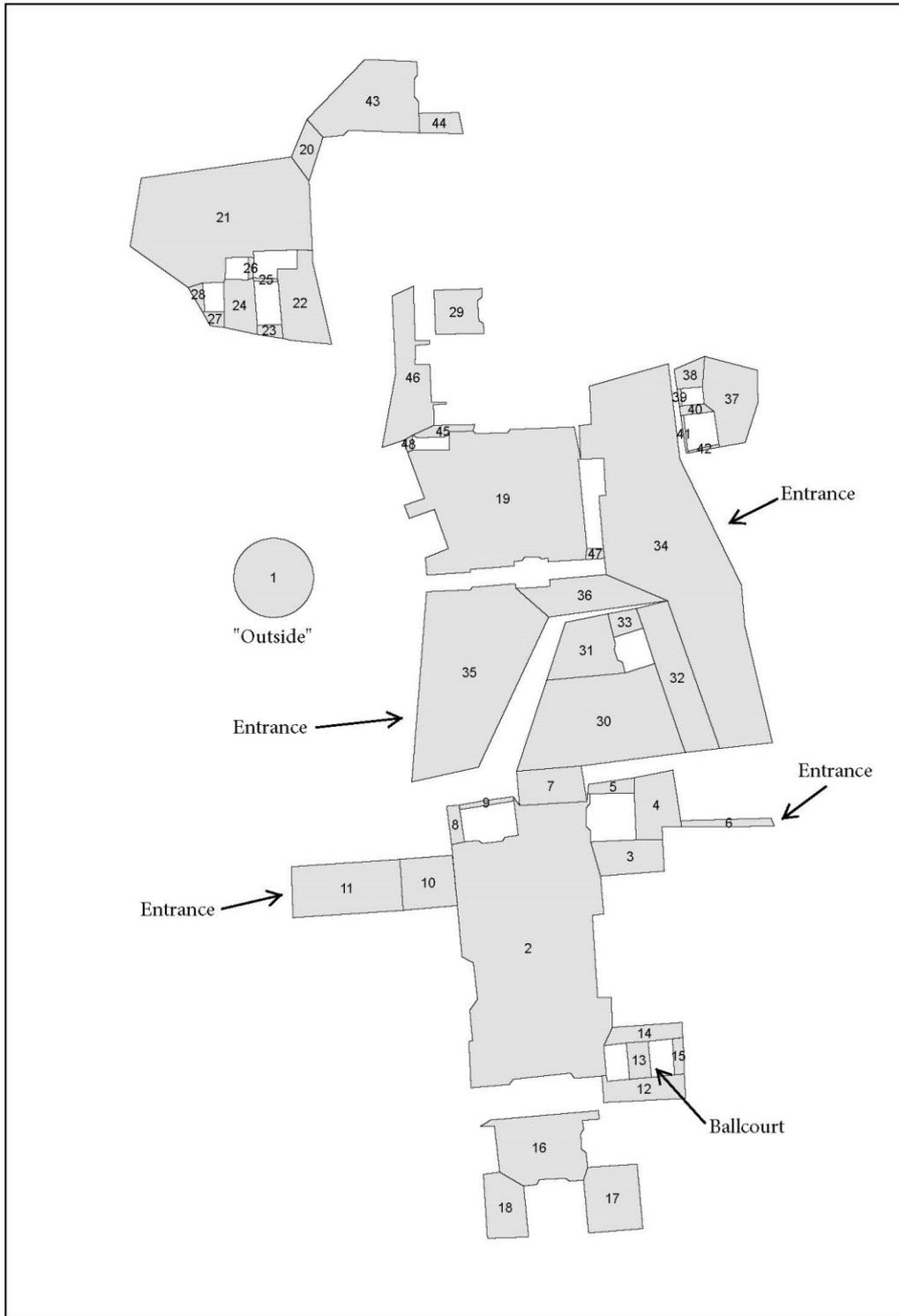


Figure 24: Convex map of Baking Pot

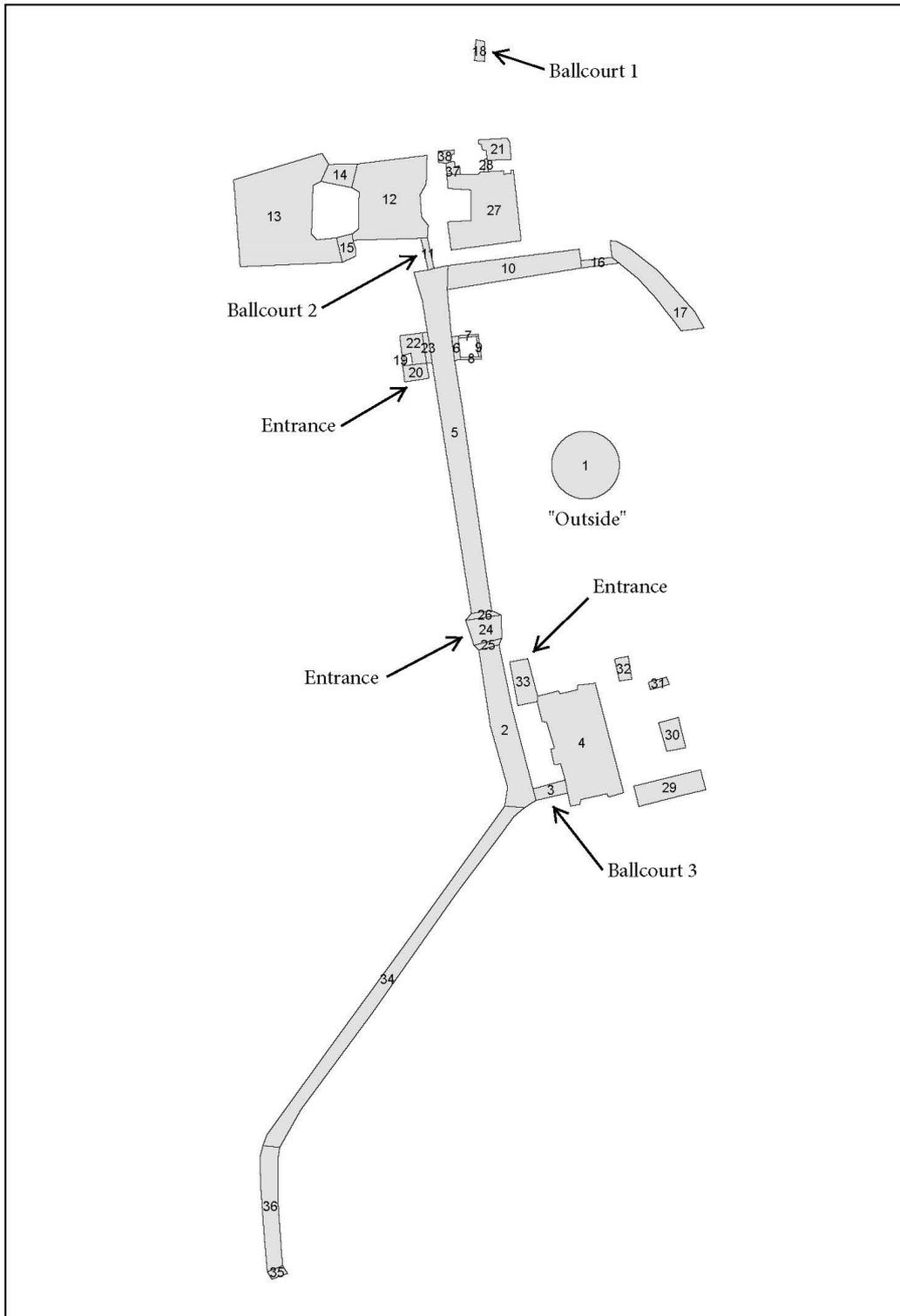
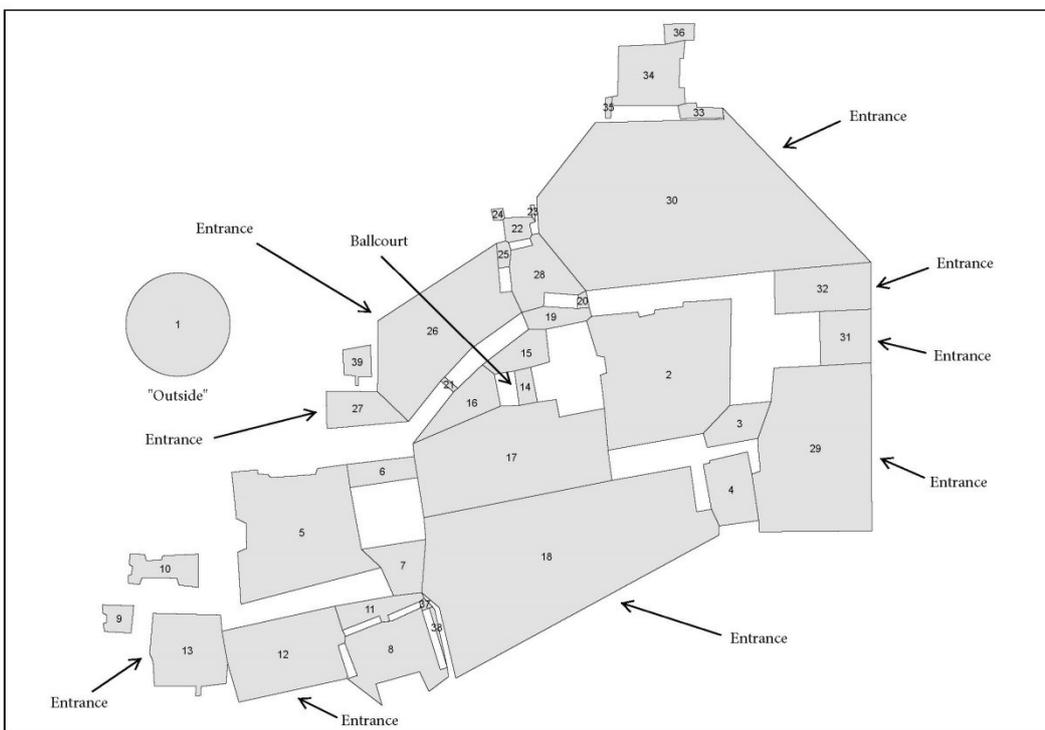


Figure 25: Convex map of Caracol



Figure 26: Convex map of Lower Dover



Appendix III: Python Connectivity Graphs

Figure 27: Python connectivity graph of Cahal Pech

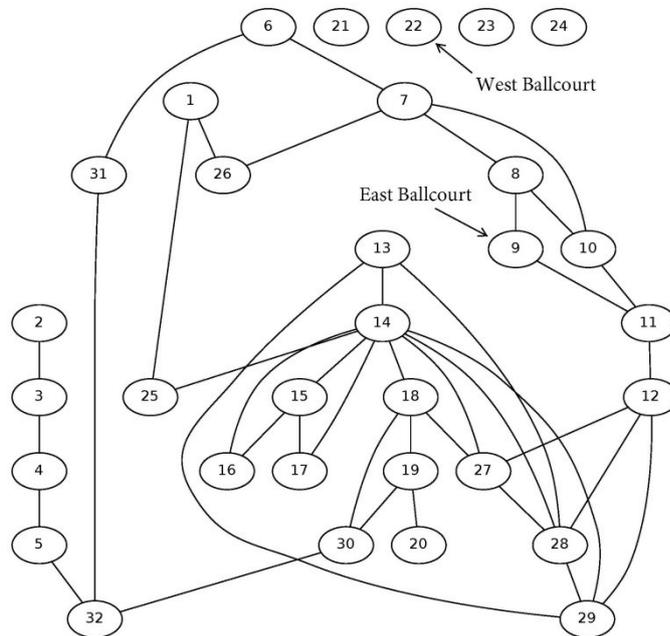


Figure 28: Python connectivity graph of Lower Dover

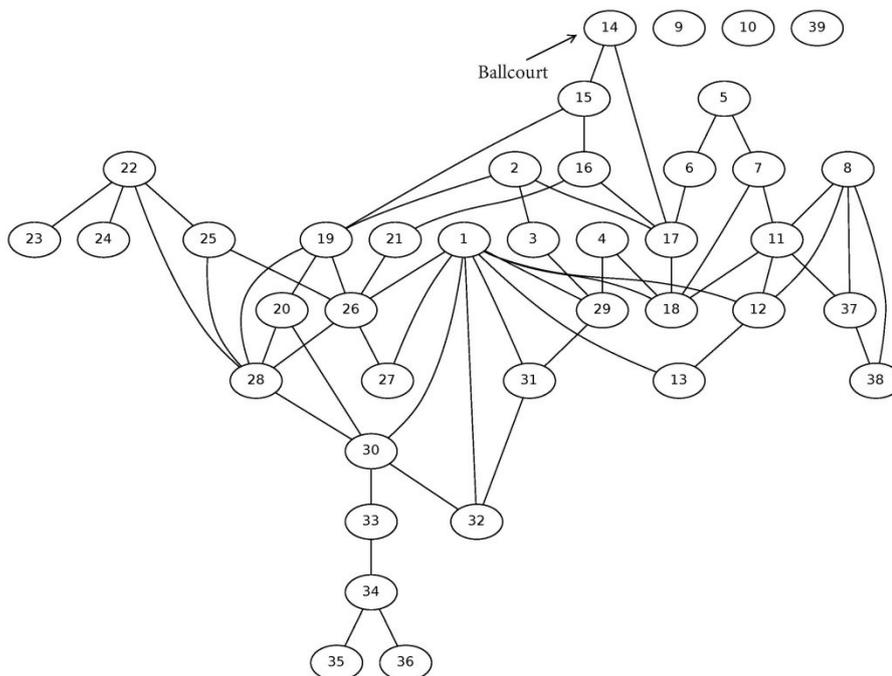


Figure 29: Python connectivity graph of Xunantunich

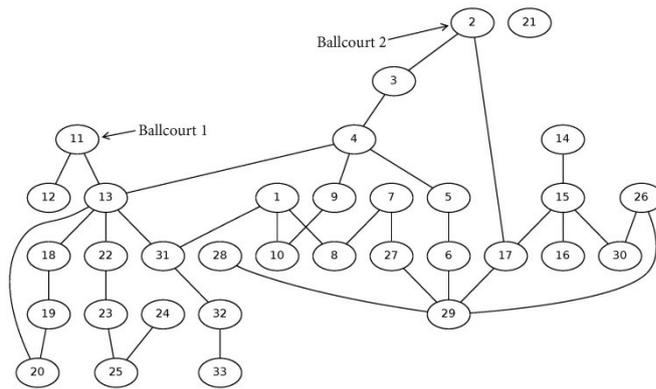


Figure 30: Python connectivity graph of Buenavista del Cayo

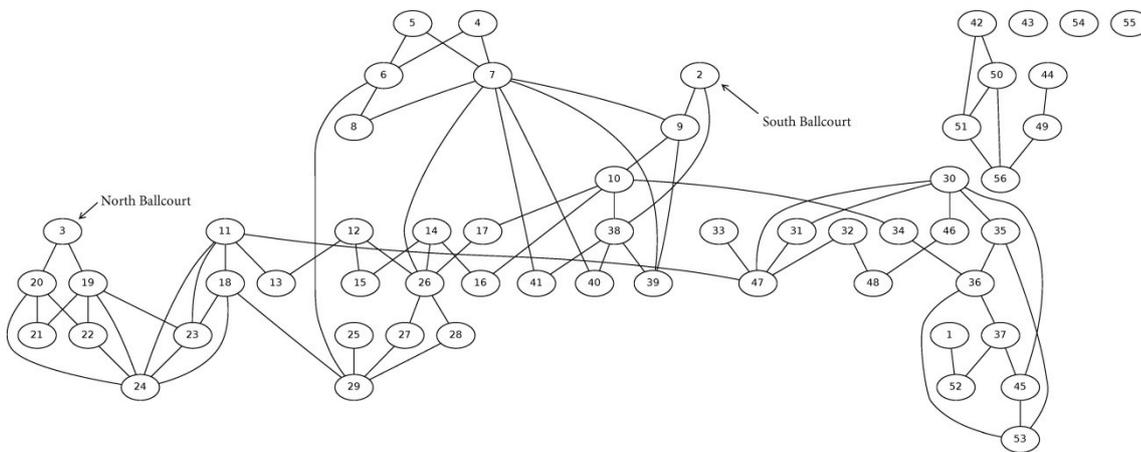


Figure 31: Python connectivity graph of El Pilar

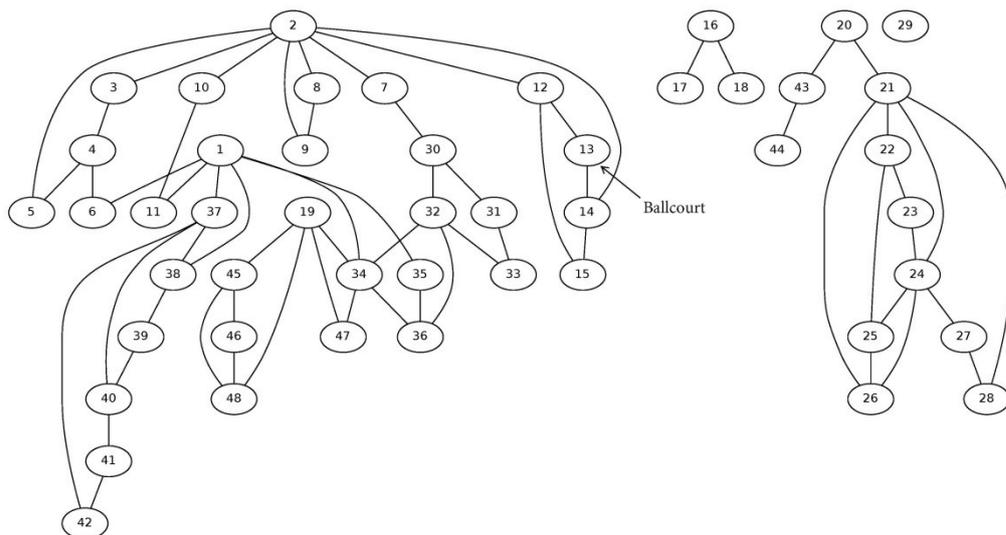


Figure 32: Python connectivity graph of Pacbitun

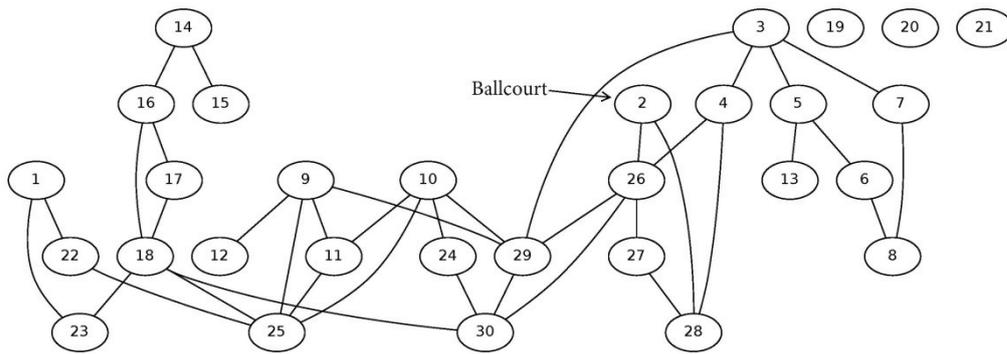


Figure 33: Python connectivity graph of Baking Pot

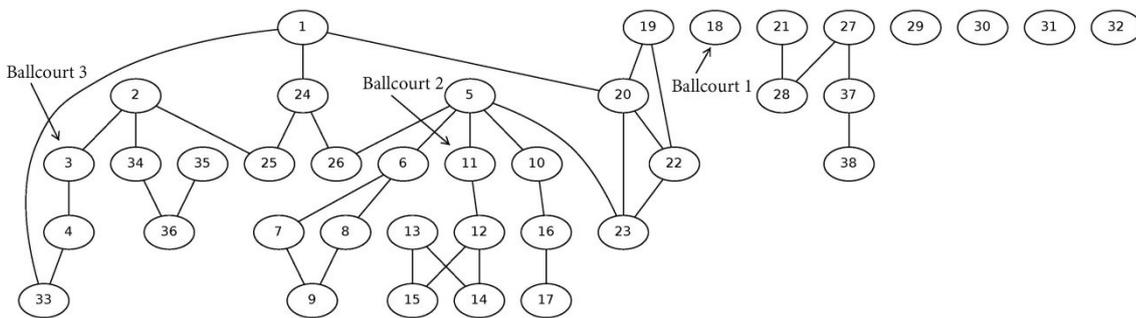
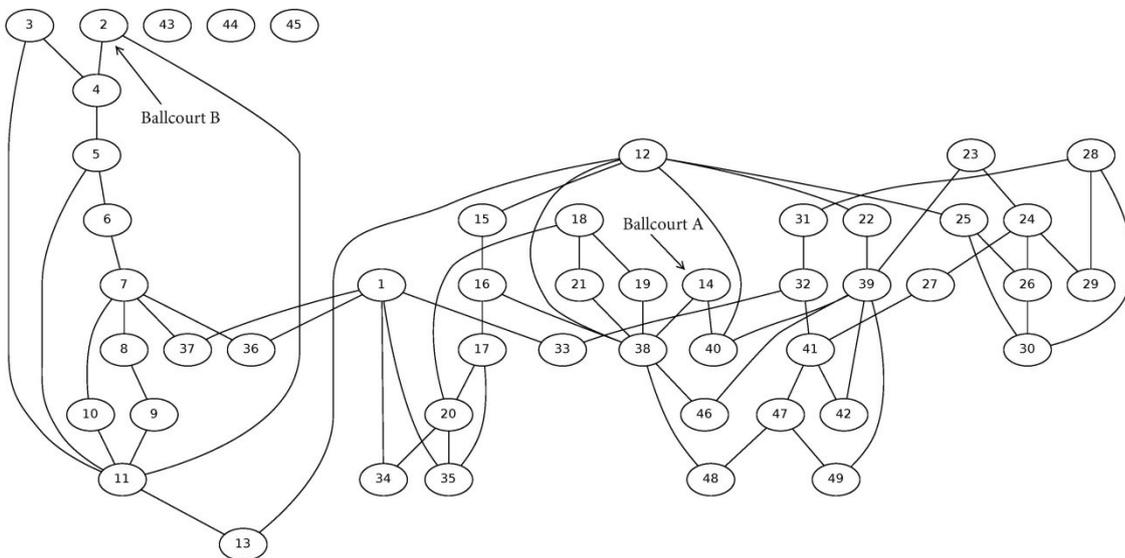


Figure 34: Python connectivity graph of Caracol



Appendix IV: Gephi Connectivity Graphs

Figure 35: Gephi connectivity graph of Cahal Pech

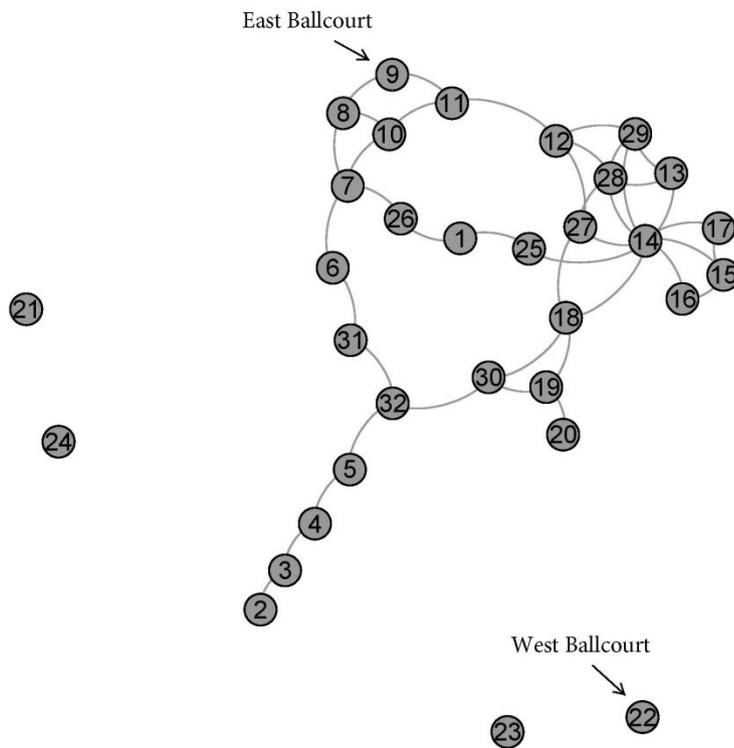


Figure 36: Gephi connectivity graph of Xunantunich

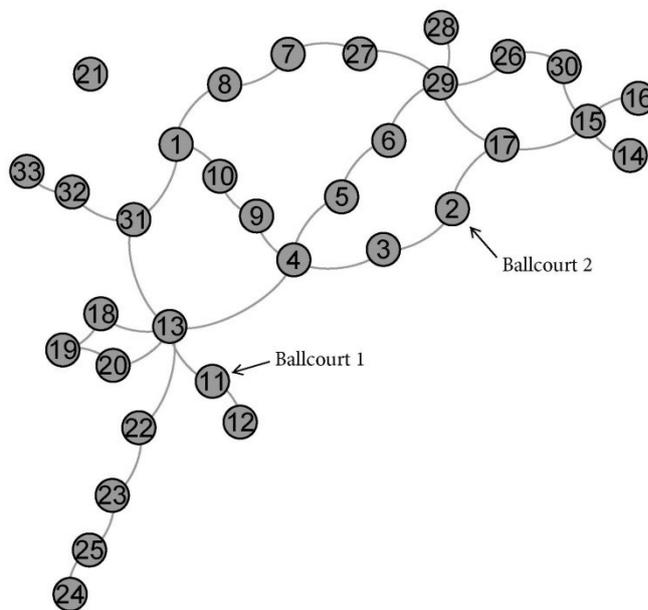


Figure 37: Gephi connectivity graph of Buenavista del Cayo

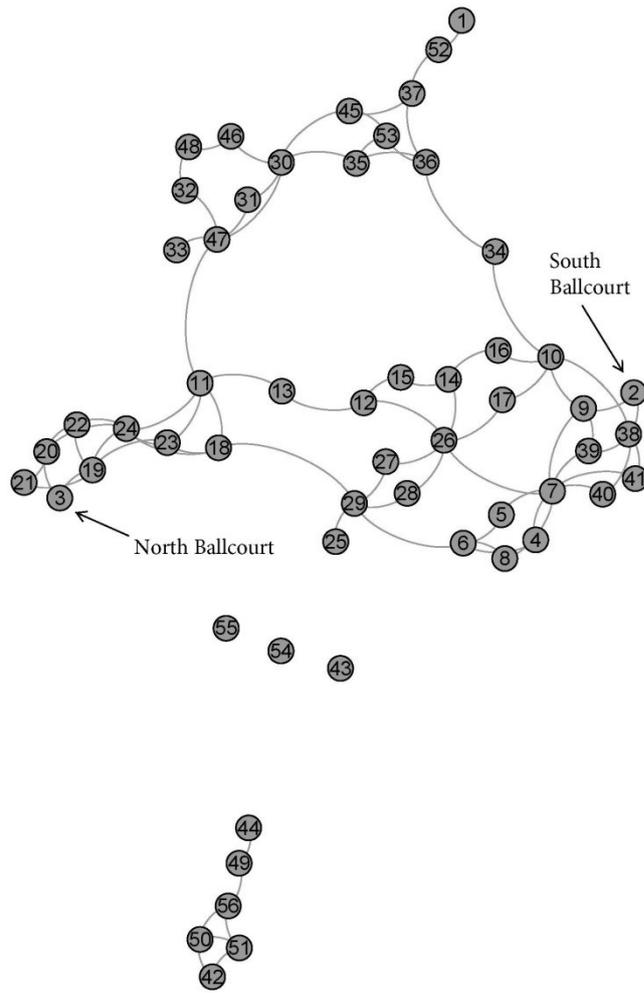


Figure 38: Gephi connectivity graph of Baking Pot

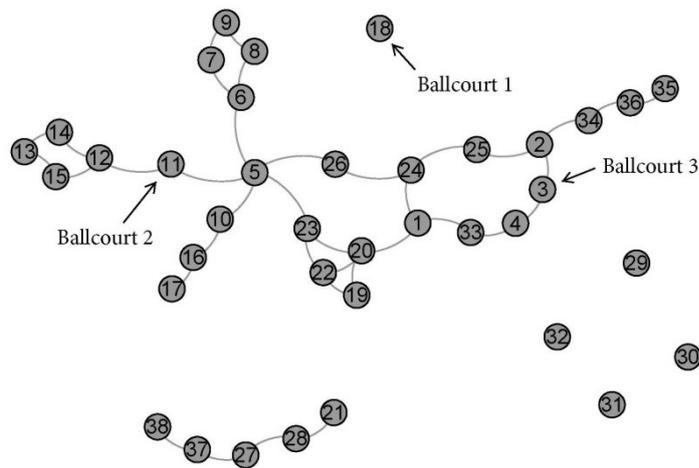


Figure 39: Gephi connectivity graph of El Pilar

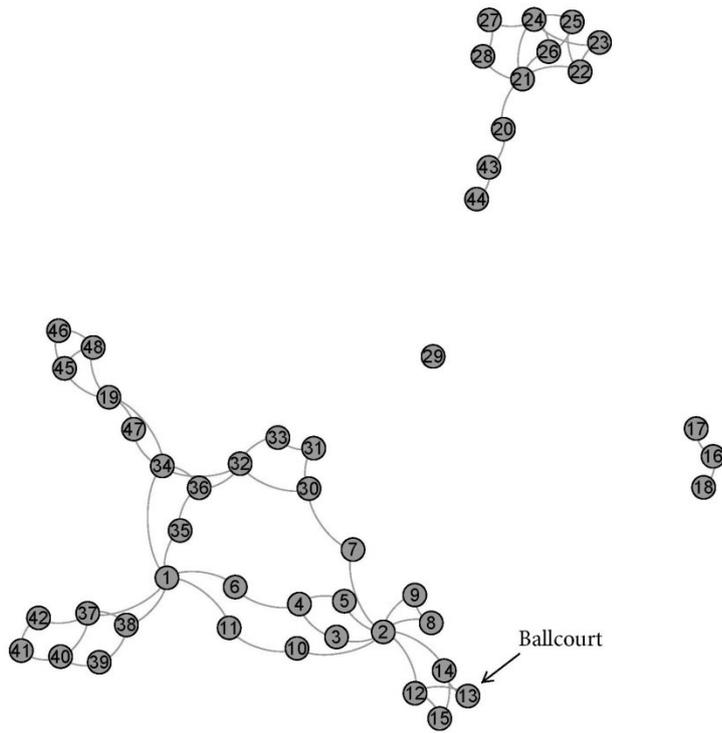


Figure 40: Gephi connectivity graph of Caracol

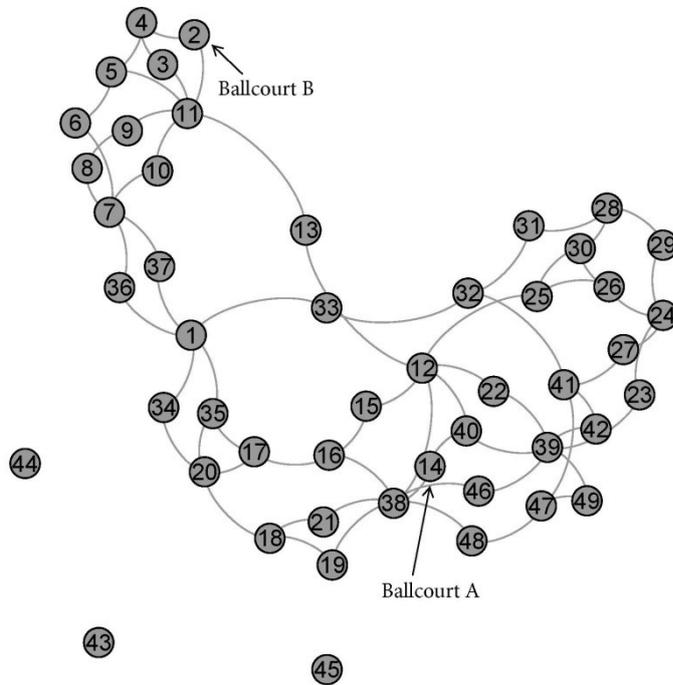


Figure 41: Gephi connectivity graph of Pacbitun

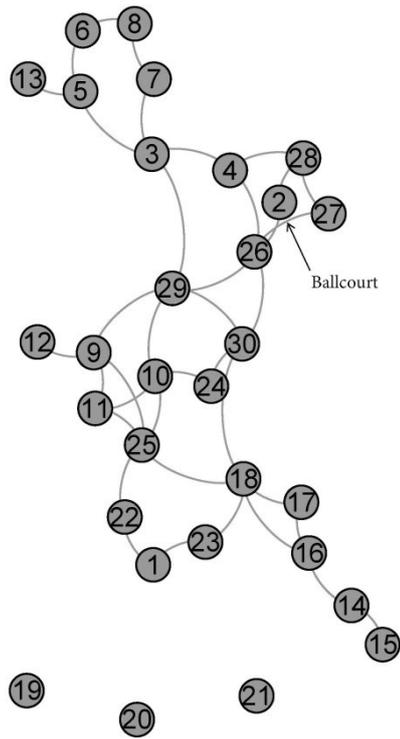
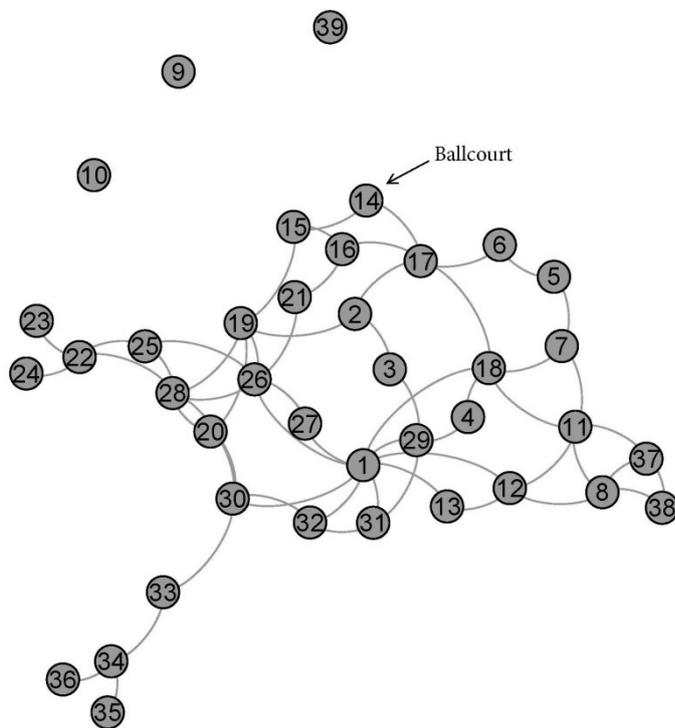


Figure 42: Gephi connectivity graph of Lower Dover



Appendix V: Gephi Heat Maps

Figure 43: Heat map of Cahal Pech



Figure 44: Heat map of Xunantunich

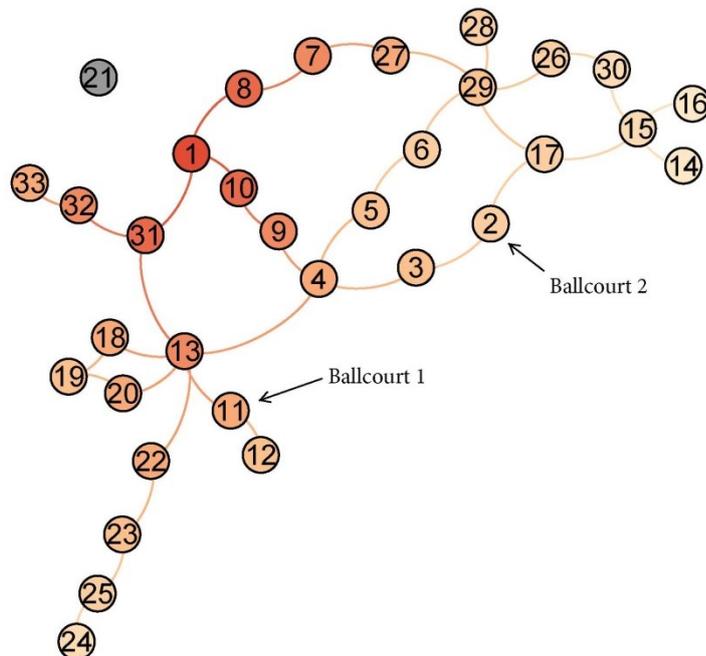


Figure 45: Heat map of Buenavista del Cayo

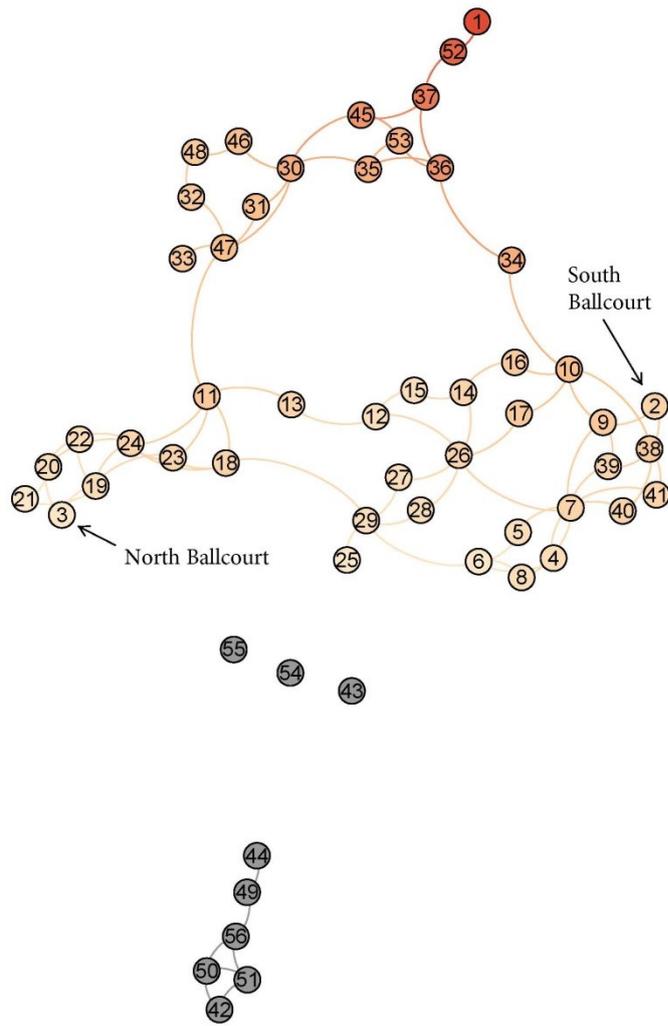


Figure 46: Heat map of Baking Pot

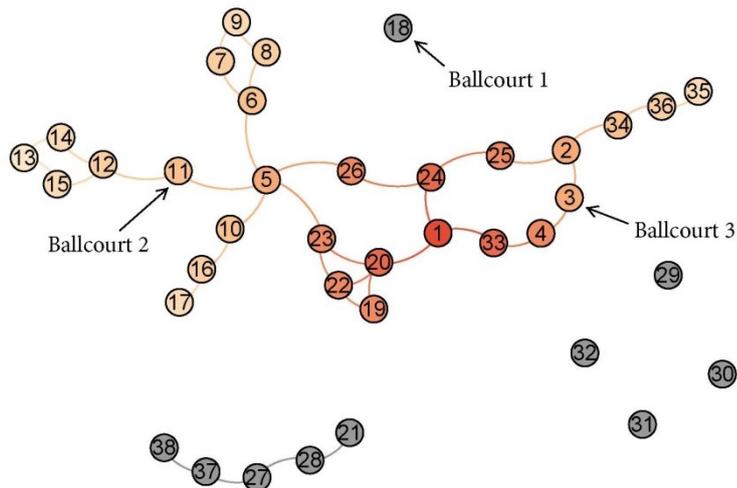


Figure 47: Heat map of El Pilar

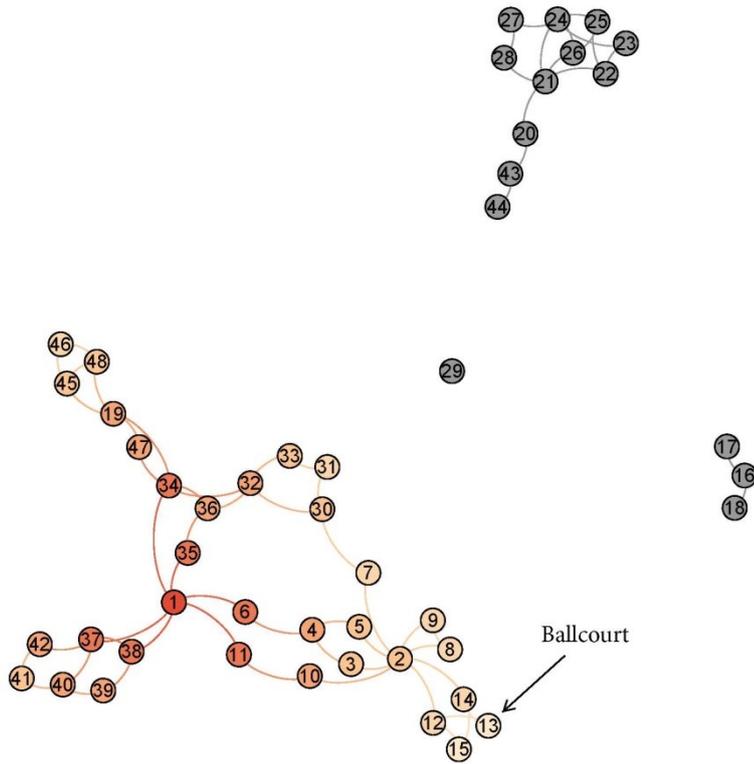


Figure 48: Heat map of Caracol

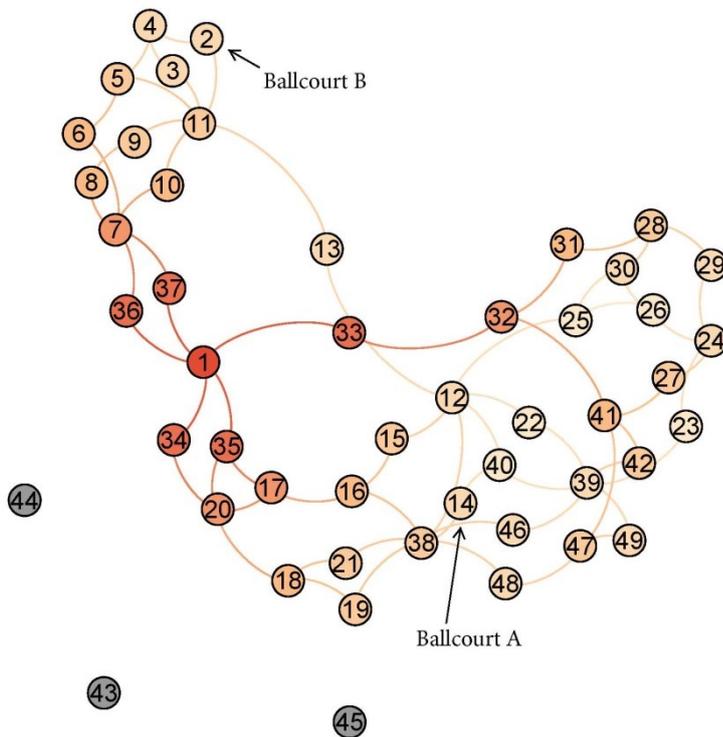


Figure 49: Heat map of Pachbitun

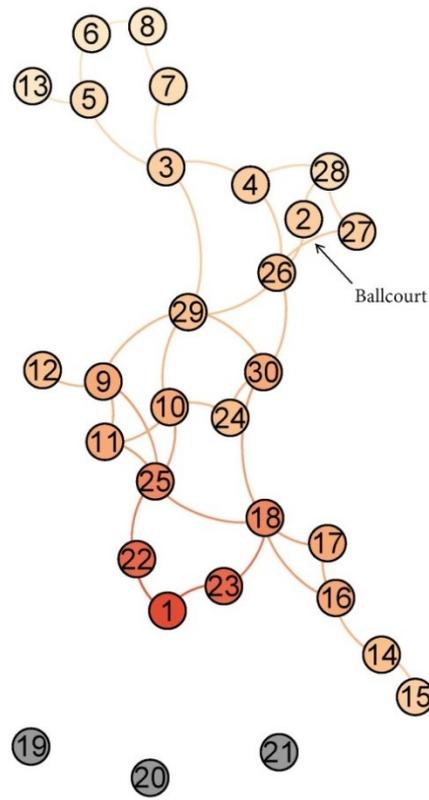
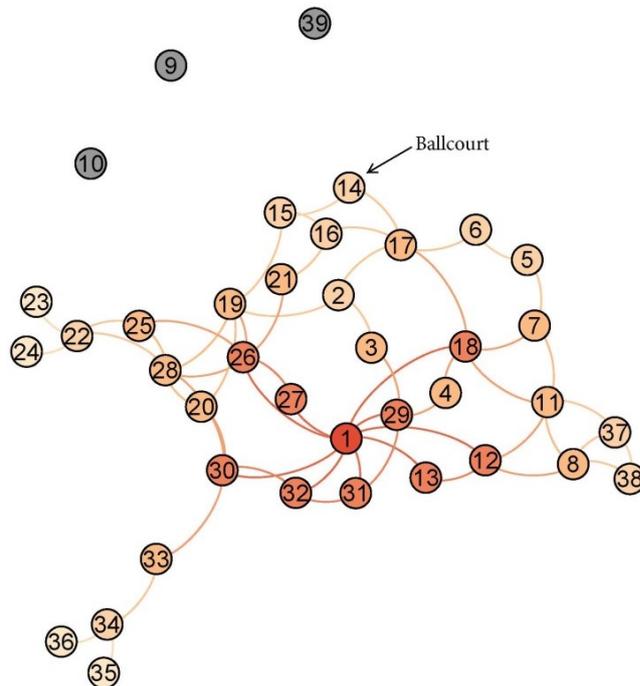


Figure 50: Heat map of Lower Dover



Appendix VI: Gephi Degree Maps

Figure 51: Degree map of Cahal Pech



Figure 52: Degree map of Xunantunich

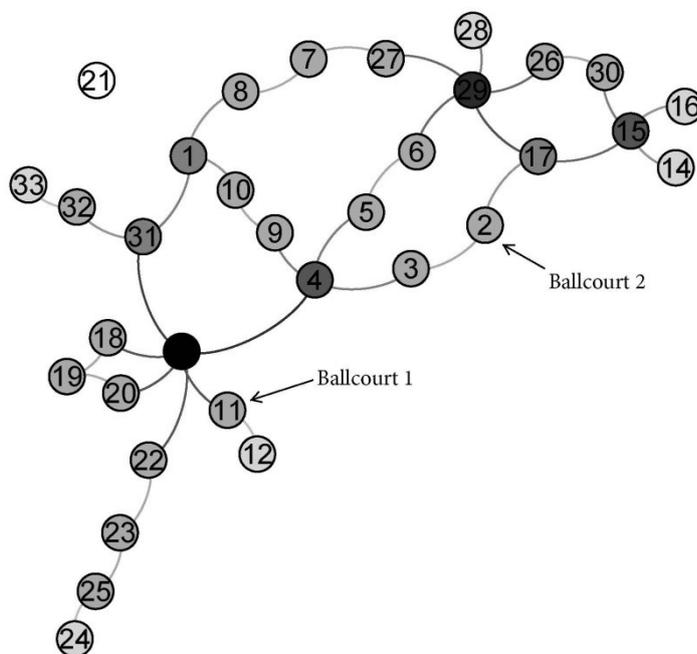


Figure 57: Degree map of Pachbitun

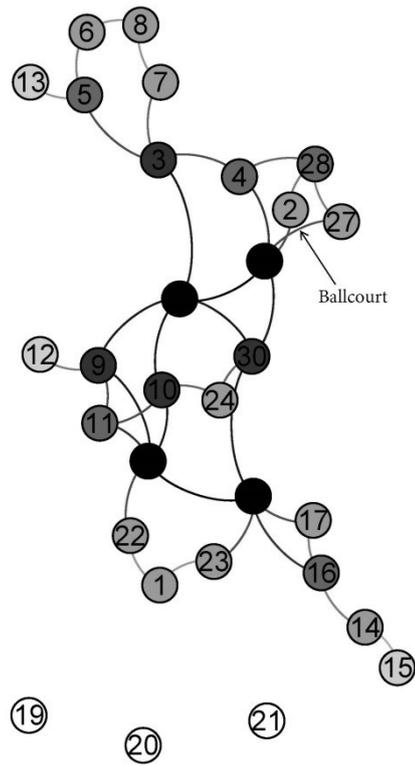
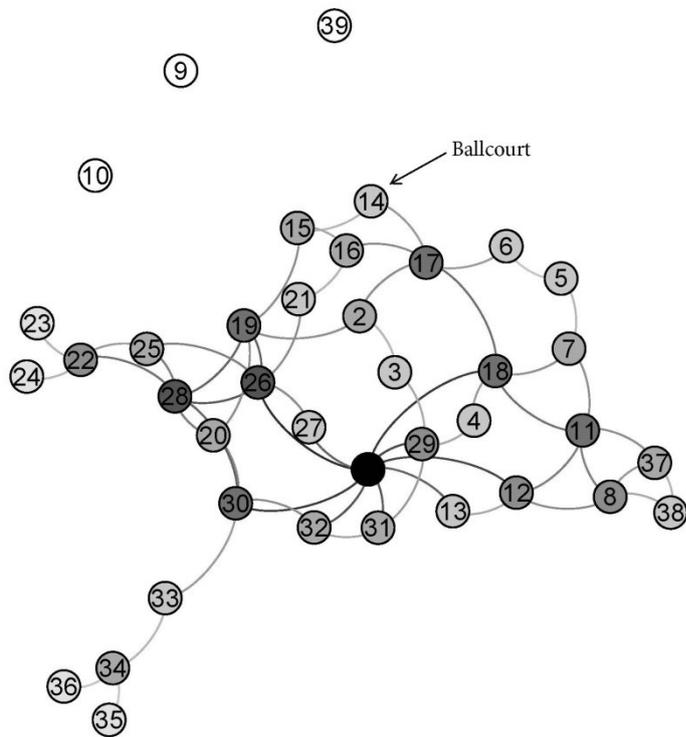


Figure 58: Degree map of Lower Dover



Appendix VII: Other Potential Sites for Analysis

Other sites with ballcourts in western Belize (Figure 2) have not been included in the sample. Within the Belize Valley (J. Ferguson 1999: 32-54), these are:

Actuncan;
Blackman Eddy;
Las Ruinas de Arenal;
North Caracol Farm;
Ontario Village;
Xualcanil.

Naranjo, just across the border in Guatemala, should also be considered part of the same regional interaction sphere. Part of El Pilar (Pilar Poniente) likewise lies across the Guatemalan border. These sites are excluded from my sample simply because I could not gain access to adequately detailed site plans to include in the analysis.

Further, other sites probably remain undiscovered, as Lower Dover was first recorded in 2009. As such, this study is by no means an all-encompassing one, and the further analysis of additional sites will in all probability affect the here conclusions drawn.

Appendix VIII: Particularities of Space Syntax Analysis for Maya Sites

The specifics of the Maya site data required that I depart somewhat from Hillier and Hanson's method. The main difference is that whereas they define open spaces as discrete convex units (Hillier and Hanson 1984: Fig. 39), my approach had to be more flexible in the delineation of spaces. This is because Hillier and Hanson's method was developed for modern Western settlements with clearly demarcated streets and squares, whereas Maya urban-cores are far more diffuse; more a pattern of monumental edifices set within open spaces. Moreover, Maya monumental buildings rarely present flat facades, and thus do not bound neat polygonal spaces. If I were to stringently adhere to Hillier and Hanson's method, it would have resulted in a fracturing of space that is unlikely to have borne much similarity to the way Maya people experienced their cities. When entering an open plaza, it is perceived in its entirety, not as a splintered amalgam of discrete spaces ringing a central area. In this analysis plazas remain discrete spaces in their own right (bar the occasional deviation where sight lines are obviously blocked by certain buildings).

Likewise, for the purposes of assessing the connectivity of sites as a whole, I have decided in most cases to represent isolated plazas/courtyards as single spaces, despite their sometimes irregular layouts, as at El Pilar (Figures 15 and 23). Conversely, some isolated courtyards have been internally divided as they are too complex to warrant treatment as single spaces, as within Baking Pot's North Group (Figures 16, 24 and 60). This subjective approach lessens the strict analytic rigour of space syntax. However, I judge it to better fit the complexity Maya settlement layouts.

Appendix IX: Workflow of Space Syntax Analysis

The procedure used to produce the connectivity graphs was relatively simple. First, a JPEG of each site plan was imported into an ArcGIS database. Then an overlying layer was created, onto which was traced the internal open spaces of the site, each space being separately numbered. As noted in Chapter V, ballcourts were marked via the discrete open space of their playing alleys. Entrances to sites were identified as the various sacbeob running into them. For Lower Dover this was not possible as no sacbe has yet been located. El Pilar is another exception, as the open space between the two groups was also designated an entrance. Next, another layer connected the entrances to the site, defined as the “outside” (always represented as space/node 1). These two layers were then merged into a complete convex map (Appendix II: Figures 19-26) and the raw data placed within a near table. This table was exported as a text file and run through a Python program written by David Redhouse. This program uses Graphviz to generate a PDF file connectivity graph for each site (Appendix III: 27-34).

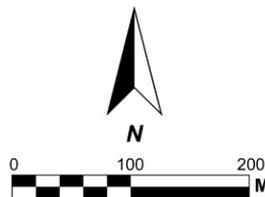
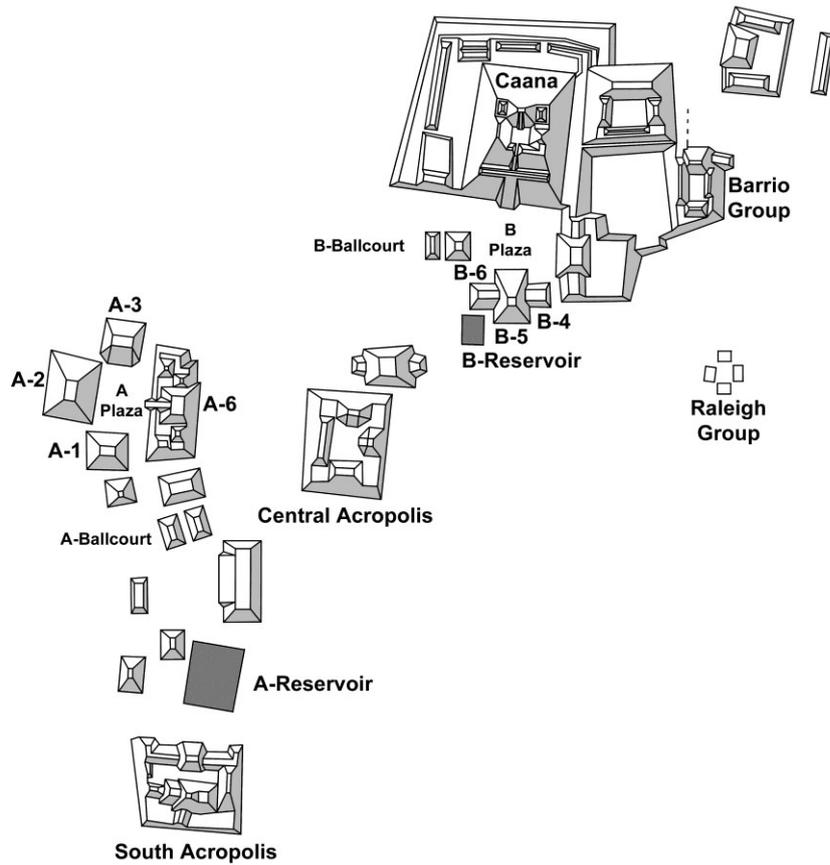
The .dot data tables also generated by Python were then fed into Gephi, an open-source network visualisation program, which enabled alternative renderings of the connectivity graphs (Appendix IV: Figures 35-42). Rather than being rendered according to graph efficiency, as with Python, a Force Atlas 2 network algorithm was used to produce these Gephi graphs. This is a linear-attraction, linear-repulsion model with few approximations which, utilising the Barnes-Hut algorithm designed for performing n -body simulations in astrophysics, renders each node only in immediate relation to its direct neighbours (Barnes and Hut 1986; Bastian *et al.* 2009). The resulting networks are more suitable for visualising the pathways connecting nodes, and in doing so bear some abstract resemblance to the actual layout of their respective sites.

These two programs – Python and Gephi – were used in conjunction in order that the comparison of their respective connectivity graphs would better facilitate the assessment of both the overall relative connectivity among sites and the specific connectivity of individual ballcourts.

Appendix X: Additional Site Plans

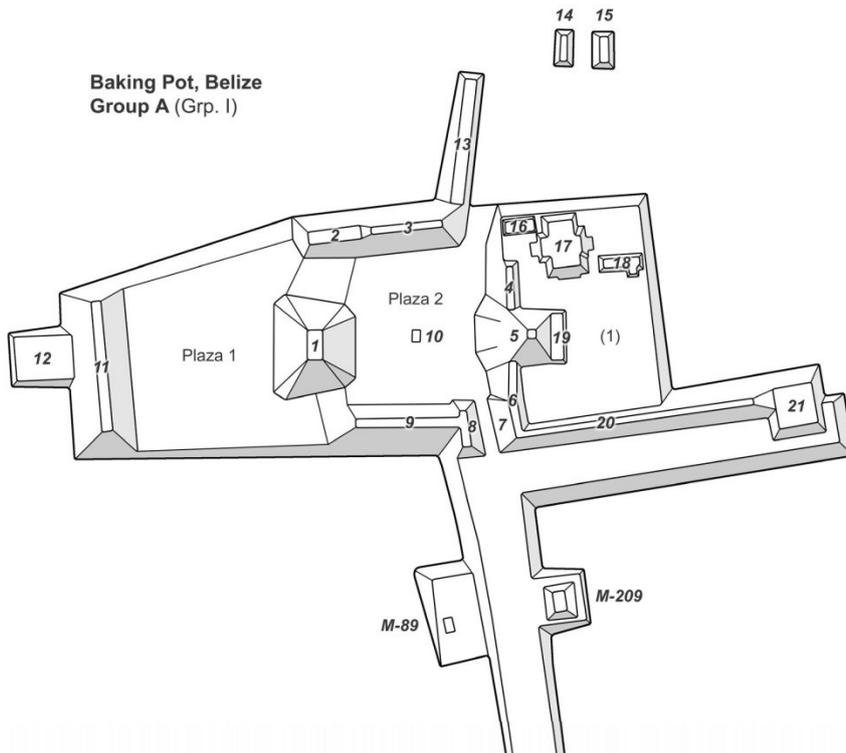
Figure 59: Additional site plan of Caracol

CARACOL SITE CORE



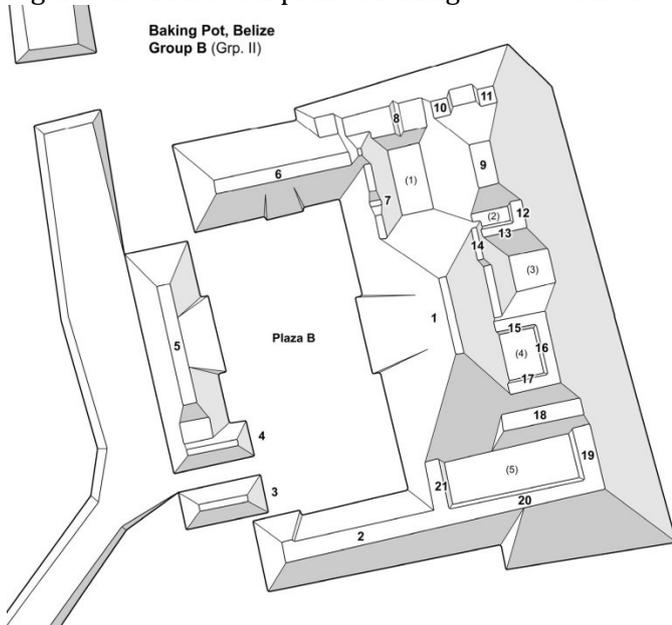
Courtesy of Jaime Awe

Figure 60: Additional plan of Baking Pot's North Group



Courtesy of Julie Hoggarth

Figure 61: Additional plan of Baking Pot's South Group



Courtesy of Julie Hoggarth

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