



## Collapse and diverse responses in the Gulf lowlands, Mexico

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### ABSTRACT

Between AD 800–1000, the south-central and southern Veracruz lowlands experienced a process of collapse with depopulation that we document with data from systematic archaeological surveys and paleoenvironmental studies. The subsequent record in the Postclassic period indicates varied responses, predominantly settlement reorganization involving retrenchment to fewer settlements or highland immigration. In the latter case, we argue that collapse with depopulation has an important link to migration, providing lightly occupied or vacant lands that afford opportunities for outside migrants. The Spanish conquest and ensuing Colonial period serve as a general comparative analogy for some processes we discuss in prehispanic times for the Gulf lowlands. Unlike the Colonial period, the causes of the prehispanic Gulf collapse are not well studied, but multiple factors likely contributed. Drought and socioeconomic domino effects could explain the extensive spatial scale of collapse that we document. The dramatic, complex collapse in the southern Maya lowlands during a similar interval has dominated Mesoamerican discussions of collapse, but a wider spatial perspective indicates not only a more extensive interregional phenomenon, but also a greater diversity of responses.

### 1. Introduction

We argue for collapse during A. D. 800–1000 over an extensive part of the Gulf lowlands of Mesoamerica, followed by reorganization or outside immigration.<sup>1</sup> We establish that collapse with depopulation can create opportunities for later immigrants to obtain lands and establish settlements. Evidence for collapse derives from systematic surveys that show broad-scale changes as striking and complex as coeval processes in the southern Maya lowlands. In south-central and southern Veracruz, Mexico (Fig. 1), existing polities and cultural traditions largely ceased near the end of the Late Classic period (AD 800–900) or early in the subsequent Postclassic period (AD 900–1000). Regions that reorganized with fewer, more nucleated settlements contrast with other areas that remained largely vacant. In yet another outcome, some regions were lightly re-populated by migrants from the adjacent Mesoamerican highlands during the Postclassic period (AD 900–1521) or highland immigrants joined remaining local settlements. These migrations led to cultural heterogeneity, evidenced by multiple languages and cultural diversity at some Postclassic Gulf centers.

We first clarify the key concepts of collapse and migration because of their varied meanings. We draw insights from Spanish colonial studies to provide the richness of a documentary example to illustrate both variety and consistencies in collapse processes and subsequent responses, such as migration—in the vein of a general comparative

analogy (Willey, 1953; see also Lyman and O'Brien, 2001). Colonial documentary studies also address marked native population loss, particularly in lowland regions, such as the ones we study. Although some native populations continued under Spanish rule, sociopolitical disruption and introduction of new colonial cultures make the Spanish case appropriate as a general comparative analogy for the processes we address, rather than a specific historical one. Colonial period disruptions from conquest and epidemics led to the demise of many pre-existing polities and profound political reorganization resulting in vacant or greatly depopulated lands. The colonial situation created opportunities that migrants exploited, leading to culturally heterogeneous regions and settlements—analogs to earlier patterns we discuss and enlarging the range of examples of the processes of interest.

Next, we summarize archaeological and paleoenvironmental information concerning Gulf collapse and related Postclassic responses. A brief comparison to collapse on the Pacific coast of Chiapas and Guatemala indicates an even larger spatial scale in the coastal lowlands. The range of responses to Gulf collapse augments the picture from the southern Maya lowlands by including evidence of highland migrants to the Gulf area. In our concluding discussion we note that the sheer scale of collapse points to spatially extensive causal processes, the two most prominent being climate change and cascading socioeconomic disruptions.

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<sup>1</sup> In some parts of Mesoamerica, investigators label the A.D. 800–1000 interval the Terminal Classic or Epiclassic period, but we primarily use phase names or calendar intervals.

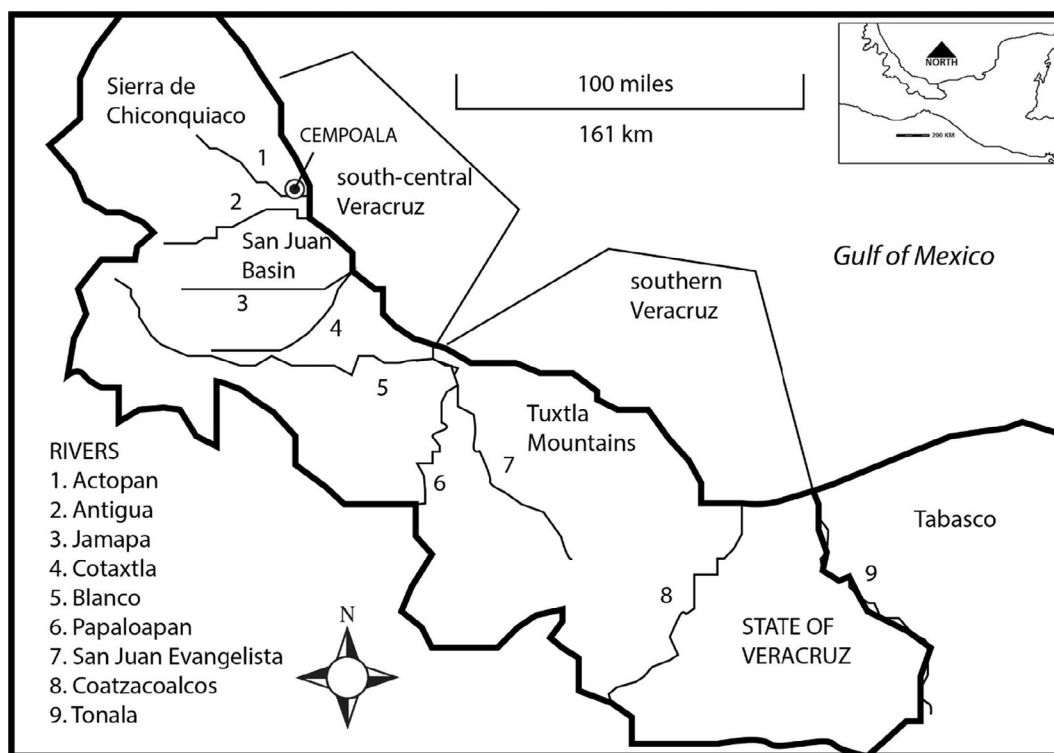


Fig. 1. Regional divisions and major rivers of the Gulf lowlands discussed in the text.

## 2. Key concepts

### 2.1. Collapse

Scholars have disentangled many contributing threads of political, economic, and cultural decline, frequently observing that collapse is not as final as it sounds because societies reorganize in various ways (McAnany and Yoffee, 2010; Renfrew, 1979:482-485; Schwartz and Nichols, 2006; Yoffee and Cowgill, 1988); reorganization has provoked an interest in resilience theory (Alexander, 2012; Chase and Scarborough, 2014; Faulseit, 2015; Iannone, 2014b). Typically, authors note a spectrum problem: the rates, extent, and diversity of changes do not handily distinguish collapse from decline (Diamond, 2005:3; Schwartz, 2006:5-8; Tainter, 1988:4).

One response is to address a polythetic set of changes for collapse (Schwartz, 2006:5-6, Tainter, 1988:4). In a formulation similar to Renfrew's (1979:482-483), Schwartz (2006:3-6) notes that, for archaeology, collapse usually entails some or all of four traits: (1) fragmentation of states into smaller political entities; (2) partial abandonment or complete desertion of urban centers, along with the loss or depletion of their centralizing functions; (3) breakdown of regional economic systems; and (4) failure of civilizational ideologies. Diamond (2005:3) includes marked population reduction or disappearance for an extended time in a region. We add depopulation to the polythetic set proposed by Schwartz because it signals some of the most dramatic collapse cases and implies vacant lands open to subsequent migration and repopulation.

In Mesoamerica it is safer to think in terms of marked population decline when depopulation is discussed, rather than complete abandonment, because Mesoamerican archaeologists have problems detecting very light occupations. In some parts of the southern Maya lowlands, for example, evidence for a greatly reduced and reorganized population corrects impressions of complete abandonment (Iannone, 2014a:42-43; Rice and Rice, 1990; Schwarz, 2009). Turner's (1990:310) demographic modeling for the central lowlands suggests an overall decline of 53–65 percent, although his calculations did not

address “invisible” housemounds (Johnston, 2002, 2004).

Collapse studies face the challenge of commensurate scales (McNeil, 2010). Cowgill (1988:256) urged researchers to identify clearly what has collapsed (e.g., a state, a civilization). We address a large spatial scale with multiple Gulf regions and polities that share aspects of distinctive architectural layouts, portable material culture (e.g., pottery and figurine styles), and ritual practices (e.g., concerning the ball game), although with much interregional variation (Daneels, 2006a, 2012; Ladrón de Guevara, 2012; B. Stark, 1998, 2016). In regard to its extensive spatial scale, multiple polities, and variable timing, Gulf collapse resembles changes in the southern Maya lowlands during the Terminal Classic period (AD 750–1050) (Aimers, 2007; Demarest et al., 2004; Ebert et al., 2014; Webster, 2002).<sup>2</sup>

In south-central Veracruz, Postclassic settlements indicate highland immigration, but southern Veracruz predominantly shows settlement reorganization. Population movements occasioned by collapse are discussed for some locales in the southern Maya lowlands (e.g., Johnston et al., 2001; Rice and Rice, 1990), but migration from outside areas is uncommon. In the Department of El Petén, Guatemala, substantial repopulation by migrants did not occur until relatively recently, accelerating after 1960 (Atran et al., 2002:422-423; Sader et al., 1994).

Colonial responses by both European and native groups lend insights into depopulation, reorganization, and migration. Estimates of native population loss due to introduced diseases are high, particularly for the lowlands (Siemens, 1998:107; Sluyter, 2002: 148–161; see also Cook and Borah, 1960; Cook and Simpson, 1948). In south-central Veracruz, the earliest report of an epidemic dates to the 1520s (smallpox). Cycles of epidemics occurred almost every decade, climaxing with the Great Cocolixtle (a widespread epidemic of uncertain cause) in the late 1570s (Sluyter, 2002:154). By 1580, Sluyter

<sup>2</sup> Scholars have addressed other collapses—or the equivalent labeled “releases” in adaptive cycling—during different periods for the Maya region (Alexander 2012; Iannone, 2014a) and in Early Classic southern Veracruz (Lunagómez Reyes, 2011; Symonds et al., 2002), but these other instances differ in scale from the collapse we address.

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