

## Modern Regional Demographics and Land Use in the Basin of Mexico

*Insights from and Impacts on the Archaeological Record*

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*“ . . . we should stress a critical factor of immediate and overwhelming concern: Time is rapidly running out as archaeological remains are daily consumed and forever obliterated by the astonishing, and accelerating, industrial and urban growth of modern Mexico City.” (Sanders et al. 1979:411)*

### INTRODUCTION

Although primarily focused on studying the past, archaeology also connects to the present in important ways. One potential link is using research on the past to comprehend key characteristics of the present and near-term future. Archaeological inquiries help to understand efforts by sociocultural systems to adapt to physical and cultural geographies of the past, revealing both successes and failures that may help us grasp key challenges of the Anthropocene. Archaeology often lacks detail, even on fundamental aspects of earlier times such as the routine activities of daily life. But this area of research can yield insights on change over time, broad patterns of cultural behavior, and possible

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long-term implications of that behavior (Redman 2005). In many cases, such understanding provides a useful perspective from which to evaluate modern socio-ecological systems. A second potential link between archaeology and the present is how current activity affects the archaeological record. Extracting insights from archaeological data requires the availability of those data. To enable its collection and analysis, archaeological evidence must survive all socio-cultural systems after its creation, including those existing now.

One geographic area where linking the present with the prehistoric past involves both of these types of past-present connection is the Basin of Mexico. For centuries, this region hosted complex societies that, like many modern societies, would have challenged the capacity of natural systems to support them. In pre-Columbian times, the Basin was a cradle of civilization, one of a handful of regions in the world that witnessed the emergence of a pristine state (Wright 1977). It also hosted the core of the Aztec empire, a polity that not only controlled much of Mesoamerica in the fifteenth and sixteenth centuries, but also had many of its characteristics documented when conquered by Spanish invaders and their indigenous allies in 1521 (Carrasco 1999; Sahagún 1950, 1982). The Basin's prominence continued into the Colonial period as the center of New Spain into the early nineteenth century (Gibson 1964; Lockhart 1992). Occupying much of the modern Basin of Mexico, Mexico City, has dominated the region as the political, economic, and demographic hub of Mexico since the Spanish conquest. Rapid population growth during the second half of the twentieth century has made it one of the largest cities on Earth (Kandell 1988). The persisting importance of this region in prehistoric and historic times has generated remarkable sociocultural systems *and* has attracted considerable attention from both administrators and scholars, the latter providing a wealth of information on the Basin throughout its past and into the present. Unfortunately, centuries of considerable human presence have been a two-edged sword. The economic and political importance of the region generates efforts to document its evolution, but also development that has consumed key evidence of that very same evolution.

This chapter addresses two issues related to Basin of Mexico archaeology. One is the degree to which patterns of regional adaptation in the archaeological past help us understand similar issues in the modern Basin. Much of this is predicated on our understanding of prehistoric settlement in the region, first synthesized in detail in the landmark volume by William Sanders, Jeffrey Parsons, and Robert Santley (1979). The second is the degree to which modern human actions in the Basin have compromised the very archaeological data that might provide clues to understanding past *and current* occupations of the region. The chapter begins by first discussing in broad terms what we know about resident prehistoric cultures through archaeological settlement pattern surveys and studies of resulting data. It then examines modern regional demographics and, where possible,

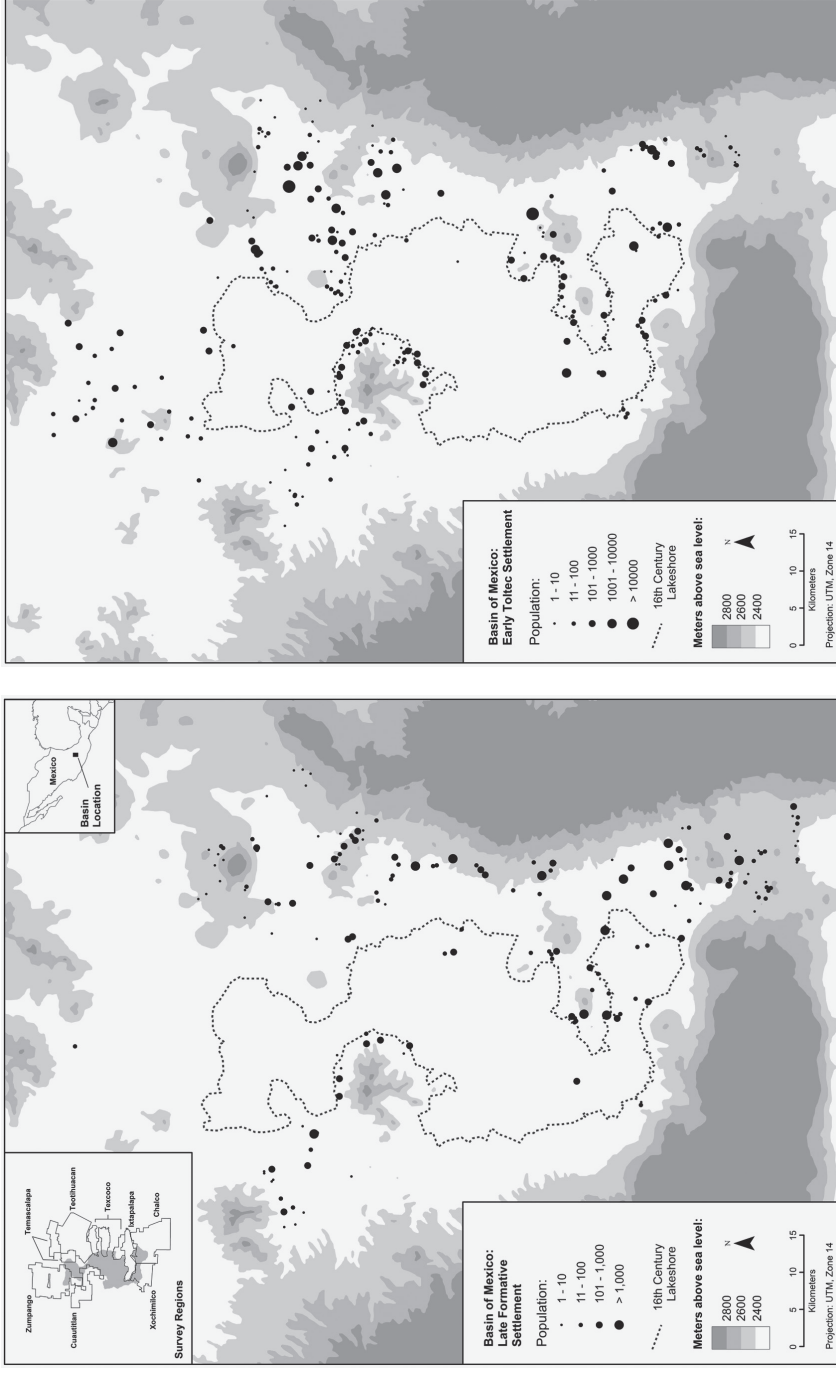
modern land use in the Basin of Mexico, presenting a story of slow, steady population growth into the second half of the twentieth century followed by decades of rapid population increase that began to push what once was widespread crop production to the geographic margins of the region. Examining archaeological survey data in the context of 1970 and 2018 landscapes reveals how recent settlement and land use have greatly affected the prehistoric record. The chapter closes by exploring options for maintaining important parts of an irreplaceable archaeological record amid expanding settlement, mechanized agriculture, and other changes that have already damaged or destroyed much of that record.

## **PRE-COLUMBIAN REGIONAL SETTLEMENT PATTERNS IN THE BASIN OF MEXICO**

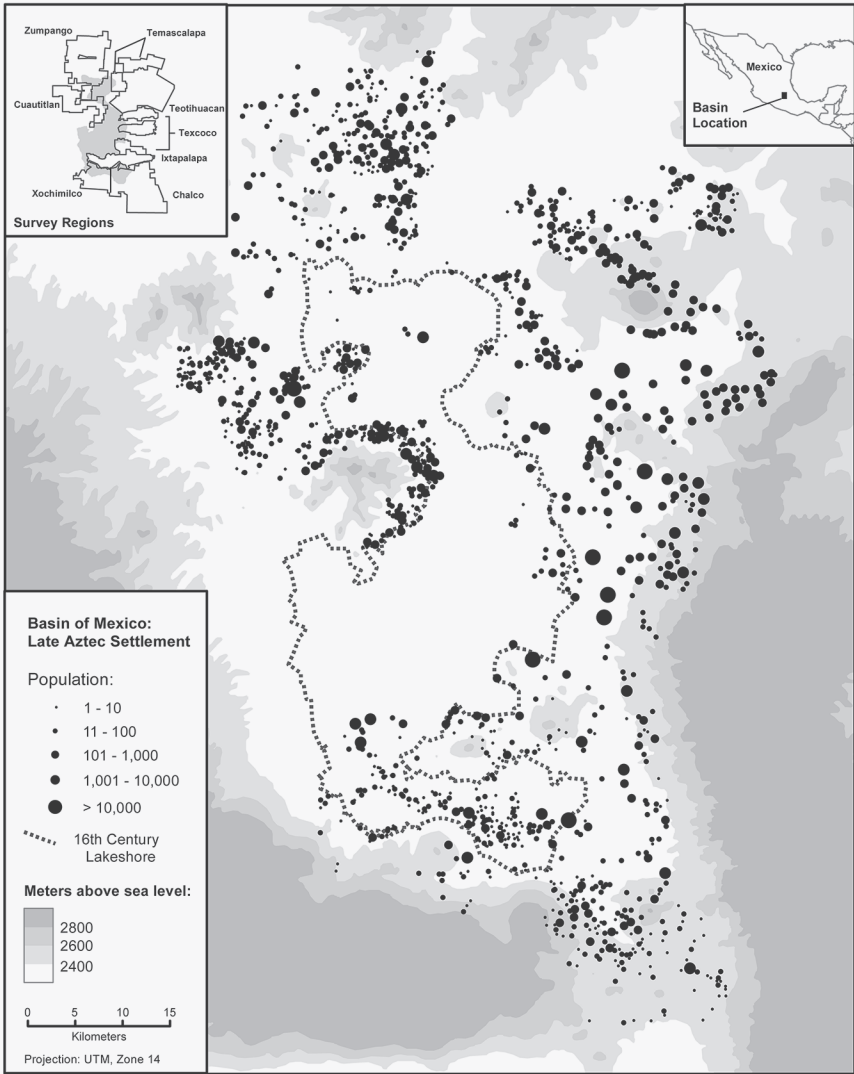
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Between 1960 and 1975, archaeologists conducted settlement pattern surveys of eight subsections of the Basin of Mexico (Sanders et al. 1979): the Teotihuacan region (1960–1966; Sanders 1965), the Texcoco region (1967; Parsons 1971), the Ixtapalapa region (1969; Blanton 1972), the Chalco region (1969; Parsons et al. 1982), the Xochimilco region (1972; Parsons et al. 1982), the Zumpango region (1973; Parsons 2008), the Cuautitlan region (1974; Sanders and Gorenflo 2007), and the Temascalapa region (1974–1975; Gorenflo and Sanders 2007). These projects sought to locate all archaeological sites in non-urbanized portions of the Basin of Mexico, though with a clear emphasis on sites with ceramics, to help us understand the evolution of complex societies in the region. Using intensive surface survey guided by 1:5000 (usually) aerial photographs, field crews identified, mapped, and recorded select archaeological and environmental information on all pre-Columbian archaeological sites in each survey region. The result was the discovery and documentation of more than 3,900 sites dating between 1500 BCE and 1519 CE (Gorenflo 2015). Although the surveys did not systematically assess site function, they often considered location in conjunction with the archaeological remains encountered to assign a basic type for each site.

Survey results enabled researchers to map pre-Columbian settlement in the Basin of Mexico for eight major time periods: Early, Middle, Late, and Terminal Formative; Teotihuacan period; Early and Late Toltec; and Late Aztec. Figures 7.1 and 7.2 show maps from three different periods as examples. Some general patterns emerge. One is the presence of settlement hierarchies, a characteristic frequently encountered in the regional arrangement of communities where each settlement is both a separate entity and part of a multi-settlement system consisting of places with different sizes and roles (Haggett 1965). Another pattern is a tendency to favor certain sections of the Basin or environmental zones. As discussed in detail elsewhere (Gorenflo 2015; Sanders et al. 1979), the geographic arrangement of settlement varied throughout the pre-Columbian past, likely reflecting differences in the adaptive strategies and sociopolitical realities



**FIGURE 71.** Settlement patterns in the Basin of Mexico based on archaeological survey data: Late Formative (a) and Early Toltec (b) periods.



**FIGURE 7.2.** Settlement patterns in the Basin of Mexico, based on archaeological survey data: Late Aztec period.

of various time periods. Nevertheless, archaeological evidence of prehistoric occupation of the Basin indicates remarkable success over about three millennia, with regional population possibly reaching 1.0 million or more at the time of the Spanish Conquest in 1519 (Sanders et al. 1979:184).

Prehistoric settlement tended to favor the southern part of the Basin of Mexico when dense regional population and sociocultural conditions did not lead to occupations further north. This general pattern probably related to

rainfall, which is markedly higher in the southern Basin, making agriculture for many of the key pre-Columbian crops much riskier in the north, in the absence of systematic water control (Gorenflo 2015; cf. Evans 1992; Nichols 1987, 2015). Other broad patterns that emerge from archaeological settlement data indicate the possible influence of dominant environmental features. This is the case of the central lake system, which represented the key resources and energetically efficient means of transportation, as well as of the lower piedmont, which featured soils particularly suitable for agriculture (Gibson 1964; Gorenflo 2015; Millhauser 2017; Parsons 2005, 2006; Sanders and Santley 1983; Sanders et al. 1979). Elaborate modifications of the environment for crop production, such as *chinampa* agriculture (Armillas 1971; Parsons 1976; Rojas Rabiela 1988; Sanders 1965), also affected prehistoric settlement in the Basin of Mexico. In addition, the presence of large administrative centers during certain periods seemed to influence the geographic arrangement of communities, such as Teotihuacan and Tula, probably *attracting* settlement toward the northern portion of the Basin during the Teotihuacan and Late Toltec periods of occupation (Parsons 2008; Sanders et al. 1979). The influence of water was likely an important factor during prehistoric times, not surprisingly for generally agrarian sociocultural systems in a region where some areas may have received on average less than 500 mm of rainfall annually (Sanders et al. 1979:map 2). Parts of the region were too risky for certain crops in the absence of water control, which certainly affected settlement. The tendency to emphasize the southern Basin for settlement, to engage in limited economic pursuits in the north, and to rely on irrigation for certain crops in particular parts of the region persisted through the historic past and into modern times.

## **DRAMATIC DEMOGRAPHIC AND LAND USE CHANGE IN THE TWENTIETH-CENTURY BASIN OF MEXICO**

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Population and land use patterns in the Basin of Mexico changed markedly over the course of the twentieth and into the twenty-first century. To summarize this, I present population density maps for *municipios* (administrative units below the level of state) found at least partially inside the Basin. The maps represent three particular years: 1900, the year of the second census in Mexico; 1960, the year Sanders began the Teotihuacan region settlement survey; and 2010, the year of the most recently available census data when preparing this manuscript.

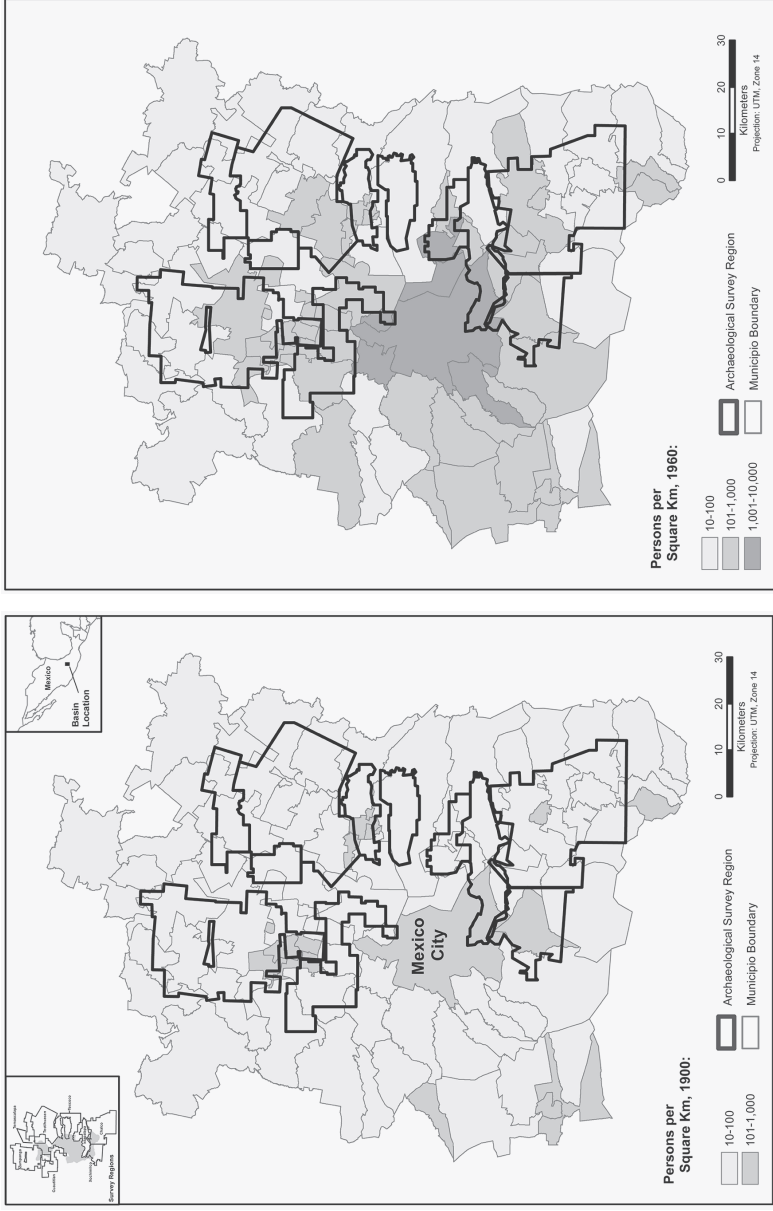
Population densities for each year appear in figures 7.3 and 7.4 and reveal some striking changes, as total population in these *municipios* grew from 781,000 in 1900 to 5,887,000 in 1960, and then to 20,699,000 in 2010, an increase of nearly twenty-seven times in barely one century. In 1900, none of the *municipios* examined (including Mexico City) had a population greater than 370,000; by 2010 the population of thirteen *municipios* (including Mexico City)

exceeded that number. Beyond overall population growth, the largest single-decade increases occurred between 1960–70 (3.9 million people) and 1970–80 (5.8 million), precisely when the archaeological settlement pattern surveys were underway (see figure 7.5). With more people added during the 1960s than lived in all Basin *municipios* in 1900, and nearly half of the 2010 total population for those *municipios* added during the 1960s and 1970s, it appears that archaeologists began to document prehistoric settlement patterns precisely when modern population growth began to threaten evidence for those patterns throughout much of the region.

The demographic history of the Basin of Mexico during the twentieth century underscores the importance of not conducting settlement pattern surveys any later than they occurred. Sanders visited the Basin for the first time in 1951, when the total population of the Basin *municipios* was about 3.7 million and when a simple agrarian economy based mostly on subsistence agriculture dominated the region. Much of his understanding of land use and the cultural ecology of the Basin emerged in 1953–54, influenced as much by his study of *campesino* agriculture and contemporary land use as by ethnohistoric and archaeological data, as described in his doctoral dissertation a few years later (Sanders 1957). When the Teotihuacan region survey began in 1960, Sanders and his crews—including Parsons as a crew member—encountered a dispersed agrarian economy in that region and throughout much of the Basin of Mexico (Sanders 1965).

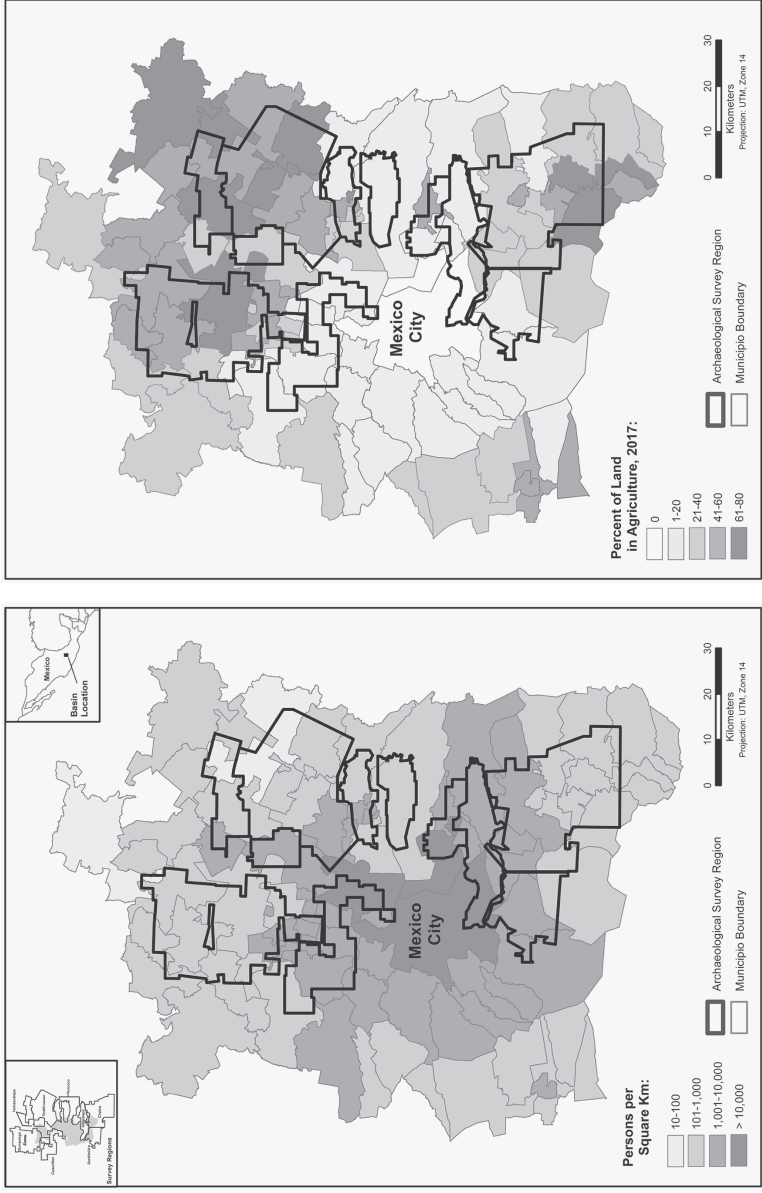
Field crews in the early 1960s examined archaeological landscapes that in many ways had been minimally affected by settlement or destructive land use since the Spanish Conquest. Archaeologists encountered the remains of prehistoric settlements with extant domestic architecture: the remains of small house mounds on otherwise well-preserved archaeological sites. Many of the crops grown in the first half of the 1960s—maize, beans, squash, amaranth, maguey, nopal—were grown in pre-Columbian times and used low-impact techniques broadly similar to what the Spanish had encountered in the early sixteenth century, apart from plow cultivation using draft animals (Sanders 1965; Sanders et al. 1979). Rural settlements occupied largely by subsistence agriculturalists tended to be small and sparsely arranged over the landscape in the early 1960s, with higher settlement density often supported by irrigation systems that helped reduce risk and increase productivity (Gamio 1922; Palerm 1973). Other activities persisted as well. Observing traditional cultural behavior with pre-Columbian roots during those early years of fieldwork would inspire Parsons to conduct two classic ethnoarchaeological studies, one of traditional salt-making (Parsons 2001) and one of lake-resource exploitation (Parsons 2006).

Despite massive changes in population and its geographic arrangement, much of the Basin of Mexico was still involved in agriculture during the second decade of the twenty-first century (see figure 7.4b). Persistence in crop

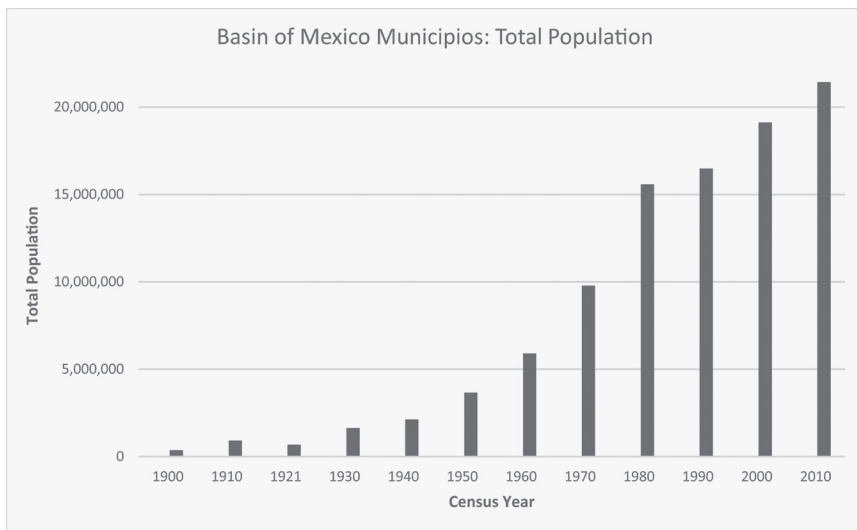


**FIGURE 7.3.** Population density for municipios lying at least partially in the Basin of Mexico: 1900 (a) and 1960 (b). Note: Municipio boundaries for 2010 used for 1900 and 1960 population data to enable comparisons over time, with populations for earlier years allocated to the 2010 municipio area. Data sources: Dirección General de Estadística 1901a, 1901b, 1901c, 1963a, 1963b, 1963c.





**FIGURE 7.4.** Population density and crop production for municipios lying at least partially in the Basin of Mexico: Population per square mile, 2010 (a); percentage of land used for agriculture, 2017 (b). Data sources: Instituto Nacional de Estadística y Geografía 2013; Servicio de Información Agroalimentaria y Pesquera 2019.



**FIGURE 7.5.** Total population in municipios lying at least partially within the Basin of Mexico, 1900–2010. Data sources: Dirección General de Estadística 1901a, 1901b, 1901c, 1928, 1934, 1941, 1943a, 1943b, 1952a, 1952b, 1963a, 1963b, 1963c, 1973; Instituto Nacional de Estadística, Geografía e Informática 1990a, 1990b, 1990c, 1992a, 1992b, 1992c, 2002a, 2002b, 2002c; Instituto Nacional de Estadística y Geografía 2013; Secretaría de Agricultura y Fomento 1918.

production continues the rich heritage of an economic activity established during pre-Columbian times, though with some important changes. Many crops prior to European arrival continue—maize, beans, squash, tomatoes, tomatillos, chilis, amaranth, avocados, maguey, nopal, etc.—though the Basin hosts other crops as well. Barley, wheat, oats, carrots, cucumbers, potatoes, spinach, cauliflower, walnuts, broccoli, cabbage, lettuce, peaches, plums, apples, pears, and other cultigens all occur in the Basin in different locations and varying amounts (Servicio de Información Agroalimentaria y Pesquera 2019). Much of modern crop production is mechanized, signaling an important change over a few decades. Furthermore, farming has expanded markedly in the northeastern Basin of Mexico, that part of the region with the lowest rainfall and traditionally an area of high agricultural risk, though the nopal that dominates agriculture in that area requires much less water than virtually any other cultigen grown in the region. Not surprisingly, one sees a generally inverse relationship between the population density of *municipios* and the percentage of land used to produce crops, with high values of the former (often closer to Mexico City) understandably precluding high values of the latter (see figures 7.4a, 7.4b). But considerable amounts of crop production persist in some densely populated *municipios*, maintaining a connection with a past both distant and recent.

One portion of the Basin of Mexico that archaeologists surveyed amid many of the rapid demographic changes that occurred during the 1970s was the Cuautitlan region (Sanders and Gorenflo 2007). When fieldwork occurred in 1974, land use in this survey region—on the northern edge of the Mexico City sprawl at the time—was in transition from agrarian to urban. Survey crews found large areas plotted for development. Many archaeological sites remained, though most were deflated from modern activities and little architecture occurred apart from large mounds. Although Sanders, Santley, Deborah Nichols, Richard Diehl, and other archaeologists who worked on that project recognized coming changes, it would have been difficult to envision their magnitude. For example, Cuautitlan Izcalli Municipio, which contained more than 511,000 people in 2010 (Instituto Nacional de Estadística y Geografía 2013) did not even exist in 1970; created in 1973 from parts of three other *municipios* because of rapid population growth (Sanders and Gorenflo 2007:18–20), by 1980 it contained nearly 174,000 people (Instituto Nacional de Estadística, Geografía e Informática 1990c). Some links to the pre-Columbian past had persisted through the mid-twentieth century in the Basin of Mexico. Mexico City occupied the ruins of Aztec Tenochtitlan, modern towns covered many of the Late Aztec city-states, and small-scale agriculture dominated much of the rural landscape. But by 1970 things had begun to change in the Cuautitlan region, the sprawl of Mexico City overrunning pre-Columbian settlement, houses and other infrastructure replacing agricultural fields. Certainly, these sorts of changes had occurred in other portions of the Basin close to the city, but the pace of change in the Cuautitlan region was particularly alarming. And connections with the prehistoric past, where a large urban area and dispersed smaller settlements occurred in a landscape largely dominated by small-scale crop production, were disappearing rapidly amid increasingly expanding human settlement and industrialization. These changes would not only decouple modern land use from its pre-Columbian past, but also destroy much of the archaeological record in the process.

## **RECENT IMPACTS ON THE PRE-COLUMBIAN ARCHAEOLOGICAL RECORD IN THE BASIN OF MEXICO**

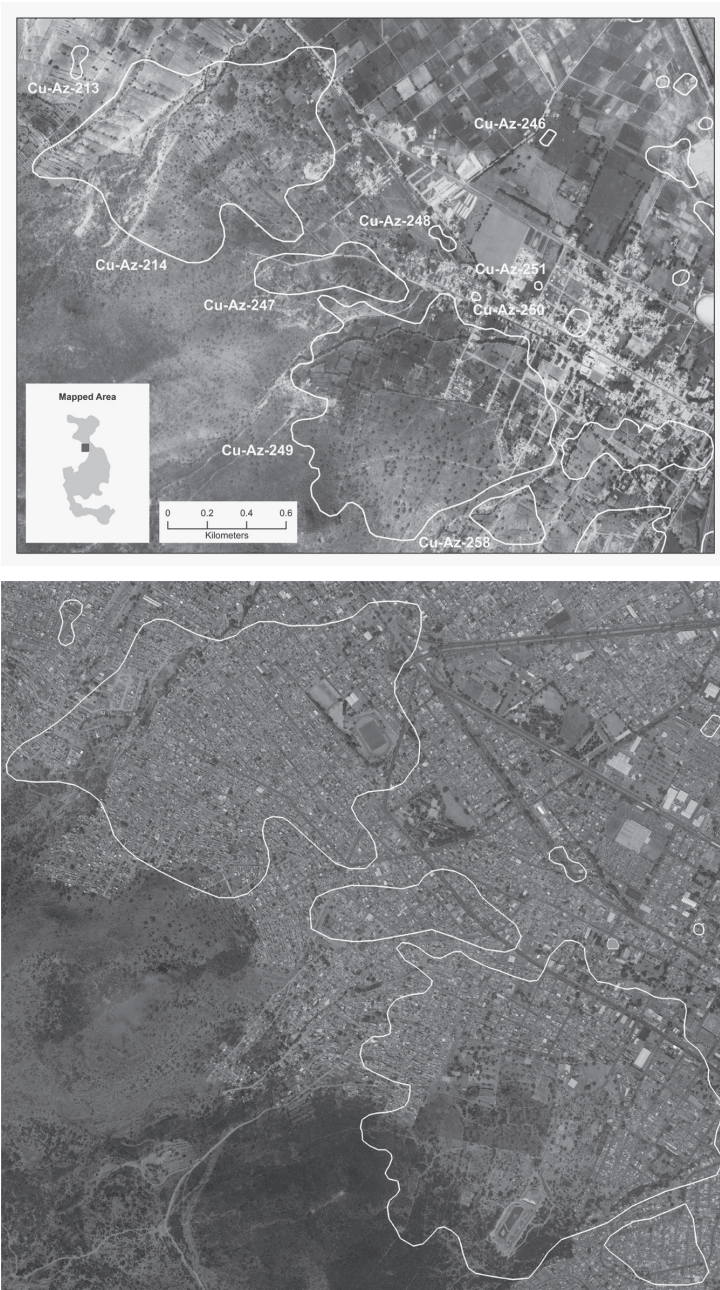
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I was fortunate to work with Sanders and Parsons for many years. Both had witnessed the changes discussed above first hand, changes that I suppose they long feared but probably could never fully envision. Working on the database of archaeological sites in the three regions that Sanders surveyed—Teotihuacan, Cuautitlan, and Temascalapa—provided ample time to discuss many of his concerns about the region, concerns amplified on several trips to the Basin together beginning in the early 1990s. More recent forays in the Basin with Parsons between 2008 and 2019, to examine the condition of archaeological sites, brought more conversations about what the region had looked like in the 1960s and how much it had

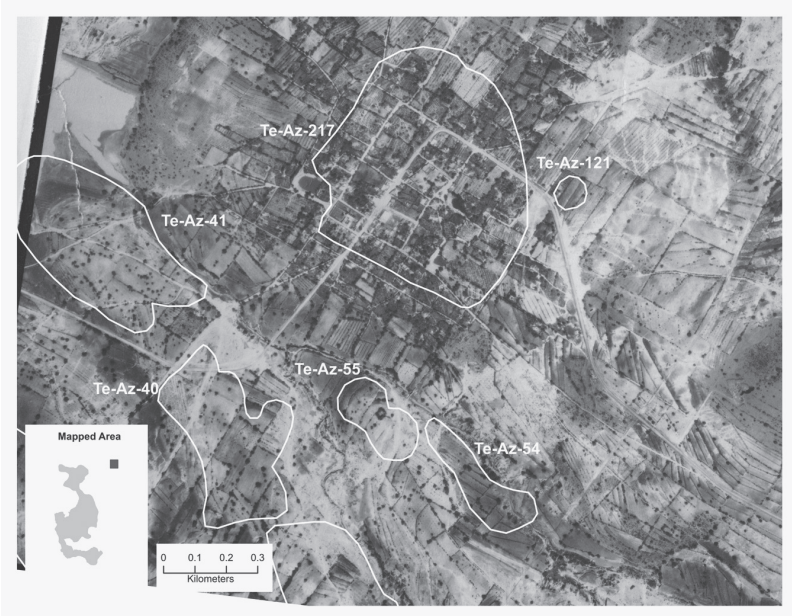
changed. Those conversations made me recall Parsons commenting in 1979 on a magazine article about the growth of Mexico City, noting how modern development was consuming much of the areas he had surveyed less than a decade earlier.

As one would expect, given the discussion above, increasing modern settlement and changing land use have broadly compromised the archaeological record in the Basin of Mexico. Aerial imagery, complementing the maps of population density and agriculture presented in the last section, tells much of the story of a changing landscape that often does not accommodate the region's prehistory. A 1970 aerial photograph of the area immediately west of the settlement of Ecatepec, in the Guadalupe Range of mountains, shows a locality dominated by open fields a few years before the Cuautitlan settlement survey of 1974 (see figure 7.6). In 1970, the population of Ecatepec was about 12,000 people (Dirección General de Estadística 1973). The large Late Aztec sites in the piedmont near the center of the photo were largely intact, as were the smaller sites in the northeastern quadrant extending into the old Lake Texcoco lakebed. In contrast, 2018 high-resolution satellite imagery available through Google Earth Pro reveals a landscape dominated by modern settlement. By 2010, Ecatepec had become a city of nearly 1.7 million inhabitants (Instituto Nacional de Estadística y Geografía 2013), explaining the dramatic difference in the two images. Virtually all archaeological sites discovered by the settlement survey were covered by the sprawl of Ecatepec and nearby communities, the buildings and streets leaving little hope for any of the pre-Columbian sites found earlier.

In contrast, imagery of the northeastern Basin of Mexico indicates considerably less modern impact, at least from settlement. A 1970 aerial photograph from the Teotihuacan survey region north of Cerro Gordo, showing Late Aztec sites, depicts the small town of San Juan Teacalco and surrounding terrain, the latter primarily comprising agricultural fields (see figure 7.7). Teacalco was a clearly defined community, though sparsely settled and with a population only 750 (Dirección General de Estadística 1973). Fields surrounding Teacalco that hosted Late Aztec sites featured little modern infrastructure, providing good visibility of surface remains. At first glance, in 2018, Teacalco and the fields surrounding it seemed broadly similar to those seen in 1970. However, closer examination reveals that Teacalco had both infilled and expanded over the preceding five decades, observations consistent with the community's population having increased to nearly 3,000 by 2010 (Instituto Nacional de Estadística y Geografía 2013). Surrounding fields outside of the town featured more disturbance compared to 1970, including terracing, suggesting more intensive crop production, though it was possibly not entirely inhospitable to archaeological remains apart from the construction of terrace systems and deeper plowing. Much of the northeastern Basin of Mexico, including portions of the Temascalapa and Teotihuacan survey regions, remained sparsely settled as late as 2010, though



**FIGURE 7.6.** Portion of the Cuautitlan survey region, on the western edge of Ecatepec de Morelos, showing sites on (a) a 1970 aerial photograph and (b) 2018 high-resolution imagery from Google Earth Pro.

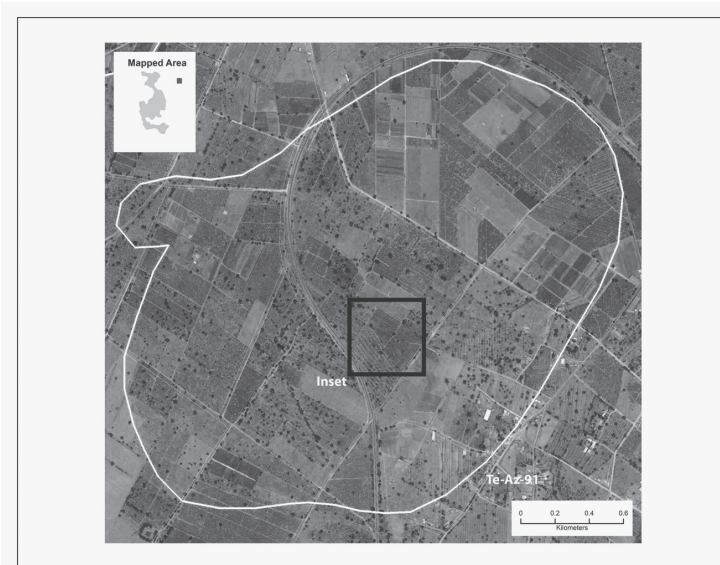


**FIGURE 7.7.** Portion of the Teotihuacan survey region, in the vicinity of San Juan Teacalco, showing sites on (a) a 1970 aerial photograph and (b) 2018 high-resolution imagery from Google Earth Pro.

it contained fairly dense agriculture (see figures 7.4a and 7.4b), likely damaging the archaeological record though contrasting greatly with the destruction in the Cuautitlan region only a few dozen kilometers to the southwest.

Although many see expanding human settlement as the main threat to the archaeological record in the Basin of Mexico, modern agricultural technology has also had an adverse impact on archaeological sites (Morehart and Millhauser 2016). Much of the crop production during the early years of the archaeological surveys, particularly in rural areas, used a simple plow similar to that introduced centuries earlier by the Spanish and pulled by animals to prepare fields, coupled with hand cultivation (Sanders 1965; Sanders et al. 1979). The result was limited site destruction—tilling occurred several times during the cultivation cycle but was shallow and avoided domestic mounds and other small architectural features. But more recent agriculture is often mechanized. Tractor plowing to prepare fields for planting enables destruction of all but quite large pre-Columbian architecture, while chisel-plowing to break up calcareous bedrock and restore minimal fertility to heavily eroded fields can completely destroy an archaeological site. Mechanized plowing minimally *smears* a site horizontally while increasing plow zone depth, in the worst cases altering sites so dramatically that further investigation becomes useless. One example of how modern agriculture can affect the prehistoric record is Te-Az-9I, a Late Aztec site in the east-central part of the Teotihuacan survey region (see figure 7.8). Viewed from a distance, land use in 2018 appears to have had minimal impact on the archaeological record, the presence of a few modern structures and roads affecting little of the 80-ha site. However, a closer view reveals pockets of extremely dense crops (mainly nopal) that would have been planted in fields plowed by machines, the quantity of plants and the development of thick root systems adding to the destruction of archaeological remains from field preparation.

By examining portions of the Cuautitlan and Teotihuacan survey regions with aerial photographs and satellite imagery, one sees how a connection between modern land use and the pre-Columbian past persisted until 1970 in certain areas, and how that link was weakened or lost only a few decades later. The degree of impact varies considerably. However, all the sites discussed have been adversely affected to at least some degree. Although small-scale agriculture enabled maintenance of certain connections with the prehistoric past while minimally affecting the archaeological record, most crop production in the twenty-first century is different. Even in the agriculturally marginal northeastern Basin of Mexico, what is now largely commercial crop production compromises archaeological sites. Although agriculture has long been the salvation for evidence of prehistoric occupation in the Basin—probably second only to an absence of modern use—current farming no longer plays that role, as increased mechanization and intensification expand into new areas and compromise the archaeological record.



**FIGURE 7.8.** Agricultural impacts on Te-Az-91, a Late Aztec site in the east-central part of the Teotihuacan survey region, shown on 2018 high-resolution imagery from Google Earth Pro: (a) overall site and (b) close-up of area under intense agriculture.



## CONCLUSIONS

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The prehistory and history of the Basin of Mexico tell fascinating tales of a remarkable region. Most people today probably do not think about linking the current Basin with its prehistoric past, but some key researchers in the region certainly did only a few decades ago. Sanders built parts of his interpretations of pre-Columbian cultural ecology in the Basin on campesino behavior he observed during the 1950s and 1960s. Parsons focused ethnoarchaeological inquiries on behavior he witnessed in the 1960s that were remnants of a distant past. But in recent years, the connection with pre-Columbian times has become much more tenuous. Many of those old lifeways with prehistoric roots are now gone; many of the archaeological sites that served as their prehistoric antecedents are gone as well. Recalling how two archaeologist colleagues and I encountered a golf course in the arid Temascalapa region while revisiting Teotihuacan period sites during the 1990s makes such disconnection with the past both real and personal.

As an archaeologist, it is easy to despair at the changes that have occurred in the Basin of Mexico over the past several decades. As a citizen of the planet, it is easy to become alarmed at the amount of growth in a fragile natural setting, with large-scale environmental degradation and resource extraction in the Basin undoubtedly straining the capacity of natural systems. Probably the only time in the pre-Columbian past that the region experienced such widespread pressure on the environment was during the Late Aztec occupation, when a large urban center and settlement throughout the region survived by carefully manipulating a heavily modified landscape. Systematic attention to managing regional hydrology, recycling waste, and maintaining soil capacity to produce crops was essential to sustaining an enormous preindustrial population in the region (Candiani 2014; Díaz del Castillo 1956; Rojas 2012; Tellman et al. 2018). Might the attention to purposeful management of the environment inspire strategies useful—indeed, *necessary*—in the Basin of Mexico in the early twenty-first century? Or will the inclination of many modern humans to be reactive instead of proactive preclude any large-scale efforts before it is too late for residents of the region, which is already suffering from widespread contamination, water shortages, and other environmental maladies (Simon 1997)?

One important question is whether anything can be done to conserve what remains of the pre-Columbian past in the Basin of Mexico. Ideally, future development could simply avoid key sites that persist, or at worst promote land use that would minimize impacts, though neither of these solutions appear to be feasible given the widespread destruction of the archaeological record over recent decades, coupled with increased pressure on remaining *undeveloped* land. Revisiting known sites throughout the Basin in recent years has revealed massive loss of the archaeological record, with a few notable exceptions, the latter including a few larger sites on the edges of rural settlements. Ultimately, establishing some type of formal

protection from infrastructure construction and other damaging development may be the only practical solution to conserve what remains of these glimpses into the pre-Columbian past, a suggestion made in Sanders, Parsons, and Santley (1979:418), but unfortunately never pursued. The opportunity for broad conservation of the prehistoric record is lost. But it may not be too late to protect some select sites meeting certain criteria—say, larger sites with noteworthy architecture that date to what we believe are key periods of sociocultural evolution—that have somehow been spared the bulldozer and chisel plow. Such protection would enable future excavations to study those sites more carefully and understand the processes underlying sociocultural evolution and the emergence of complex societies, the type of investigation still lacking in so much of the region.

In attracting various pre-Columbian cultures, conquistadores, the colonial government and economy, and modern development, the Basin of Mexico became an amazingly rich archaeological research setting and historical landscape. But as population grew and destructive land uses expanded during the second half of the twentieth century, they began to compromise many links to the past—both removing the prehistoric record *and* some of the utility of studying that record to understand the present. Sanders, Parsons, Santley, and colleagues conducted seminal research based largely on intensive archaeological surveys conducted over less than two decades, documenting pre-Columbian regional settlement in one of the key regions for the evolution of complex societies. Archaeology is extremely fortunate they began when they did. The main portion of the Basin they did not survey, covered by development in and around Mexico City in the 1960s, was a preview of *coming attractions*. Little could they have known that the conditions that had them avoid the area near Mexico City would, in fairly short time, come to characterize so much of the entire Basin.

## REFERENCES

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- Armillas, P. 1971. "Gardens on Swamps." *Science* 174:653–61.
- Blanton, Richard E. 1972. *Prehispanic Settlement Patterns of the Ixtapalapa Peninsula Region, Mexico*. Occasional Papers in Anthropology, no. 6. Department of Anthropology, The Pennsylvania State University, University Park.
- Candiani, Vera S. 2014. *Dreaming of Dry Land: Environmental Transformation in Colonial Mexico City*. Stanford University Press, Redwood City, CA.
- Carrasco, Pedro. 1999. *The Tenocha Empire of Ancient Mexico: The Triple Alliance of Tenochtitlan, Tetzaco, and Tlacopan*. University of Oklahoma Press, Norman.
- Díaz del Castillo, Bernal. 1956. *The Discovery and Conquest of Mexico*. Translated by A. P. Mautsley. Derrar, Strauss, and Cudahy, New York.
- Dirección General de Estadística. 1901a. *Censo general de la República Mexicana: Distrito Federal*. Oficina Tip. de la Secretaría de Fomento, Mexico City.

- Dirección General de Estadística. 1901b. *Censo general de la República Mexicana: Estado de Hidalgo*. Oficina Tip. de la Secretaría de Fomento, Mexico City.
- Dirección General de Estadística. 1901c. *Censo general de la República Mexicana: Estado de México*. Oficina Tip. de la Secretaría de Fomento, Mexico City.
- Dirección General de Estadística. 1928. *Resumen del censo general de habitantes de 30 de noviembre de 1921*. Talleres Gráficos de la Nación, Mexico City.
- Dirección General de Estadística. 1934. *Quinto censo de población 15 de mayo de 1930*. Secretaría de la Economía Nacional, Dirección de Estadística, Mexico City.
- Dirección General de Estadística. 1941. *6° censo de población 1940: Distrito Federal*. Secretaría de la Economía Nacional, Dirección de Estadística, Mexico City.
- Dirección General de Estadística. 1943a. *6° censo de población 1940: Hidalgo*. Secretaría de la Economía Nacional, Dirección de Estadística, Mexico City.
- Dirección General de Estadística. 1943b. *6° censo de población 1940: México*. Secretaría de la Economía Nacional, Dirección de Estadística, Mexico City.
- Dirección General de Estadística. 1952a. *Integración territorial de los Estados Unidos Mexicanos: Séptimo censo general de población, 1950*. Dirección General de Estadística, Mexico City.
- Dirección General de Estadística. 1952b. *Séptimo censo general de población, 6 de junio de 1950: Parte especial*. Dirección General de Estadística, Mexico City.
- Dirección General de Estadística. 1963a. *VIII censo general de población, 1960, 8 de junio de 1960: Distrito Federal*. Dirección General de Estadística, Mexico City.
- Dirección General de Estadística. 1963b. *VIII censo general de población, 1960, 8 de junio de 1960: Estado de Hidalgo*. Dirección General de Estadística, Mexico City.
- Dirección General de Estadística. 1963c. *VIII censo general de población, 1960, 8 de junio de 1960: Estado de México*. Dirección General de Estadística, Mexico City.
- Dirección General de Estadística. 1973. *IX censo general de población, 1970: 28 de enero de 1970; Localidades por entidad federativa y municipio con algunas características de su población y vivienda*. Secretaría de Industria y Comercio, Dirección General de Estadística, Mexico City.
- Evans, Susan Toby. 1992. "The Productivity of Maguey Terrace Agriculture in Central Mexico During the Aztec Period." In *Gardens of Prehistory: The Archaeology of Settlement Agriculture in Greater Mesoamerica*, edited by T. W. Killion, 117–32. University of Alabama Press, Tuscaloosa.
- Gamio, Manuel. 1922. *La población del Valle de Teotihuacan*. Secretaría de Agricultura y Fomento, Mexico City.
- Gibson, Charles. 1964. *The Aztecs under Spanish Rule*. Stanford University Press, Redwood City, CA.
- Gorenflo, L. J. 2015. "Compilation and Analysis of Pre-Columbian Settlement Data in the Basin of Mexico." *Ancient Mesoamerica* 26:197–212.

- Gorenflo, L. J., and William T. Sanders. 2007. *Archaeological Settlement Pattern Data from the Cuautitlan, Temascalapa, and Teotihuacan Regions, Mexico*. Occasional Papers in Anthropology, no. 30. Department of Anthropology, The Pennsylvania State University, University Park.
- Haggett, Peter. 1965. *Locational Analysis in Human Geography*. Edward Arnold, London.
- Instituto Nacional de Estadística y Geografía. 2013. *Censo de población y vivienda 2010*. Instituto Nacional de Geografía e Estadísticas, Mexico City. Electronic document. [https://www.inegi.org.mx/programas/ccpv/2010/default.html#Datos\\_abiertos](https://www.inegi.org.mx/programas/ccpv/2010/default.html#Datos_abiertos), accessed April 18, 2020.
- Instituto Nacional de Estadística, Geografía e Informática. 1990a. *X censo general de población y vivienda: Integración territorial, Distrito Federal*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 1990b. *X censo general de población y vivienda: Integración territorial, Estado de Hidalgo*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 1990c. *X censo general de población y vivienda: Integración territorial, Estado de México*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 1992a. *Distrito Federal, perfil sociodemográfico: XI censo general de población y vivienda, 1990*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 1992b. *Estado de Hidalgo, perfil sociodemográfico: XI censo general de población y vivienda, 1990*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 1992c. *Estado de México, perfil sociodemográfico: XI censo general de población y vivienda, 1990*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 2002a. *Sistema para la consulta de información censal 2000: XII censo general de población y vivienda 2000. Distrito Federal*. Compact disk. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 2002b. *Sistema para la consulta de información censal 2000: XII censo general de población y vivienda 2000. Estado de México*. Compact disk. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Instituto Nacional de Estadística, Geografía e Informática. 2002c. *Sistema para la consulta de información censal 2000: XII censo general de población y vivienda 2000. Estado de Hidalgo*. Compact disk. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes.
- Kandell, Jonathan. 1988. *La Capital: The Biography of Mexico City*. Random House, New York.

- Lockhart, James. 1992. *The Nahuas after the Conquest: A Social and Cultural History of the Indians of Central Mexico, Sixteenth through Eighteenth Centuries*. Stanford University Press, Redwood City, CA.
- Millhauser, John K. 2017. "Aztec Use of Lake Resources in the Basin of Mexico." In *The Oxford Handbook of the Aztecs*, edited by D. L. Nichols and E. Rodríguez-Alegria, 301–18. Oxford University Press, New York.
- Morehart, Christopher T., and John K. Millhauser. 2016. "Monitoring Cultural Landscapes from Space: Evaluating Archaeological Sites in the Basin of Mexico Using Very High Resolution Satellite Imagery." *Journal of Archaeological Science: Reports* 10:363–76.
- Nichols, Deborah L. 1987. "Risk and Agricultural Intensification during the Formative Period in the Northern Basin of Mexico." *American Anthropologist* 89:596–616.
- Nichols, Deborah L. 2015. "Intensive Agriculture and Early Complex Societies of the Basin of Mexico: The Formative Period." *Ancient Mesoamerica* 26:407–21.
- Palerm, A. 1973. *Obras hidráulicas prehispánicas en el sistema lacustre del Valle de México*. Instituto Nacional de Antropología e Historia, Mexico City.
- Parsons, Jeffrey R. 1971. *Prehistoric Settlement Patterns in the Texcoco Region, Mexico*. Memoirs of the Museum of Anthropology, no. 3. University of Michigan, Ann Arbor.
- Parsons, Jeffrey R. 1976. "The Role of Chinampa Agriculture in the Food Supply of Aztec Tenochtitlan." In *Cultural Change and Continuity: Essays in Honor of James Bennett Griffin*, edited by Charles Cleland, 233–62. Academic Press, New York.
- Parsons, Jeffrey R. 2001. *The Last Saltmakers of Nexquipayac, Mexico: An Archaeological Ethnography*. Anthropological Papers, no. 92. Museum of Anthropology, University of Michigan, Ann Arbor.
- Parsons, Jeffrey R. 2005. "The Aquatic Components of Aztec Subsistence: Hunters, Collectors, and Fishers in an Urbanized Society." *Michigan Discussions in Anthropology* 15:49–89.
- Parsons, Jeffrey R. 2006. *The Last Pescadores of Chimalhuacan, Mexico: An Archaeological Ethnography*. Anthropological Papers, no. 96. Museum of Anthropology, University of Michigan, Ann Arbor.
- Parsons, Jeffrey R. 2008. *Prehispanic Settlement Patterns in the Northwestern Valley of Mexico: The Zumpango Region*. Memoirs of the Museum of Anthropology, no. 45. University of Michigan, Ann Arbor.
- Parsons, Jeffrey R., Elizabeth M. Brumfiel, Mary H. Parsons, and David J. Wilson. 1982. *Prehispanic Settlement Patterns in the Southern Valley of Mexico: The Chalco-Xochimilco Region*. Memoirs of the Museum of Anthropology, no. 14. University of Michigan, Ann Arbor.
- Redman, C. L. 2005. "Resilience Theory in Archaeology." *American Anthropologist* 107:70–77.
- Rojas Rabiela, T. 1988. *Las siembras de ayer: La agricultura indígena del siglo XVI*. Secretaría de Educación Pública/Centro de Investigaciones y Estudios Superiores de Antropología Social Mexico City.

- Rojas, J. L. de. 2012. *Tenochtitlan: Capital of the Aztec Empire*. University Press of Florida, Gainesville.
- Sahagún, Bernardino de. 1950. *Florentine Codex: General History of the Things of New Spain*, translated by Charles E. Dibble. School of American Research, Santa Fe, NM.
- Sahagún, Bernardino de. 1982. *Dibble and A. J. O. Anderson*. University of Utah Press, Salt Lake City.
- Sanders, William T. 1957. "Land and Water." PhD dissertation, Department of Anthropology, Harvard University.
- Sanders, William T. 1965. *The Cultural Ecology of the Teotihuacan Valley, Mexico*. Department of Sociology and Anthropology, The Pennsylvania State University, University Park.
- Sanders, William T., and L. J. Gorenflo. 2007. *Prehispanic Settlement Patterns in the Cuauhtitlan Region, Mexico*. Occasional Papers in Anthropology, no. 29. Department of Anthropology, The Pennsylvania State University, University Park.
- Sanders, William T., and Robert S. Santley. 1983. "A Tale of Three Cities: Energetics and Urbanization in Prehispanic Central Mexico." In *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*, edited by Evon Z. Vogt and Richard M. Leventhal, 243–92. University of New Mexico Press, Albuquerque.
- Sanders, William T., Jeffrey R. Parsons, and Robert S. Santley. 1979. *The Basin of Mexico: Ecological Processes in the Evolution of a Civilization*. Academic Press, New York.
- Secretaría de Agricultura y Fomento. 1918. *Tercer censo de población de los Estados Unidos Mexicanos*. Oficina Impresora de la Secretaría de Hacienda, Departamento de Fomento, Mexico City.
- Servicio de Información Agroalimentaria y Pesquera. 2019. "Estadística de la producción agrícola de 2017." Servicio de Información Agroalimentaria y Pesquera, Mexico City. Electronic document. <http://infosiap.siap.gob.mx/gobmx/datosAbiertos.php>, accessed April 6, 2019.
- Simon, Joel. 1997. *Endangered Mexico: An Environment on the Edge*. Sierra Club Books, San Francisco, CA.
- Tellman, B., J. C. Bausch, H. Eakin, J. M. Anderies, M. Mazari-Hirart, D. Manuel-Navarrete, and C. L. Redman. 2018. "Adaptive Pathways and Coupled Infrastructure: Seven Centuries of Adaptation to Water Risk and the Production of Vulnerability in Mexico City." *Ecology and Society* 23(1):1. <https://doi.org/10.5751/ES-09712-230101>.
- Wright, H. T. 1977. "Recent Research on the Origin of the State." *Annual Review of Anthropology* 6:379–97.