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Early social complexity at Bolas, Costa Rica: First year southern Costa Rica archaeological project (Scrap) results

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Abstract

The Southern Costa Rica Archaeological Project (SCRAP) investigates the contexts for the development of social inequality at the socioceremonial site of Bolas in southern Costa Rica. Craft production and ceremonial activities are the main interests of the project. Unlike Barriles in Panama, a similar site, domestic indicators of high status were elusive. The first year results demonstrate that the Bolas complex is much larger than originally reported, composed of multiple mounded sites with different activities occurring in each one of them.

Keywords

Costa Rica
Bolas
Aguas Buenas Period

Complejidad social temprana en Bolas, Costa Rica: Resultados del primer año del proyecto arqueológico del sur de Costa Rica

Resumen

El Proyecto Arqueológico del Sur de Costa Rica (SCRAP) investiga los contextos del desarrollo de desigualdad social en el sitio Bolas, un sitio socioceremonial en el sur de Costa Rica. La producción de artesanías y actividades ceremoniales son los principales temas de investigación. A diferencia de Barriles en Panamá, un sitio similar, los indicadores domésticos de jerarquía no son claros. Los resultados del primer año demuestran que el asentamiento de Bolas es más grande que lo reportado, y contiene múltiple sitios con montículos con evidencias de la realización de diferentes actividades en cada uno.

Palabras clave

Costa Rica
Bolas
Período Aguas Buenas

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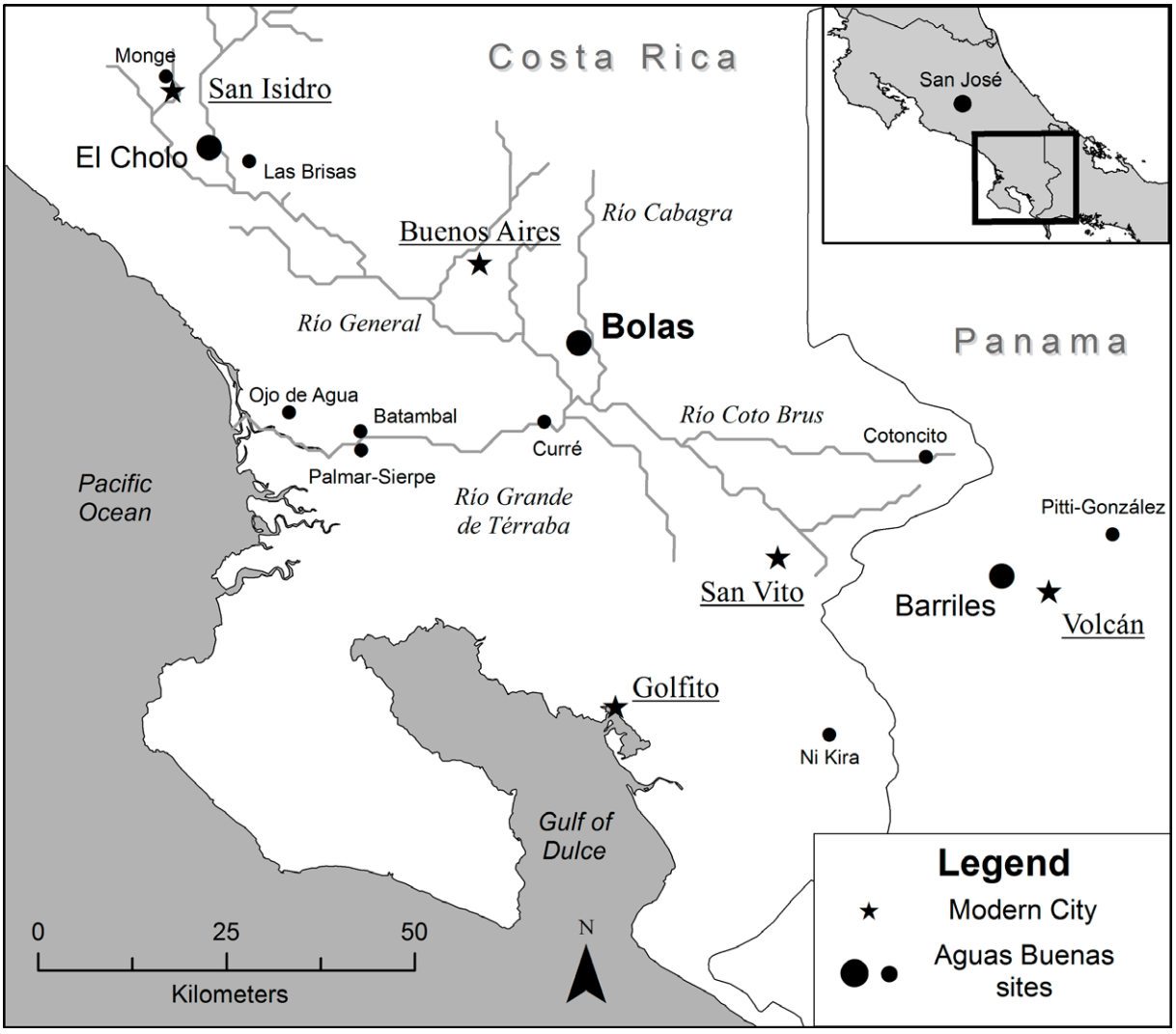

Figure 1. Location of Bolas and other selected Aguas Buenas Period sites in southern Costa Rica and western Panama

Introduction

Studies in the Isthmo-Columbian region provide examples of the diverse contexts and mechanisms for the developments of complex societies (*e.g.* Boada 1998; Cooke 2004; Corrales 2000; Drennan and Peterson 2006; Drennan *et al.* 2010; González 2007; Haller 2009; Helms 1979; Linares 1977; Locascio 2010; Mayo and Cooke 2005; Mayo and Mayo 2013; Menzies 2009). Traditionally considered a passive frontier zone that received diffused ideas from larger societies in South America and Mesoamerica (Coe 1962; Linares 1979), the archaeological cultures of the Isthmo-Columbian region (a region incorporating eastern Honduras and Nicaragua, Costa Rica, Panama, and northern Columbia) are now appreciated as important study subjects (Fonseca and Cooke 1993; Hoopes 2005; Sheets 1992). Suggested foundations for the development of social inequality in the Greater Chiriquí archaeological region (southern Costa Rica and western Panama) include the introduction of maize agriculture, specialization in craft activities, feasting and ceremonial activities (Drolet 1988, 1992; Hoopes 1996; Linares 1968; Linares and Sheets 1980; Palumbo 2009). The investigations of the multi-year Southern Costa Rica Archaeological Project (SCRAP) explore the conditions in which a social hierarchy emerged at the site of Bolas (P-90 Bl-1) in southern Costa Rica (Figure 1).

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Period	Corresponding Dates
Archaic	10,000 – 1500 BC
Sinancrá	1500 – 300 BC
Aguas Buenas	300 B.C – 800 AD
Chiriquí	800 – 1530 AD

Table 1. The pre-Columbian chronology of southern Costa Rica

Bolas, named for the stone spheres located at the site, was first recorded in 1981 during the Boruca Project, although it had most likely been visited earlier by the scholar Doris Stone (Drolet and Markens 1981; Lothrop 1963; Stone 1966). Investigators interpreted Bolas' size, cobblestone-walled mounds, and stone spheres as evidence of its importance as a sociocermonial center during the Aguas Buenas Period (300 BC – AD 800) (Table 1) (Drolet and Markens 1981). This interpretation continues to be referenced in the literature, yet these references often omit that relatively little archaeological work has been completed (*e.g.* Corrales 2000; Drolet 1988; Fernández and Quintanilla 2003). For example, the extent of the Bolas complex is unknown, a comprehensive map of all of the mounds does not exist, and there are no published radiocarbon dates.

To understand the trajectory of social change at Bolas, our long term goals are to investigate 1) how craft production and ceremonial activities were distributed throughout the site, 2) if and how these practices were associated with evidence for social status, and 3) how these patterns changed over time.

Preliminary results (2013 field season) indicate that Bolas is larger and more complex than had initially been reported and occupation possibly occurred toward the end of the Aguas Buenas Period (Drolet and Markens 1981; Palumbo *et al.* 2014).

Methods

First priority was to topographically map the Bolas mounds using a TOPCON GTS-210 total station. Previous maps did not match the current mound distribution, nor did they indicate smaller changes in elevation that suggest the presence of additional architectural features.

To test for activity locations associated with mounds, we placed six excavation units on or near Mound 1 (three units on Mound 1 and three units surrounding its base). Units were stratigraphically excavated in natural levels with levels greater than 10 cm being subdivided into 10 cm levels.

Both opportunistic and systematic survey methods were employed to locate additional sites and mounds and to situate Site 2 (P-97-B1) within the Bolas complex. Site 2 was reported to be 500 m north of Bolas, covered two hectares, and contained two mounds with looted graves (Drolet and Markens 1981). In areas of adequate visibility and high artifact concentrations, team members systematically collected artifacts. In areas with fewer materials, we collected all surface artifacts within a 1 ha area.

In the lab, ceramics were classified according to wares and vessel form. We categorized lithics by tool or raw material type. Ground stone was not washed to allow for future starch analyses.

Surface collections from each of the sites forming the Bolas complex permit comparisons of artifact proportions between these areas and excavations within Bolas provide comparisons of on-mound versus off-mound artifact proportions.

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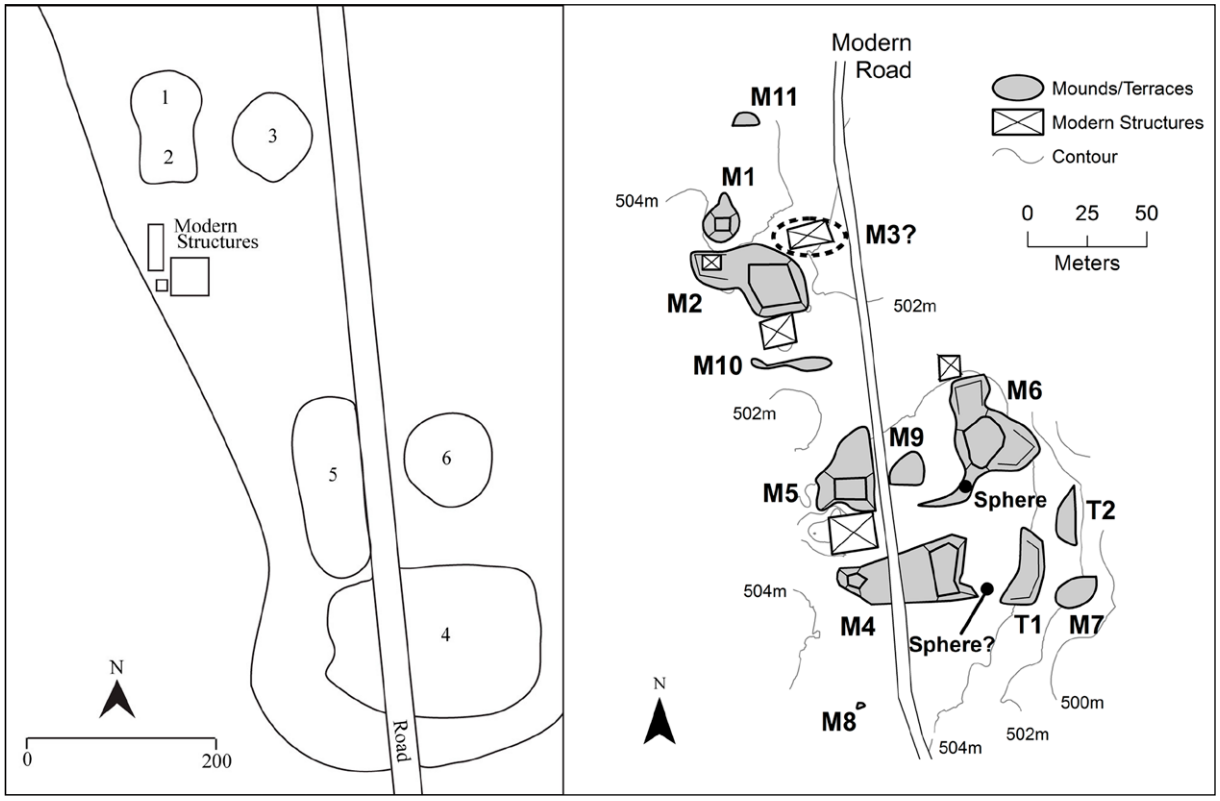

Figure 2. Re-drawn original map from Drolet and Markens 1981 (left), SCRAP map (right)

Results

The two reported sites were relocated and an additional area of the Bolas complex was registered. It is important to note that the each of these "sites" remains inadequately defined and they may be revised with future research. The identification of Site 2 (P-97-B1) and Site 3 expands the complex from 5 ha (Drolet and Markens 1981) to approximately 21 ha. Artifact proportions and architectural features suggest different activities occurred in each area.

Bolas contains the most conspicuous architectural features. The original investigation of the Bolas site noted six mounds (Figure 2) (Drolet and Markens 1981). Our mapping project and surface survey investigations identified a total of 12 mounds and the existence of a ramp or causeway southeast of Mound 6. Mound 3 in the original report either no longer exists or is part of our redefined Mound 2. This sector also contains two stone spheres.

Surface material densities were not evenly distributed throughout Bolas. The northwest portion of this site contained the densest artifact scatters suggestive of residential population concentration while the western hillside contained a higher density of double-headed stone axes. These types of axes are abundant at certain Aguas Buenas sites, leading to two theories regarding their use. The first is as an agricultural tool while the second is as a ceremonial or ritual artifact (Corrales and Badilla 2012; Ranere 1980).

Site 2 contains one sphere and four Aguas Buenas mounds, two more mounds than originally noted. One mound is extensively looted. Near this mound we located large metate fragments and cobblestone features. Due to the extensive looting we suspect

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that this mound may have been used for funerary purposes and is most likely one of the looted mounds mentioned in the original report. This site also contains a heavily looted hilltop with small circular tombs that we suspect is a Chiriquí Period cemetery.

Site 3 is located even further north and contains six Aguas Buenas mounds. Four mounds grouped in the northern portion of the site are extensively looted. Landowners reported that the mounds within Site 3 had a mortuary purpose with some of the burials containing gold ornaments. Interestingly, this statement had also been made regarding Bolas' large mounds. Unfortunately, to date, only a handful of gold artifacts from the Greater Chiriquí have been properly excavated and their appearance at Aguas Buenas sites is undocumented (Aguilar 1972; Fernández and Quintanilla 2003).

Interviewing local landowners in the vicinity resulted in the identification of the Mosca site. It is visible from the ridge where the Bolas complex is located and contains a central mound approximately 8.8 m high, 30 m in diameter, and it is surrounded by several terraces. Only one sherd was recovered from the site due to insufficient time to properly investigate, but it indicates occupation during the Aguas Buenas.

Ceramic Data

We recovered 1021 ceramic fragments: 562 (55%) from excavations, 418 (41%) from surface collections and 41 (4%) from shovel tests. 14.5% of our sample was not assigned to a specific ware. Most of the sherds indicate occupation during the Aguas Buenas. Only one ceramic type, San Miguel-Tarrago Bisquit, is associated with the Chiriquí Period. Collecting all sherds within the surface collection units rather than only the diagnostics permits the use of statistical *t*-tests to identify artifact proportion differences.

The multiple mounds at Bolas suggest individuals of status resided at the site. Previous studies in the Volcan Barú region of Panama demonstrate that Bugaba Engraved ceramics were closely linked to high social status (Linares and Sheets 1980; Palumbo 2009). Contrary to our expectations, there were few differences in the proportions of Bugaba Engraved between areas of the complex, or between Mound 1 *vs*. off-mound excavations at Bolas. However, we have little statistical confidence in this assertation at present due to small sample sizes (p values range between .43 and .97). These results may suggest that, unlike the Volcan Barú region, either Bugaba Engraved vessels were not considered an important ceramic type at the Bolas complex, or that Bugaba Engraved ware simply did not indicate positions of status.

The only statistically significant result regarding vessel forms is the difference in the proportions of bowl fragments between areas of the complex. Presuming that bowls were used for serving, these activities seem to have occurred in Bolas and Site 2. These two areas collectively contained 38% more bowl fragments than site 3 (p= .01). Interestingly, statistical tests did not reveal a larger proportion of decorated ceramics in Bolas and Site 2. Nor did excavations within Bolas produce significant distinctions between Mound 1 and off-mound vessel forms. This lack of differentiation may be explained by the off-mound excavations reflecting on-mound activities due to their close proximity to the mound.

Lithic Data

Most of the chipped stone artifacts recovered were of igneous materials such as basalt, gabbro, and andesite. 66% of the 72 stone tools and stone tool fragments collected were double-headed stone axes and ax fragments. Collections containing five or more lithics were used for the *t*-tests to create more credible results.

Stone tool production patterns at Bolas suggest 15% less production took place on Mound 1 than in off mound areas (p = .04), but 3% more finished tools (p= .03) and

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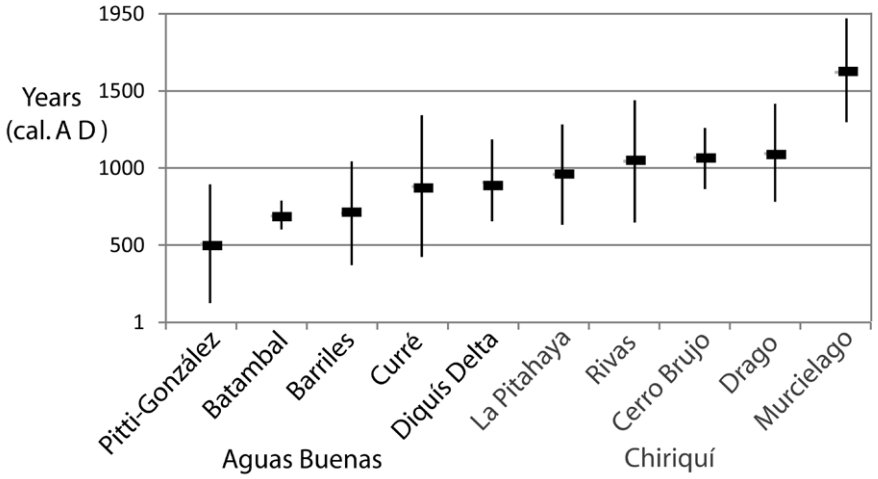

Figure 3. Ranges of some published radiocarbon dates for specific Aguas Buenas and Chiriquí Period sites in the Greater Chiriquí Archaeological Region (Baudez et al. 1993; Corrales 2000; Corrales and Badilla 2012; Drolet 1988; Linares 1977; Linares et al. 1975; Quilter 2004; Wake et al. 2004)

axes (p= .06) were recovered on the mound. Site 3 had higher averages of chipped stone production (p= .01) but lower averages of finished tools and axes (p= .01) suggesting that more production occurred in Site 3 while consumption of finished products was higher at Bolas and Site 2.

Conclusions

Preliminary results from the first season of SCRAP indicate that the Bolas complex is larger than previously recorded. It is possible the complex extends further, and we will explore this possibility in future seasons. The complex also contains areas that pertain to the later Chiriquí Period which may indicate a continuous use of the site location (see Frost 2009). The reuse of Aguas Buenas site locations for mortuary and ceremonial purposes appears to be an emerging pattern for some of the Diquís sites such as Batambal and El Silencio (Corrales and Badilla 2011, 2012).

Artifact proportions throughout the site suggest differences in production and consumption patterns. Vessel form data suggest that serving activities occurred more frequently at Bolas and Site 2. We presume that mounds at Site 3 served mortuary purposes while some at Bolas and Site 2 were residential.

Occupation at the site has only been determined using ceramic typologies. In future seasons recovering radiocarbon samples will be a priority. The reports of gold burials in Bolas' and Site 3's mounds possibly suggest the presence of gold at the Aguas Buenas Period site. These accounts must be confirmed, but present the possibility that Bolas was occupied during the late Aguas Buenas/early Chiriquí Periods. Ceramic collections indicate a much stronger presence of Aguas Buenas ceramics rather than Chiriquí. Therefore, Bolas seems to primarily be a late Aguas Buenas site without an earlier Aguas Buenas occupation, similar to Barriles in Panama.

Radiocarbon dates for the Aguas Buenas period do little to clarify when socioceremonial centers such as Bolas were occupied (Figure 3). However, these dates do support the argument that Aguas Buenas is a tradition rather than a specific culture (Figure 3) (Haberland 1984; Hoopes 1996).

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Future investigations will gather additional spatial artifact information from each sector and continue to examine activity locations at Bolas. For now, the preliminary results indicate that Bolas is larger, more complex and, perhaps, later than originally described.

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